

IV. Comments

FDA is particularly interested in comments from inventors, patient cable and lead wire manufacturers, device manufacturers, purchasers, and users of devices that use electrode lead wires. Comments from other interested individuals or groups are also welcome. FDA advises that, under 21 CFR 10.30(d), any comments submitted in response to this document will be included under the docket number found in brackets in the heading of this document.

Interested persons may, on or before August 17, 1994, submit to the Dockets Management Branch (address above), written comments regarding this ANPRM. Two copies of any comments are to be submitted, except that individuals may submit one copy. Comments are to be identified with the docket number found in brackets in the

heading of this document. Received comments may be seen in the office above between 9 a.m. and 4 p.m., Monday through Friday.

V. References

The following references have been placed on display in the Dockets Management Branch (address above) and may be seen by interested persons between 9 a.m. and 4 p.m., Monday through Friday.

1. Form letter from FDA to manufacturers, home user support organizations, and apnea monitor users, June 1985.
2. Center for Devices and Radiological Health's Medical Devices Bulletin, July 1985.
3. FDA's September 3, 1993, Safety Alert.
4. Section 518(a) notification letter to apnea monitor manufacturers, September 3, 1993.
5. Section 518(a) notification letter to patient cable and lead wire manufacturers, September 20, 1993.

6. Information from FDA's medical device reporting (MDR) data base.

7. ECRI's publications, "Health Devices Alert," February, 1979, "Health Devices," May 1993.

8. Underwriters Laboratories' Standard for Safety Medical and Dental Equipment (UL 544).

9. International Electrotechnical Commissions' Safety Requirements for Medical Electrical Equipment (IEC Standard 601-1; 601-2-25).

10. German DIN Standard 42 802.

11. FDA Public Health Advisory: Unsafe Electrode Lead Wires and Patient Cables Used With Medical Devices, December 28, 1993.

Dated: May 12, 1994.

Michael R. Taylor,

Deputy Commissioner for Policy.

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Thursday
May 19, 1994

Part V

Department of Labor

Mine Safety and Health Administration

30 CFR Part 75

**Underground Coal Mine Ventilation;
Safety Standards; Proposed Rule**

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Part 75

RIN 1219-AA11

Safety Standards for Underground Coal Mine Ventilation

AGENCY: Mine Safety and Health Administration, (MSHA) Labor.

ACTION: Proposed rule.

SUMMARY: This proposed rule revises stayed provisions of the Mine Safety and Health Administration's existing safety standards for ventilation of underground coal mines. The proposal also revises, clarifies or repropose certain other provisions in the rule, includes some new provisions, and addresses concerns raised during public informational meetings and later discussions.

DATES: Written comments must be submitted on or before July 18, 1994. Commenters are encouraged to send comments on a computer disk along with their original comments in hard copy.

ADDRESSES: Send written comments and computer disks to the Mine Safety and Health Administration, Office of Standards, Regulations and Variances, room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, phone (703) 235-1910.

SUPPLEMENTARY INFORMATION:

I. Paperwork Reduction Act

This proposal contains information collection requirements in §§ 75.312, 75.342, 75.360, 75.363, 75.364 and 75.382. These paperwork requirements have been submitted to the Office of Management and Budget (OMB) for review under section 3504(h) of the Paperwork Reduction Act of 1980. The respondents would be mine operators. The burden hour estimate for § 75.312 includes the time to record any fan monitoring system malfunctions, electrical or mechanical deficiencies in the monitoring system and any sudden increase or loss in mine ventilating pressure, the time for recording main mine fan defects that are corrected and for the mine foreman and mine superintendent to countersign the record. The burden hour estimate for § 75.342 includes the time to develop a written maintenance program, to record the calibration tests and to file the

record. The burden hour estimate for § 75.360 includes the expanded examination time and the time for the mine superintendent to countersign the records. The burden hour estimates for § 75.362 includes the expanded examination time. The burden hour estimate for § 75.363 includes the time for recording the hazard, the corrective action taken, the certified person initialing the record, the mine foreman and mine superintendent countersigning the record and for filing the record. The burden hour estimate for § 75.364 includes the time for the mine superintendent to countersign the records. The burden hour estimate for § 75.382 includes the time for recording the results of the examination, for the mine foreman and the mine superintendent to countersign the record, and for filing the record. The information collected would be used by MSHA to assess compliance with the proposed requirements. The information collection requirements contained in the proposal are discussed below.

Proposed § 75.312(g)(1) would require that the records of all defects found during the daily fan examination be made by the end of the shift on which the examination is made. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (g)(2)(i) would require that the certified copies of data produced by the fan monitoring systems be maintained separate from other computer generated reports or data.

Proposed paragraph (g)(2)(ii) would require that a record be made of any fan monitoring system malfunction, electrical or mechanical deficiency in the monitoring system and any sudden increase or loss in mine ventilating pressure. The record would be made by the end of the shift on which the review of the data is completed and would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (g)(3) would require that at mines permitted to shut down main mine fans under § 75.311, if a pressure recording device is not used, a record be made of the time and fan pressure immediately before the fan is stopped, and after the fan is restarted and the fan pressure stabilizes. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (g)(4) would require that a record of the results of the tests be made by the end of the shift on which the monthly test of the automatic fan signal device or the automatic closing doors is completed. Persons

making these tests would record the results of the tests in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (g)(5) would require that the records required under paragraphs (g)(1) through (g)(4) be countersigned by the mine foreman, and the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable.

MSHA estimates that it would take about 4 minutes for the mine foreman and mine superintendent to countersign the records and would take an additional 5 minutes to record main mine fan defects corrected and an additional 10 minutes to record any fan monitoring system malfunctions, electrical or mechanical deficiencies in the monitoring system and any sudden increase or loss in mine ventilating pressure. The total estimated recordkeeping burden for all affected mines would be 29,608 hours of which large mines would incur 9,657 hours and small mines would incur 19,951 hours.

Proposed paragraph § 75.342(a)(4)(ii) would require mine operators to develop and adopt a written maintenance program that would have to be made available for inspection by authorized representatives of the Secretary and the representative of miners. MSHA estimates that it would take about 1 hour to develop a written maintenance program.

Proposed paragraph (a)(4)(iii) would require that a record of all calibration tests of methane monitors be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (a)(4)(iv) would require the record of the calibration tests to be kept for one year from the date of the test and to be retained at a surface location at the mine and made available for inspection by authorized representatives of the Secretary and the representative of miners.

A record of calibration tests would be required to be made monthly at all mines. MSHA estimates that it would take about 5 minutes to complete a record. The total estimated recordkeeping burden for all affected mines that concerns developing a written maintenance program and maintaining a record of tests would be 2,910 hours of which large mines would incur 1,464 hours and small mines would incur 1,446 hours.

Proposed § 75.360(b)(3) would require a preshift examination to be made for sections capable of producing coal by energizing equipment on the section. MSHA estimates that this would affect

some mines and take up to an additional hour per examination.

Proposed paragraph (f) would require that a record of the results of each preshift examination, including a record of hazardous conditions and their locations found by the examiner during each examination and of the results and locations of air and methane measurements, be made in a book provided for that purpose on the surface.

The record would be made by either the certified person who made the examination or by a person designated by the operator. If the record is made by someone other than the examiner, the examiner would be required to verify the record by initials and date. A record would also be made by a certified person of the action taken to correct hazardous conditions found during the preshift examination. The records would be countersigned by the mine foreman, and by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages. MSHA estimates that it would take about 2 minutes for the mine superintendent to countersign the records.

The total estimated recordkeeping burden and the extended examination time for all affected mines would be 60,987 hours of which large mines would incur 56,015 hours and small mines would incur 4,972 hours.

Proposed § 75.362(a)(1) would expand the on-shift examination to include sections where anyone is assigned to work during the shift, such as those sections where maintenance work is performed. In addition, proposed paragraph (a)(2) would add a new requirement for on-shift examinations to be conducted to assure compliance with the respirable dust control parameters specified in mine ventilation plans. MSHA estimates that these provisions will expand on-shift examinations by up to 45 minutes. MSHA estimates that the total burden hours related to expanding the on-shift examination would be 111,434, of which small mines would incur 18,007 hours and large mines would incur 93,427 hours.

Proposed § 75.363 would require that any hazardous conditions discovered be posted, corrected immediately, and recorded. Proposed paragraph (a) would require a conspicuous danger sign to be posted at any area where hazardous conditions are found. The hazardous condition would have to be corrected immediately and only persons designated by the operator to correct or

evaluate the condition would be allowed to enter a posted area.

Proposed paragraph (b) would require that a record including a description and location of the hazardous condition and the corrective action taken be kept in a book maintained on the surface at the mine. The record would be made by the completion of the shift on which the hazardous condition is found. This record would not be required for shifts when no hazardous conditions are found or for hazardous conditions found during the preshift or weekly examinations because these examinations have separate recordkeeping requirements.

Proposed paragraph (c) would require that the record be made by either the certified person or by a person designated by the operator. If the record is made by a person designated by the operator, the certified person would be required to verify the record by initials and date by or at the end of the shift for which the examination was made. The record would be countersigned by the mine foreman and by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (d) would require that the record be retained at a surface location at the mine for at least one year and be made available for inspection by authorized representatives of the Secretary and the representative of miners.

Under the existing rule, the recordkeeping requirement for on-shift examinations was included in paragraph (g) of § 75.362 and the requirement for retention was in paragraph (h). Under the proposal, paragraphs (g) and (h) are removed from § 75.362 and transferred to paragraphs (c) and (d) of § 75.363. As the requirement would remain the same, there would be no change in the paperwork burden associated with the recordkeeping for on-shift examinations. However, this recordkeeping requirement would be new for hazardous conditions found during supplemental examinations and at times when an on-shift examination would not be required. This recordkeeping requirement would also be new for hazardous conditions found during the examination following a main mine fan stoppage of 15 minutes or longer (75.313).

MSHA estimates that a record of hazardous conditions found during supplemental examinations would be made about 24 times a year at each large

mine and about 4 times a year at each small mine. MSHA further estimates that it would take about 5 minutes to complete a record and an additional 7 minutes for the certified person to initial and the mine foreman and mine superintendent to countersign the record. The total estimated recordkeeping burden for all affected mines would be 4,092 hours, of which large mines would incur 3,514 hours and small mines would incur 578 hours.

In addition, MSHA estimates that a record of hazardous conditions found during an examination following a main mine fan stoppage of 15 minutes or longer would be made about 100 times a year at large mines and 100 times a year at small mines. MSHA further estimates that it would take about 5 minutes to complete a record and an additional 4 minutes for the mine foreman and mine superintendent to countersign the record. The total estimated recordkeeping burden for all affected mines would be 28 hours, of which large mines would incur 14 hours and small mines would incur 14 hours.

Proposed § 75.364(b) would require an examination for hazardous conditions and for noncompliance with mandatory safety or health standards that could result in a hazardous condition to be made weekly by a certified person.

Proposed paragraph (h) would require that at the completion of any shift during which a portion of a weekly examination is conducted a record be made of the results of each weekly examination, including a record of hazardous conditions, their locations found by the examiner during each examination, the corrective action taken, and the results and location of air and methane measurements. The record would be made by the person making the examination or a person designated by the operator. If made by a person other than the examiner, the examiner would be required to verify the record by initials and date. The record would be countersigned by the mine foreman and by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

MSHA estimates that it would take about 2 minutes for the mine superintendent to countersign the record and an additional 3 minutes to record noncompliance with mandatory safety or health standards that could result in a hazardous condition. The total estimated recordkeeping burden for all affected mines would be 5,457

hours, of which large mines would incur 3,048 hours and small mines would incur 2,409 hours.

Existing § 75.382(c) requires mechanical escape facilities, including automatic elevators, to be examined weekly.

Proposed paragraph (h) would require that a record of the results of the examination of mechanical escape facilities, including any deficiency found and the corrective action taken, be made at the completion of any shift during which the weekly examination is made. The record would be made by the person making the examination. The record would be countersigned by the mine foreman and by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record would be made in a state-approved book or in a bound book with sequential machine-numbered pages.

Proposed paragraph (i) would require that the records be retained for at least one year at a surface location at the mine and made available for inspection by authorized representatives of the Secretary and representative of miners.

A record of examinations would be required to be made weekly at all mines that would be governed by § 75.382. MSHA estimates that it would take about 5 minutes to complete a record and an additional 4 minutes for the mine foreman and mine superintendent to countersign the record. The total estimated recordkeeping burden for all affected mines would be 3,360 hours, of which large mines would incur 3,300 hours and small mines would incur 60 hours.

Send comments regarding these burden estimates or any other aspect of this collection of information, including suggestions for reducing these burdens, to Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, room 631, Ballston Tower #3, 4015 Wilson Boulevard, Arlington, Virginia 22203, and directly to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attention: Steve Semenuk, Desk Officer for MSHA, room 3001, New Executive Office Building, Washington DC 20503.

New Technology for Recordkeeping

As the complexity of mining increases with the introduction of technological improvements and innovations, MSHA foresees that electronic storage of records in computer systems could enhance health and safety by facilitating rapid access to critical information by individuals with the authority and responsibility to direct or redirect

resources to correct potentially unsafe or unhealthy conditions. Records electronically stored also could facilitate trend analysis, allowing for earlier detection and correction of potential hazards. In addition, the efficiency of accessing various records at a desktop computer workstation could promote a more integrated and effective approach to mine safety and health.

MSHA is considering allowing electronic storage of the records and certifications required by this proposed rule. Although the Agency envisions that such storage would most likely be on a personal computer at the mine site, central storage of the records would not be precluded as long as immediate access to those records at the mine site were available. The use of electronic media for storage of such records would have to be accessible, secure, verifiable, and provide for necessary backups. MSHA would require both the availability of immediate screen viewing of the information and the availability of a hard copy printout within 1 hour of a request by MSHA or an authorized representative of miners. The records would have to be kept in a secure manner that would preclude alteration once the required information is correctly entered. MSHA would have to be able to verify that the electronic signature of the persons required to sign or countersign such records is authentic and entered in a timely manner. Finally, the records would have to be periodically backed-up on media separate from the computer so that computer failure would not result in the loss of data. Although MSHA has not specifically included any such provisions in this proposal, the Agency requests comments on the storage of records on electronic media, in particular on the safeguards necessary to ensure the integrity of such storage.

II. Background

The Mine Safety and Health Administration (MSHA) is proposing to revise the definition of return air in § 75.301, and would revise §§ 75.310(a)(3), (a)(4) and (c), 75.311(d), 75.312(a), (b)(1), (c), (d), (g)(1), (g)(3), (g)(4) and (h), 75.313(c)(2), (c)(3), (d)(1)(i), (d)(1)(ii) and (d)(2), 75.321(a), 75.323(b)(1)(ii), (c)(1), and (d)(2)(i), 75.333(a), (b)(1), (b)(3), (b)(4) and (e)(1), 75.334(e), 75.340(a), 75.342(a)(4), 75.344(a)(1), 75.360(a), introductory text to (b), (b)(1), (b)(3), (b)(4), (b)(6), introductory text to (c), (c)(1), introductory text to (c)(3) and (f), 75.362(a)(1), (c)(1), (d)(1)(iii), and (d)(2), 75.364(a), (b) and (h), 75.370(a)(3), (c)(1), and (f), 75.371(b), (s), (z) and (bb), 75.372(b)(3), 75.380(d)(3), (d)(4)(ii),

(d)(5), (f) and (i)(2) of its existing safety standards for ventilation of underground coal mines. MSHA is also proposing to redesignate § 75.312(f) as (f)(1), and paragraphs (g)(2) and (g)(3) as (g)(3) and (g)(4). Section 75.344(b)(2) would be redesignated as § 75.344(b)(3). Existing § 75.360(e) would be removed and (f) through (h) would be redesignated as (e) through (g). Existing § 75.362(a)(2), (g) and (h) would be removed and (d)(1)(i) and (d)(1)(ii) would be redesignated as (d)(1)(ii) and (d)(1)(iii). Existing § 75.370(b)(1) through (f) would be redesignated as (c)(1) through (g). MSHA is further proposing to add new §§ 75.312(f)(2), (g)(2), and (g)(5), 75.320(e), 75.330(c), 75.333(h), 75.344(b)(2) and (e), 75.360(b)(8) through (b)(10), 75.362(a)(2), (d)(1)(i) and (g), 75.363, 75.370(b), 75.372(b)(19) and (b)(20), 75.380(d)(4)(iii), 75.380(f)(2) and (f)(6) and 75.382(g), (h) and (i). New introductory text would be added to § 75.388(c), and new introductory text would be added to § 75.389(c). These revisions are proposed in accordance with section 101 of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 811.

On May 15, 1992, MSHA published a notice in the *Federal Register* revising its safety standards for ventilation of underground coal mines (57 FR 20868). To assure that mine operators could effectively plan and implement necessary changes, MSHA delayed the effective date of the final rule from August 16, 1992, to November 16, 1992 (57 FR 34683).

Through discussions with the mining community, the Agency became aware of potential problems that could arise through the implementation of §§ 75.344(a)(1) and 75.313. MSHA therefore initially stayed these two provisions until July 1, 1993, (57 FR 53856) extended the stay until July 1, 1994 (58 FR 31908), and has extended the stay until the completion of this rulemaking (59 FR 18485). Sections 75.314, 75.315 and 75.345 are in effect during the duration of the stay. As proposed, § 75.313 would revise paragraphs (c)(2), (c)(3), (d)(1)(i), (d)(1)(ii) and (d)(2) of stayed § 75.313 and delete interim §§ 75.314 and 75.315. Also as proposed, § 75.344(a)(1) would revise stayed § 75.344(a)(1) and delete interim § 75.345. Section 75.344(a)(1) was stayed to determine whether requiring all compressors to be located in a noncombustible structure or area could create a fire hazard due to overheating.

Section 75.313 was stayed to further consider the effect of fan stoppages in certain mines. As written, the standard

would have allowed circuits and equipment used to withdraw persons from the mine to remain energized until the persons are withdrawn. The Agency is concerned that under some conditions methane could migrate into haulageways after a fan stoppage. This could result in a hazard if all underground electrical circuits are not promptly deenergized and all mechanized equipment is not shut off.

On November 16, 1992, the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) issued an order staying the application of the air quality standards for oxygen and carbon dioxide at 30 CFR 75.321(a). MSHA is continuing to litigate this application of the standard. However, in conformance with the Court's order, the Agency has suspended indefinitely § 75.321(a) and redesignated the first sentence of previous § 75.301 to remain in effect as § 75.321(c) (57 FR 55457, November 25, 1992). The result is that, with the exception of bleeder systems and worked-out areas, the Agency is continuing to apply the oxygen and carbon dioxide limits to all areas where persons work or travel as in previous § 75.301. As proposed, § 75.321(a) would revise suspended § 75.321(a) and delete interim § 75.321(c).

III. Discussion of the Proposed Rule

A. General Discussion

Underground coal mine ventilation affects various aspects of the safety and health of miners. Proper underground coal mine ventilation is necessary to protect against mine fires and explosions due in part to the presence of explosive gases, oxygen-deficient atmospheres, and accumulations of other harmful gases and float coal dust. Ventilation is also a primary method of controlling miners' exposure to respirable dust and preventing the development of pneumoconiosis (black lung). In enacting the statutory ventilation standards of the Mine Act, Congress expressly recognized these and related dangers associated with inadequate ventilation:

[V]entilation of a mine is important not only to provide fresh air to miners, and to control dust accumulation, but also to sweep away liberated methane before it can reach the range where the gas could become explosive. In terms then of the safety of miners, the requirement that a mine be adequately ventilated becomes one of the more important safety standards under the * * * Act.

S. Rep. No. 181, 95th Cong. 1st Sess. 41 (1977), reprinted in Senate Subcommittee on Labor, Committee on Human Resources, 95th Cong., 2d Sess.,

Legislative History of the Federal Mine Safety and Health Act of 1977, at 629 (1978).

On May 15, 1992, the Agency published a comprehensive revision of its ventilation standards for underground coal mines. Because of the scope and extensive coverage of the new standards, the Agency held a series of informational meetings across the country to brief the mining public on the provisions of the new rule. As a result of these meetings and other comments received by the Agency at meetings with industry and labor groups relative to the ongoing litigation, as well as its own review of the application of the regulations, MSHA became aware of several provisions that needed to be further evaluated and analyzed. In many cases, comments received were verbal. Therefore, any references in this preamble to "comments" or "commenters" do not necessarily mean either written or formal comments. Persons wishing to formalize comments made during public meetings or other meetings with the Agency should submit their comments as a part of this rulemaking.

In general, the proposed standards specified below address the stayed provisions, clarify the Agency's intent, refine the application of the rule in light of information received, and more fully address the recognized precautions and procedures necessary to avoid hazards associated with improper ventilation of underground coal mines. Major areas addressed include: examinations, including preshift examinations; recordkeeping and certification; involvement of the representative of miners in the plan approval process; escapeway dimensions; equipment in primary escapeways and fire suppression systems. These standards are intended to fit within the comprehensive structure of the ventilation rule now in effect.

In addition, a segment of the mining community has asserted that certain provisions concerning the installation and removal of mechanized mining equipment were promulgated without the benefit of adequate comment. The Agency disagrees. The September 1989 explosion at the William Station Mine in Kentucky demonstrates, however, that proper ventilation during the installation and removal of mechanized mining equipment is essential and can greatly enhance the protection provided to miners in these areas. Therefore, for the purpose of receiving and giving full consideration to all pertinent comments on this issue, MSHA is repropounding each provision that addresses the installation and removal of mechanized mining

equipment, and is soliciting comments for each. The section-by-section portion of the preamble discusses each provision affected and the proposed rule sets out the repropounded language.

Since publication of the ventilation rule, the Agency has received comments stating that Atmospheric Monitoring Systems (AMS) should be permitted to operate by battery backup during fan stoppages and not be required to be intrinsically safe. The commenters indicated that the information thus provided by the AMS would assist the operator in obtaining information regarding the underground conditions of the mine. To allow the battery backups would require a revision of §§ 75.311(h) and 75.313(e). The Agency solicits comments on the merits and the effect on safety of allowing battery backups and conditions, such as low methane levels, that must exist if they are permitted to be used.

Also, since publication of § 75.383, the Agency has received comments suggesting that older miners be allowed to individually decline participation in escapeway drills. The Agency is not proposing any revision to § 75.383; however, comments are solicited as to the appropriateness of providing an option which would allow miners to individually "opt out" of escapeway drills, and the circumstances under which miners would be permitted to "opt out."

The Agency solicits comments on the specific provisions addressed in this proposal. Comments received that also address other provisions will be considered to the extent that they address the issues relevant to this proposal.

B. Section-by-Section Discussion

Section 75.301 Definitions

Since the final rule became effective on November 16, 1992, it has come to the attention of the Agency that the § 75.301 definitions of intake and return air are being interpreted in a manner not wholly consistent with the original intent. Under the proposal, the definition of return air would be modified to more clearly convey the intended meaning.

Instances have developed where operators desire to take air from an intake air course to ventilate shops, electrical installations, or for other purposes, and this air is then coursed directly to the surface and is not used to ventilate working places. Under one reading of the existing definition, because this air has not ventilated a working place or a worked-out area, the air in this air course cannot be

considered return air. Therefore, a violation could exist in that the air ventilating the shop, compressor, or electrical installation was coursed into an intake rather than into a return as required. This was not the intent of the Agency and no safety benefit is associated with such a result.

Under the proposal, the definition of return air would be modified to permit operators to designate certain air courses as return air courses for the purpose of ventilating structures, areas or installations that are required to be ventilated to return air courses and for ventilating seals when this air will not be used to ventilate working places. Thus, an operator wishing to split air off of an intake for the purpose of ventilating shops, electrical installations, or for other purposes, could designate the air course into which the split is directed as a return provided the air in the air course would not be used to ventilate working places or other locations, structures, installations or areas required to be ventilated with intake air.

The Agency does not intend that operators routinely redesignate air courses from intake to return. Should questions arise as to the need to redesignate an intake as a return, MSHA will be available for consultation. Additionally, in order that all interested parties are made aware of the redesignation, MSHA is proposing to require in § 75.372, Mine ventilation map, that air courses that are redesignated from intake to return for the purposes discussed above be shown on the mine ventilation map.

Section 75.310 Installation of Main Mine Fans

Main mine fans provide the means by which mechanically produced pressure is supplied to the mine ventilating current. The Agency is proposing to revise paragraphs (a)(3), (a)(4) and (c) of § 75.310. The existing standard requires, in part, that each main mine fan be installed on the surface in an incombustible housing and be connected to the mine opening with incombustible air ducts. Paragraph (a)(3) of existing § 75.310 requires that each main mine fan be equipped with an automatic device that gives a signal when the fan either slows or stops. The signal from this device is to be placed so it can be seen or heard by a responsible person who has been designated by the operator and who is always on duty when persons are underground.

* During informational meetings held with the mining community, it was suggested to the Agency that the

standard should be clarified in two respects. First, it was stated that the provision was not clear as to whether the signal must automatically be given at a surface location at the mine. Second, the Agency was asked to clarify whether a fan monitoring system used in lieu of a circular pressure recorder to monitor fan pressure must generate a continuous graph or chart.

To address the first of these concerns, proposed paragraph (a)(3) specifically would require the signal to be given at a surface location at the mine where it could be seen or heard by a responsible person designated by the operator who is always on duty when persons are underground. Under the proposal, two-way communication with working sections would continue to be required. The requirement would be extended to include established locations where persons are normally assigned to work, such as belt transfer points and shops. This requirement is consistent with existing Subpart Q—Communications, but may require the installation of a limited number of mine phones at locations off the section. Many of these locations are routinely equipped with two-way communication even though it is not required by the existing standard. It is not intended that this communications capability be provided in areas where persons are assigned to work temporarily, such as areas where secondary roof support is being installed or where rock dust is being applied. The requirement that two-way communication be provided to locations where persons are normally assigned to work is intended to assure that these persons receive prompt notification of fan stoppages. Because these work locations are off the section, a lack of communication capabilities could result in delays in notification and therefore delays in withdrawal. The requirement that the signal be given at a surface location at the mine is not intended to preclude the signal from also being given elsewhere, such as at a central office, as long as it is given at the mine as previously discussed.

The existing rule requires that each main mine fan be equipped with a pressure recording device or a main mine fan monitoring system. Traditionally, the instrument of choice for recording fan operating pressure has been the mechanical, circular pressure recorder. As the name implies, this device generates a record of the fan pressure. This record is generated continuously as a chart that is replaced weekly. Paragraph (a)(4) of the existing rule specifically refers to the use of a fan monitoring system as an alternative to the pressure recorder. The proposal

eliminates this reference since other means of continuously monitoring the fan pressure and providing a record may be acceptable. Relatively recent advances in technology have permitted the measurement and recording through other means. This proposed provision would permit the use of this technology for monitoring main mine fan pressure, provided, as proposed in paragraph (a)(4), that a continuous record of the pressure is maintained. The proposal would require that when a pressure monitoring device is used in lieu of a pressure recording device, it produce a continuous graph or chart of the fan pressure. A hard copy of the continuous graph or chart would be printed at regular intervals of not more than 7 days. The generated graph or chart would be required to correlate fan pressure to the time and date. The term "continuous" refers to the frequency with which the device polls the fan pressure to obtain the data. It is the Agency's understanding that typical polling frequency is on the order of a few seconds. MSHA is soliciting comments as to an appropriate polling frequency that would provide a record that is substantially continuous.

Records of the fan pressure generated by a pressure monitoring device would be maintained in accordance with existing § 75.312(h). That is, the records would be maintained at a surface location at the mine for at least one year and would be made available for inspection by authorized representatives of the Secretary and the representative of miners.

In addition to permitting fan monitoring systems to be used as a means of recording fan pressure, the existing rule permits the use of other devices for measuring fan pressure under certain circumstances. This exception is for mines permitted to shut down main mine fans as approved in the ventilation plan. As explained more fully in the preamble for § 75.310(a)(4) of the existing rule, this provision provides a compliance alternative for small mines that normally operate only one shift a day and do not have sealed or unsealed worked-out areas. For these mines, the existing rule allows the use of a pressure measuring device if the use of the device is approved in the ventilation plan for the mine. The proposal would continue this practice.

Paragraph (c) of the existing rule specifies the minimum requirements for a fan monitoring system, including the parameters that a fan monitoring system must monitor if it is to be used in lieu of the daily fan check required by § 75.312. The Agency continues to support the use of these systems or any

other technology effective in enhancing safety but believes, based on comments received, that the additional requirements relative to the use of these systems are warranted. Specifically, commenters suggested that the information generated by fan monitoring systems be provided at a surface location at the mine where a responsible person is always on duty when persons are underground and that this information be reviewed by mine management. The Agency agrees with these suggestions and proposes in paragraph (c) to require that when a fan monitoring system is used in lieu of the daily fan examination required by § 75.312 the monitoring system would be required to have the capability of providing, on demand, a printout of the information being monitored. This capability is intended to facilitate the review of the information by mine management required in § 75.312(b).

Additionally, the proposal would require in paragraph (c)(5) that the fan monitoring system provide monitoring, records, printouts, and signals at a surface location at the mine where a responsible person designated by the operator is always on duty and where signals from the monitoring system can be seen or heard while anyone is underground. For the purpose of the standard, a responsible person would be one who receives the signal and makes proper notification. As with the requirement that fan stoppage signals be given at a surface location at the mine, this proposed requirement is not intended to preclude the data from the fan monitoring system from also being provided elsewhere as long as it is provided at the surface location at the mine. Also, as with the requirement for two-way communication at the location where fan stoppage signals are monitored, the proposal would require in paragraph (c)(5) that the person at the designated surface location have two-way communication with working sections and would extend the requirement to established locations where persons are normally assigned to work, such as belt transfer points and shops. This requirement is consistent with existing Subpart Q—Communications, but may require the installation of a limited number of mine phones at locations off the section. Many of these locations are routinely equipped with two-way communication even though it is not required by the existing standard. It is not intended that this communications capability be provided in areas where persons are assigned to work temporarily, such as areas where secondary roof support is

being installed or where rock dust is being applied.

Section 75.311 Main Mine Fan Operation

The Agency has received comments that notification of mine management officials, having sufficient authority to initiate corrective actions is needed to assure that repairs are undertaken and to assure continued reliable ventilation of the mine. Paragraph (d) would be revised to provide for immediate notification of the mine superintendent, assistant mine superintendent, or mine foreman if any unusual variance in the mine ventilation pressure is observed, or if an electrical or mechanical deficiency of a main fan is detected. The standard would require appropriate action or repairs to be instituted promptly. The Agency would expect that any necessary arrangements for repair personnel and replacement parts would be promptly completed, once the problem or need for repair was identified. One of the actions appropriate to an unusual variance in pressure would be an immediate investigation into the cause. Notification of mine management is intended to assure that the appropriate actions are taken and that any necessary repairs are completed as soon as possible. Both the requirement for notification of mine management and the requirement for prompt initiation of corrective actions were included in the previous regulation. Although no change was intended, it was suggested that these requirements be reinstated so as to eliminate any possible confusion that might exist. After reconsideration, the Agency agrees that the existing standard could be interpreted contrary to the intent and therefore, is proposing the changes discussed. Since the current ventilation standards became effective on November 16, 1992, questions have arisen concerning the operation of back-up fans. The following discussion is intended to address the questions received by the Agency.

When a back-up fan operates in place of the main mine fan, the back-up fan is considered to be a main mine fan and all subpart D requirements for main mine fans are applicable. These requirements include: the installation requirements of § 75.310, the operation requirements in this § 75.311, the examination and recordkeeping requirements of § 75.312, and, the unintentional fan stoppage requirements of § 75.313, which would apply should a back-up fan fail while persons are underground.

A typical back-up fan application is where a back-up fan producing an air

quantity comparable to the main mine fan is substituted upon the unintentional failure of the main mine fan. Section 75.313 would require withdrawal of the miners if the backup fan, or main mine fan, is not started within 15 minutes. If the back-up fan is started within 15 minutes, however, normal work may resume after an examination, since the air quantity would be provided. An example would be two identical fans at a shaft where one operates as the main mine fan while the other is available to back up the main mine fan. Typically, the usage of these fans is alternated.

Another possible application is a back-up fan producing a lesser quantity than the main mine fan. In this case, unless the main mine fan can be restored to operation within 15 minutes, withdrawal would be required under § 75.313. After withdrawal is complete, re-entry could be permitted and electrical circuits restored as provided through the approved ventilation plan. The Agency would expect operators to rely on engineering data or actual ventilation survey results when developing these ventilation plan provisions. During operation of the back-up fan, the approved ventilation plan would only permit activity which is related to maintaining the mine in safe condition. This work could include pumping, urgent roof support installation, or other safety-related work. The production of coal under these conditions would not be permitted unless the mine were adequately ventilated and a new ventilation plan has been approved.

Some multiple-fan ventilation systems are configured such that if one fan fails, reduced air quantities continue to ventilate all portions of the mine with no potentially hazardous air reversals occurring. In such cases, ventilation plan provisions, if supported by data, could be developed which would allow re-entry for the purposes discussed in the previous paragraph. This activity would be limited to maintaining the mine in safe condition until the full ventilation system is restored to operation.

Under existing § 75.311(b)(1), when a main mine fan is stopped intentionally and the ventilating quantity of the main mine fan is not maintained by a back-up fan, only persons necessary to evaluate the effect of the fan stoppage or restart, or to perform maintenance or repair work that cannot otherwise be made while the fan is operating, are permitted underground. The maintenance or repair work which could not be made while the fan is operating is limited to work or repair

which would endanger the safety of the worker if the fan were operating. Examples of the type of work that may not be possible while the fan is operating could include maintenance of the fan, repairs or adjustments to ventilation controls immediately in by the fan that are subject to high pressure differentials, and coating of mine surfaces immediately in by the fan. These examples are given for the purpose of facilitating understanding and are not considered all-inclusive.

While the Agency is proposing to change only paragraph (d) of existing § 75.311, comments are specifically solicited on the issues discussed.

Section 75.312 Main Mine Fan Examinations and Records

The Agency would revise the existing standard in a number of respects. Except in certain situations, a daily examination of the main mine fans would be required each day that the mine operates. One exception would be the use of a fan monitoring system in accordance with § 75.312. Requirements for training, recording of defects, review of fan monitoring data, certifying and countersigning of records would be added to the rule. Also, the standard would allow underground power to remain energized when a fan is shut down for testing of the automatic closing doors and fan signal device, provided that the fan is restarted within 15 minutes, and would permit an alternative means of testing that would not require stopping the fan.

Proper operation of main mine fans is critical to mine ventilation. Paragraph (a) of the proposed rule, like the existing standard, requires main mine fans and associated components, including devices used to measure and record pressure, to be examined at least once each day that the fan operates, unless a functioning fan monitoring system is used. However, it is proposed that on any day when no one goes underground that a fan examination would not be required. The Agency is proposing this approach along with the provision that an examination of the fan be completed prior to anyone's entering the mine, including certified persons. Such an examination would assure that the fan is operating properly. The Agency does not believe that any hazard can be associated with not examining a mine fan if no one goes into the mine, and solicits comments on this point.

During the informational meetings and later discussions, the Agency was asked to clarify the qualifications of the person designated by the operator to make daily fan examinations or the weekly fan examination in the case of

mines using fan monitoring systems. It continues to be the position of the Agency that persons assigned to make this or any other examination must be capable of making an adequate examination; that is, an examination in a manner that assures the protection sought by the standard. For this reason, and to address the concerns raised, the proposal would adopt the words of the regulation in effect prior to November 16, 1992, § 75.300-4(a), and require in paragraphs (a) and (b)(1) that main mine fans be examined by trained persons designated by the operator. Since the purpose of the examination, as stated in the proposed standard, is to assure the electrical and mechanical reliability of the fan, the training that the examiner receives should be focused on the electrical and mechanical functioning of fans.

The proposal, in paragraph (b)(1)(i), reflects comments received by the Agency that in order for fan monitoring systems to be effective, the data from these systems must be reviewed by mine management each day. This review is intended to parallel the daily fan examination and assure that responsible personnel are aware of the performance of the fan and the fan monitoring system. In paragraph (b)(1)(ii), the proposal would retain the requirement that at least once every 7 days the monitoring system be tested and the main mine fan be examined. Consistent with paragraph (a), as discussed previously, this examination would be required to be done by a trained person designated by the operator for the purpose of assuring the electrical and mechanical reliability of the fan.

During the informational meetings and later discussions, the Agency was also requested to clarify the application of paragraph (c) of this standard. Some of the comments concerned whether underground electrical circuits must be deenergized while tests of fan signal devices and automatic closing doors are performed. Questions also arose as to whether anyone could be in the mine during the tests and whether a complete § 75.360 preshift examination is required following the tests before anyone could enter the mine.

The proposal clarifies the Agency's intent in paragraphs (c) and (d) of the existing § 75.312. The 31-day tests are to determine if the alarm activates properly and, in multiple-fan systems, whether the automatic doors, if required, close. Although fan stoppages for these tests are normally of short duration, it must be recognized that on rare occasions difficulty may be encountered in restarting the fans. Therefore, the Agency has determined

that it is not advisable to allow miners underground during tests when the fan is stopped unless concurrent activities are scheduled that are necessary to evaluate the effect of the fan stoppage or restart, or to perform maintenance or repair work that cannot otherwise be done while the fan is operating.

Another commenter continued to express concern that monthly stoppage of fans for testing can cause undue stress on the fans. MSHA has received assurances from fan manufacturers that stopping the fans monthly to test the signal device will not cause undue stress on fans. The Agency has also recently received assurances from motor manufacturers that monthly stoppage of fans will not harm fan motors. The Agency solicits comments on this issue as well as on any other aspect of paragraphs (c) and (d).

The Agency has received requests for clarification as to whether fans stopped for testing must be completely stopped during the 31-day tests. The purpose of the standard is to assure proper operation of the alarm and doors when a fan fails. Under certain conditions, such as with a substantial natural ventilating pressure, the fan blades may continue to rotate indefinitely. However, after power has been removed and the fan is in the process of stopping, once the alarm sounds and the doors close, the test has been successfully completed and the fan may be restarted even though the fan blades may not have become motionless.

Recognizing that the duration of these tests is normally short, the proposal does not require underground electrical circuits to be deenergized unless the fan cannot be restarted within 15 minutes or unless persons are permitted underground in accordance with § 75.311(b)(1). In accordance with longstanding practice, as indicated by a review of fan stoppage plans and consistent with existing § 75.313, an examination as described in § 75.360 (b) through (e) would be required if the fan is not restarted within 15 minutes. The Agency believes that after 15 minutes, additional action is needed to protect miners from the hazards that may develop following a fan stoppage.

Following publication of the existing standard, commenters suggested that it may be possible to test the fan signals and the automatic closing doors without shutting off the fans. If it is possible to properly test the fan signal and automatic closing doors without stopping the fan, then the Agency would permit such an alternative. The Agency has become aware that such an approach is being actively explored by at least one mining company. Therefore,

in the interest of allowing for advances in technology in this area, the proposal would permit an alternative test that does not require stopping the fan when the operator demonstrates that it provides the same level of assurance that the automatic closing doors and fan signals will function as intended during fan stoppages. Alternative approaches to stopping the fan would be required to be approved in the ventilation plan. The Agency would anticipate that any alternative approach approved would retain the 31 day interval for demonstrating that the automatic closing doors or fan signal will operate as intended. The Agency solicits comments on this approach to fan tests. Specifically, comments should address the method that should be used to assure that the alternate test provides the same level of assurance that the automatic closing doors and fan signals will function as intended during fan stoppages.

Paragraph (f)(1) retains the requirement in the existing rule that persons making main mine fan examinations certify by initials and date at the fan or another location specified by the operator, that the examinations were made, and that each certification identify the main mine fan examined. Consistent with the practice of certifying that fan examinations have been completed, the Agency is proposing a certification requirement in paragraph (f)(2). The person completing the review of the data from a fan monitoring system used in lieu of daily fan examinations would certify that the review has been completed. The manner of certification would be by initials and date on the printout of the data from the system. To facilitate this certification, proposed § 75.310(c)(3), as discussed previously, would require that the fan monitoring system be capable of providing, on demand, a printout of the data.

Proposed paragraphs (g)(1) through (g)(5) would set out the requirements for recordkeeping and countersigning of main mine fan examination records. Paragraph (g)(1) would require that by the end of the shift on which the examination is made, persons making main mine fan examinations would record all defects found during the examination that may affect the operation of the fan. Unlike the previous standard, the existing standard requires that only defects that are not corrected by the end of the shift be recorded. The preamble to the existing rule explains this approach as follows: " * * * since the main purpose of this recordkeeping requirement is to alert miners on oncoming shifts of defects found during

the fan examination that may affect their shifts, it serves no additional safety benefit to require a record to be made of deficiencies which are corrected by the end of the shift on which the examination is made." However, following publication of the standards, the Agency received comments that records of defects, corrected or not, serve to indicate recurring problems with mine fans. Upon reconsideration, MSHA agrees that recurring problems found during main mine fan examinations may be indicative of more serious defects and if mine management is not made aware of these problems through the maintenance of records they could ultimately lead to a fan failure. Therefore, similar to the previous standard, the proposal would require that all defects found during the daily fan examination be recorded. As with other proposed provisions of the rule, records required in paragraphs (g)(1) through (g)(4) would be made in a state-approved book or in a bound book with sequential machine-numbered pages. Comments are specifically solicited on this approach and on an alternative approach wherein the Agency would develop, in coordination with the states, books specific for the required records.

Since promulgation of the current regulation, the Agency has become aware of some potential difficulties in reviewing records and data generated by fan monitoring systems and atmospheric monitoring systems. The problem involves the commingling of this information with other information, such as production or operations-related data produced by the computer systems of which they are a part. Since the physical volume of production, operations, and other data may be considerable, safety-related data may not be readily accessible which may discourage the regular review and proper use of the information. A possible solution is to require that all safety related data be printed on a dedicated printer. The Agency is not proposing this solution at this time but rather is soliciting comments on possible alternative solutions. At this time, the Agency is proposing, in paragraph (g)(2)(i), that the certified copies of data required by paragraph (f)(2) be maintained separate from other computer generated reports or data in order to facilitate the review of this data by the operator, the representative of miners, and the Agency.

Proposed paragraph (g)(2)(ii) would require a record to be made of any fan monitoring system malfunctions, electrical or mechanical deficiencies in the monitoring system and any sudden increase or loss in mine ventilating

pressure. The records would be used to identify chronic or recurring problems with the system that could indicate the need for repairs, replacement of parts, or upgrades in hardware or software in order to keep the system functioning in a reliable manner. The record would be required to be made by the end of the shift on which the review of the data is completed. This requirement would help to assure that records are current and that potential problems are identified in a timely manner.

Consistent with existing requirements, paragraph (g)(3) would require that at mines permitted to shut down main mine fans under § 75.311, if a pressure recording device is not used, a record be made of the time and fan pressure immediately before the fan is stopped, and after the fan is restarted and the fan pressure stabilizes. A record of these pressures at both shutdown and restart would help identify any adverse change in ventilation that may have occurred during the fan stoppage.

Paragraph (g)(4) would require that a record of the results of the tests be made by the end of the shift on which the monthly test of the automatic fan signal device or the automatic closing doors is completed. This requirement would help to assure that potential problems are identified in a timely manner so that proper operation of the automatic fan signal device and the automatic closing doors can be maintained.

Paragraph (g)(5) would require that the records required under paragraphs (g)(1) through (4) be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. During an absence of the mine foreman, the person acting as mine foreman would countersign. The Agency intends that the mine foreman, the person most responsible for the day-to-day operation of the mine, be notified of the information contained in the reports. Allowing until the end of the mine foreman's next regularly scheduled working shift to countersign the report would assure that the mine foreman is aware of the results of the examination and would enable corrective actions to be taken.

The proposal would also require that within two scheduled production days after the mine foreman has countersigned, the record of the examination be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The intent of the proposal is to assure that a higher level official, empowered to redirect resources, be aware of any condition requiring corrective actions.

Since this second level official may not be physically located at the mine on a full-time basis, two scheduled production days are proposed as a reasonable period of time for countersigning.

Section 75.313 Main Mine Fan Stoppage With Persons Underground

This standard establishes safety precautions for any unplanned main mine fan stoppage that interrupts ventilation while persons are underground. Paragraph (a)(3) requires all persons to be withdrawn from working sections and areas where mechanized mining equipment is being installed or removed when ventilation is interrupted by a main mine fan stoppage. Areas where coal is being extracted or mechanized mining equipment is being installed or removed are typically the places in an underground mine where methane accumulation and other hazards to health or safety can develop quickly when ventilation is interrupted. To avoid exposure of miners to these hazards, timely withdrawal of persons is an important safety practice. Although the Agency believes that the promulgation of paragraph (a)(3) of this standard was done appropriately, it is being repropounded for the purpose of receiving and giving consideration to all pertinent comments.

Concerns have been raised about the possibility of methane migration following fan stoppage, and the danger of using electrical power to withdraw miners should this occur.

The proposal would revise stayed § 75.313(c)(2) and (c)(3) which address deenergization of electric power circuits and shutting-off of mechanized equipment not located on working sections. It also would revise paragraph (d)(1)(i) and (ii) and (d)(2) which deal with examination of the mine before miners can return when power is restored. The Agency is not proposing a revision of paragraphs (a), (b), (c)(1), and (e) at this time. These paragraphs of stayed § 75.313 would remain unchanged from the stayed provision.

Under paragraph (c)(2) of the proposal, underground electrical circuits must be deenergized, except those circuits necessary for withdrawal if such circuits are located in areas and haulageways where methane is not likely to migrate into or accumulate. The remaining energized circuits would be deenergized as persons are withdrawn. The Agency recognizes that in a limited number of mines methane may migrate from adjacent areas and enter travelways or haulageways used by miners for withdrawal. Under these

conditions, permitting power circuits to remain energized may increase the potential for a methane ignition. The determination of the likelihood of methane migrating into haulageways can be made through underground tests or computer simulations of ventilation systems. It is the intention of the Agency that when it is determined that methane is likely to accumulate or migrate into an area, electrical circuits used for transportation would not be permitted to remain energized and persons would not be permitted to ride out of the mine in the event of a fan stoppage. The Agency would expect the operator to provide the necessary data from which a determination can be made. For the same reasons, paragraph (c)(3) of the proposal would require mechanized equipment not located on working sections to be shut off unless the equipment is necessary to withdraw persons from the mine and is located in areas where methane migration or accumulation is unlikely to occur. The Agency solicits comments on the appropriateness of this type of mine-specific evaluation that balances the expeditious withdrawal of miners against the potential for methane accumulations.

Under paragraphs (d)(1)(i) and (ii) of the proposal, the Agency is clarifying that when ventilation is restored and before electrical circuits are energized or nonpermissible mechanized equipment is started, no one other than designated certified examiners would be permitted to enter or reenter any underground area of the mine until an examination is conducted as described in § 75.360(b) through (e) and the area is determined to be safe. This would prohibit nonpermissible mechanized equipment from being started until an examination is completed. However, permissible equipment may be used to facilitate the examination required by the proposal. The Agency recognizes that it may not be possible for examiners to enter the mine without some power being restored in shafts or slopes to power elevators, hoists, or other mechanical facilities operated in the shaft or slope. The Agency does not intend to prohibit these facilities from being energized when used to facilitate the examination, provided they are in intake air and the power is limited to the shaft or slope in which they operate. The Agency solicits comments on this approach to fan stoppages.

This examination would not be equivalent to a full-scale preshift examination in that (1) a preshift is conducted within 3 hours preceding the beginning of the shift, and (2) the recordkeeping requirements of § 75.360

would not apply for the examination following a fan stoppage. However, in accordance with proposed § 75.363, a record of all hazardous conditions found would be required. This type of examination is an accepted safety practice in the industry. It is a primary means for determining the effectiveness of a mine's ventilation system and of detecting hazards such as methane accumulations that may be present in travelways or other areas where miners may work after an interruption of ventilation. After a fan is restarted, the examination will determine if the air is moving in its proper direction and at its normal volume.

The Agency has reconsidered its position in stayed § 75.313(d)(2) and proposed in paragraph (d)(2) to specifically require miners, other than designated certified examiners, to continue to the surface should the fan restart during withdrawal. A commenter has maintained that following a fan stoppage, a hazard could occur due to methane accumulations, and therefore miners should not be permitted to remain underground. MSHA agrees that such methane accumulations could occur, but believes that any risk of ignition would be significantly reduced by the requirement that mechanized equipment be shut off and electrical power circuits deenergized except for equipment and power circuits necessary for withdrawal if located in areas or haulageways where methane is not likely to migrate to or accumulate. Under stayed § 75.313, the equipment or circuits used for withdrawal must be shut off or deenergized as persons are withdrawn. However, to provide an added margin of safety, MSHA is proposing withdrawal of all miners to the surface except designated certified examiners who may begin the examination required before miners return to underground areas. The Agency specifically solicits comments on this issue.

This commenter further stated that when a fan is down for an extended period of time, a fan should not be restarted until miners safely reach the surface. However, as stated in the preamble to the existing rule, MSHA believes that the fan should be restarted as soon as possible to reestablish proper ventilation and to remove the potential for methane accumulations. The Agency solicits comments on the pros and cons of reestablishing ventilation by restarting a mine fan during evacuation, and on having miners continue to the surface should a fan restart during withdrawal.

Additionally, the proposal would require that an examination be made as

described in § 75.360(b) through (e). Although complete withdrawal of miners is required, this examination could begin once ventilation has been restored and would be performed by certified persons designated by the operator to conduct the examination. The Agency is proposing this approach because of the safety concerns associated with extended interruptions in the ventilation system. It is recognized that under § 75.360(a) a preshift examination can be made for an oncoming shift while miners are underground. However, the proposal would not allow miners to remain underground because of the lack of ventilation compared to the situation where ventilation is continuously maintained.

Section 75.320 Air Quality Detectors and Measurement Devices

The informational meetings and later discussions on the rule indicated that simply requiring detectors for measuring methane and oxygen deficiency to be maintained in permissible condition does not completely satisfy the need for assuring proper maintenance. It was suggested that without a requirement for maintenance to be done by a trained person, similar to that which existed in the previous standard, a person with less than the necessary understanding of the instrument and the permissibility requirements might be assigned the task. The proposal would require that methane detectors and other devices be properly maintained at all times and, to assure the appropriate level of maintenance, the proposal in paragraph (e) would require this maintenance to be done by a trained person. This does not preclude the operator from sending instruments to the manufacturer or another repair facility for regular servicing.

Additionally, the proposal would require the operator to assure that any instrument sent underground is in permissible condition so that the use of the instrument does not pose an explosion hazard. The level of care that must be exercised is of course a function of instrument usage but, at a minimum, the Agency would expect that the detector be visually examined to assure that it is properly assembled and that all necessary components such as screws, lenses, and indicator lamps are present. As with the requirement that maintenance be done by a trained person, this requirement was present in the previous standard and is being proposed to further assure that methane detectors do not pose a hazard and will perform properly during the shift.

Section 75.321 Air Quality

This proposal would continue a basic air quality requirement that has been in place since 1970 that air in areas where persons work or travel contain at least 19.5 percent oxygen and not more than 0.5 percent carbon dioxide, and the volume and velocity of the air current in these areas be sufficient to dilute, render harmless, and carry away flammable, explosive, noxious, and harmful gases, dusts, smoke, and fumes. The proposal would not require this carbon dioxide level to be applied to bleeder entries and worked-out areas.

MSHA has interpreted former § 75.301 to require at least 19.5 percent oxygen and no greater than 0.5 percent carbon dioxide in bleeder systems where persons work or travel. Similarly, it was the intent of the Agency to enforce § 75.321 to require compliance with these levels where persons would be exposed in bleeder entries and in worked-out areas. However, the application of this provision to bleeders has been stayed by the D.C. Circuit pending the outcome of litigation on the rule. The Agency continues to believe that providing satisfactory air quality is essential to protect the miners and examiners whenever they work or travel in bleeder entries and worked-out areas. Therefore, the proposal includes a new provision specifying that the air in bleeder entries and worked-out areas where persons work or travel contain at least 19.5 percent oxygen, and that carbon dioxide not exceed 0.5 percent TWA (Time Weighted Average) and 3.0 percent STEL (Short Term Exposure Limit). A TWA is the time-weighted average concentration for a normal 8-hour workday and a 40-hour workweek. A STEL is a 15-minute TWA exposure which can not be exceeded at any time during a workday even if the 8-hour TWA is within the specified TWA. Exposures above the TWA up to the STEL can not be longer than 15 minutes and can not occur more than four times per day. There must be at least 60 minutes between successive exposures in this range. These proposed levels are identical to the levels contained in MSHA's proposed air quality standards for coal and metal and nonmetal mines and the 1992 Threshold Limit Values (TLV) as specified by the American Conference of Governmental Industrial Hygienists.

In light of the ongoing air quality rulemaking, the Agency is not at this time proposing to modify existing air quality standards as applied to areas where persons work or travel, other than bleeder entries and worked-out areas. The Agency will consider the

appropriate course of action on this issue as part of the air quality rulemaking.

Bleeder entries and worked-out areas are required to be traveled or evaluated at least weekly. This is most often done by a person traveling alone who is often required to be in the bleeder entries or worked-out areas for an extended period. The purpose of this standard is to protect miners, not to regulate air quality where persons are not exposed. Therefore, oxygen and carbon dioxide levels at bleeder connectors and bleeder evaluation points that do not meet the proposed concentrations would not constitute a violation of the standard if examinations are performed remotely or if persons making the examination can otherwise remain in air that meets the proposal.

According to the National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services (NIOSH Respirator Decision Logic, May 1987), 19.5 percent oxygen provides an adequate amount of oxygen for most work assignments and incorporates a safety factor. Also according to NIOSH, the safety factor is needed because oxygen-deficient atmospheres offer little warning of danger. In the NIOSH publication, "A Guide to Safety in Confined Spaces," (page 4), a chart is presented that indicates that 19.5 percent oxygen is the minimum level for safe entry into an area, and that at a level of 16 percent, judgement and breathing are impaired. The American National Standards Institute (ANSI), in ANSI Z88.2-1992, "American National Standard for Respiratory Protection" recognizes that at 16 percent oxygen there is an impairment in the ability to think and pay attention, and a reduction in coordination. ANSI recognizes that at 19 percent oxygen there are some adverse physiological effects, but they are unnoticeable.

The need for regulating the oxygen level where persons work or travel in bleeder entries is illustrated by two mining accidents. One of these accidents resulted in the death of a mine examiner and the second resulted in the near death of two additional individuals, one of whom was a mine examiner. Mine examiners are, through training and experience, the individuals best able to identify the hazards associated with irrespirable atmospheres. The first accident occurred at the Arclar Mine in Equality, Illinois in 1989. Prior to implementation of the existing standard, a mine examiner, for unknown reasons, entered a worked-out area that was posted with a danger sign. Under the existing

regulation, ventilation or sealing of this area, rather than posting, would be required. Because the area was not sealed, the existing regulation would require the area to be examined during the weekly examination. The proposal would require that the route of travel for the examiner would contain at least 19.5 percent oxygen. Had the proposal been in place when the examiner entered the worked-out area, there is a strong likelihood that he would not have died.

The second accident, although not in a bleeder entry or worked-out area, is illustrative of what can happen when individuals, including mine examiners, are subjected to oxygen deficient air. In 1983 at the Bird No. 3 Mine in Riverside, Pennsylvania, an assistant mine foreman, a certified person, entered the mine for the purpose of conducting an examination. After traveling approximately 1100 feet, the examiner became dizzy, noticed that his flame safety lamp had extinguished and withdrew approximately 200 feet where he sat down and apparently became unconscious. A second individual upon entering the area in search of the examiner also became dizzy but was able to withdraw to a location that was not oxygen deficient. When the mine examiner regained consciousness, his cap lamp battery had discharged and he traveled in total darkness until he encountered a mine rescue team. Air samples collected in the area where the mine examiner first became dizzy indicated an oxygen concentration of about 16.8 percent, while other samples collected nearby indicated oxygen concentrations of nearly 20 percent.

Because mine examiners are required to work or travel in areas where oxygen-deficient air could occur without warning, and they normally travel and work alone, there must be a requirement that provides them the protection necessary for the performance of their duties under these conditions. It is important that the level for oxygen be established above that identified as resulting in impaired judgement because it is essential that individuals traveling in these areas remain highly alert. The hazards that can exist in bleeder entries and worked-out areas include elevated methane levels, poor footing, loose and unstable roof, and water accumulations. For this reason, the Agency is proposing to adopt a minimum level of oxygen of 19.5 percent as recommended by NIOSH.

MSHA is also concerned with the effects of other gases often found in bleeder entries. Section 75.322 of the existing regulation limits the concentration of noxious or poisonous gases to the current (1971) Threshold

Limit Values (TLV's) as adopted and applied by the American Conference of Governmental Industrial Hygienists (ACGIH). Section 75.322 specifically excludes carbon dioxide since it is covered by § 75.321. However, in light of the Court's stay of § 75.321(a) relative to bleeder entries, the Agency is proposing a separate standard for carbon dioxide levels for areas where persons work or travel in bleeder entries and worked-out areas. The levels proposed, 0.5 percent TWA and 3.0 percent STEL, when considered in conjunction with the requirements of § 75.322 and the proposed requirement for oxygen, will aid in providing persons working or traveling in these areas with a safe and healthful working environment. The Agency recognizes that the effects of carbon dioxide are both chronic and acute and has therefore elected to propose both a time weighted average and a short term exposure limit. NIOSH, in recommending a standard for carbon dioxide, also recognized this and recommended a similar approach. The NIOSH recommendation, made in a Criteria Document published in 1976, proposed a TWA concentration of 1.0 percent and a ceiling value of 3.0 percent not to exceed 10 minutes. In making this recommendation, NIOSH states that there are "additive stress effects of increased carbon dioxide concentrations and exercise * * *". As support for this, the NIOSH document cites research that showed that healthy, trained subjects exposed to 2.8 to 5.2 percent carbon dioxide at maximum exercise levels experienced respiratory difficulty, impaired vision, severe headache, and mental confusion; three subjects collapsed. At or below 2.8 percent carbon dioxide combined with lower, but still strenuous, levels of exercise, no ill effects other than awareness of increased ventilation were experienced by the subjects.

During rulemaking on the proposed air quality standard, NIOSH recommended a 0.5 percent TWA and a 3.0 percent STEL. NIOSH made a similar recommendation to OSHA during that Agency's permissible exposure limit (PEL) rulemaking. Given the work environment in bleeder entries and worked-out areas, as described earlier, the Agency believes that the dual regulatory approach proposed is appropriate. In addition to examiners, other miners may be required to work in the bleeder entries and worked-out areas, performing duties such as installing roof support, pumping water, recovering materials or adjusting ventilation. The levels proposed would

provide them with the necessary protection.

In addition, MSHA is concerned with the synergistic effects that carbon dioxide has on the body when combined with low oxygen levels, especially at levels higher than 0.5 percent TWA. Carbon dioxide affects the blood pH, which is critical to the proper metabolism of oxygen. Because of the nature of the hazardous work environment in bleeder entries and worked-out areas, the Agency believes that it must be careful to establish levels which would not impact on the body's ability to deal with the conditions encountered. The Agency solicits comments on the appropriateness of these, or other concentration levels for carbon dioxide in areas where the examiner works or travels in bleeder entries and worked-out areas, along with the rationale for determining the appropriate level for bleeder entries and worked-out areas. However, as stated previously, it is not the intent of the Agency that the levels established in paragraph (2) of the proposed standard be applied to areas other than those areas within the bleeder entries and worked-out areas where persons work or travel. In light of this, it is not anticipated that many of the nation's coal mines would be required to increase the volume of air currently being used to ventilate bleeders and worked-out areas as a result of this proposed standard.

Section 75.323 Actions for Excessive Methane

MSHA is proposing to revise paragraphs (b)(1)(ii), (c)(1), and (d)(2)(i) of the existing standard in response to comments made during informational meetings and subsequent discussions.

Methane poses a significant hazard to miners when it is permitted to accumulate without corrective action being taken quickly. The Agency received comments at its informational meetings asking MSHA to clarify when ventilation changes must be made to reduce methane concentrations to acceptable levels. MSHA has always intended that these changes be made at once. In response to these comments, the Agency is proposing to revise paragraphs (b)(1)(ii), (c)(1) and (d)(2)(i) to require that these changes be made "at once," the phrase used in former §§ 75.308 and 75.309.

Although the Agency believes that the promulgation of paragraph (b) of this standard was done appropriately, it is being repropounded with the addition of the phrase "at once" for the purposes of receiving and giving consideration to all pertinent comments. When 1.0 percent

or more methane is present in a working place, an intake air course, or an area where mechanized mining equipment is being installed or removed, paragraph (b)(1) would require all electrical, diesel, and battery-powered equipment in the affected working place, intake air course or other area, except for intrinsically safe AMS, to be deenergized or shut off. Deenergizing or shutting off this equipment would protect miners by preventing this equipment from providing ignition sources.

If 1.5 percent methane or more is present in a working place, an intake air course, or an area where mechanized mining equipment is being installed or removed, paragraph (b)(2) would require persons to be withdrawn from the affected area. The basic requirement for withdrawal of persons is retained from the previous standard and the reproposal would expand this basic requirement to include areas where mechanized mining equipment is being installed or removed. The presence of methane in these areas can pose a significant risk to miners and therefore their withdrawal from the affected area is essential to their safety. Paragraph (b)(2) would also require that all electric power to equipment in affected areas be disconnected at the power source. This prevents accidental reenergization of equipment and removes power from cables and circuits which may also be ignition sources. No other work is permitted in the affected area until the concentration of methane is less than 1.0 percent.

Paragraph (b)(2) would be amended by adding "mechanized" before mining equipment for consistency with other provisions of the rule.

Section 75.324 Intentional Changes in the Ventilation System

MSHA is not proposing any changes to the wording of § 75.324 at this time. The following discussion clarifies MSHA's interpretation of what the Agency considers to be an intentional change that could materially affect the safety or health of persons in the mine.

Paragraph (a) of the existing rule requires that a ventilation change be supervised by a person designated by the mine operator when a change in section ventilation is in excess of a specified quantity or when a ventilation change alters the main air current of the mine or any split of the main air current in a manner that could materially affect the safety or health of miners underground. Paragraph (b) of the existing rule specifies additional requirements that apply only to the ventilation changes described in

paragraph (a) of this section. That is, before such an intentional air change is made, electric power must be removed from areas that may be affected by the change and mechanized equipment in those areas must be shut off. Also, only persons making the ventilation change are permitted in the mine while the change is being made. Afterward, certified persons must examine the areas affected by the change to determine whether methane accumulations or oxygen deficiencies have resulted. Electric power is not permitted to be restored to affected areas nor is mechanized equipment to be restarted until these tests have been made and the areas are determined to be safe.

Since this standard went into effect in November 1992, the Agency has become aware of concerns suggesting that it is sometimes difficult to determine whether an intentional change in the air current could materially affect the safety or health of miners. However, MSHA regards it as impractical to follow a "cookbook" approach to identifying what will or will not require approval. Each circumstance is to be reviewed by the operator on its own merits. To illustrate the Agency's expectations, the following is a list of some examples of what MSHA considers intentional changes that would materially affect the safety or health of miners. These examples are not meant to include all possibilities, but are meant to provide some general guidance: adding a new shaft; bringing a new fan on line; changing the direction of air in an air course; changing the direction of air in a bleeder system; shutting down one fan in a multiple fan system; starting a new operating section with ventilating quantities redistributed from other sections of the mine; changing entries from intakes to returns and vice versa; and any change that affects the information required by § 75.371, Mine ventilation plan; contents.

The results of changes to a complex ventilation system are not always easy to predict, and for that reason caution must be used when making significant changes to one air split or several air splits. The balance of splits can be affected and may result in air reversals, dead air spaces, or insufficient air flow in critical areas. For this reason, such changes must be evaluated by a certified person examining the affected areas before production is resumed. Approval is required by paragraph (c) of § 75.370 Mine ventilation plan; submission and approval, if the change alters the main air current in a manner that could materially affect the safety or health of miners. When questions arise as to

whether an anticipated change requires prior approval, MSHA is available to discuss the situation for guidance on whether a request for approval should be submitted. While the Agency is not contemplating a change to § 75.324 at this time, comments are specifically solicited on the issues discussed.

Section 75.325 Air Quantity

Although the Agency believes that the promulgation of paragraph (d) of this standard was done appropriately, it is being repropose for the purposes of receiving and giving consideration to all pertinent comments. Paragraph (d) would require that areas where mechanized mining equipment is being installed or removed be ventilated and that the quantity of air and the ventilation controls necessary to provide these quantities be specified in the approved ventilation plan. As demonstrated by the explosion at the William Station Mine, ventilation of these areas is essential and will greatly enhance the protection provided to miners.

Section 75.330 Face Ventilation Control Devices

During the informational meetings and later discussions, it became apparent that members of the mining community were concerned about the appropriateness of using a performance standard relative to the volume of air that must be provided to working faces. It was suggested that such an approach suffered from two flaws: (1) By simply requiring sufficient air, a problem could develop and go unnoticed before corrective action is required; and (2) since most miners do not have the means for measuring ventilation parameters; i.e., anemometers and methane detectors, it may not be possible for the average miner to determine compliance with the performance standard. It has been suggested that in addition to the performance standard, the Agency should propose requirements for line brattice similar to those that existed in the previous regulation. After considering this recommendation in light of the expressed concerns, the Agency is proposing, in paragraph (c), that when a line brattice or other face ventilation control device is damaged to the extent that ventilation of the working face is inadequate, production activities would cease until necessary repairs are made. It is the intent of the Agency to assure that damaged ventilation controls are repaired and that mining is discontinued until adequate face ventilation is restored.

Section 75.332 Working Sections and Working Places

Although the Agency believes that the promulgation of paragraph (a)(1) of this standard was done appropriately, it is being repropose for the purposes of receiving and giving consideration to all pertinent comments. The ventilation of working areas has historically been accomplished through the use of a separate split of intake air. The proposal would provide this same level of protection to miners working in areas where equipment is being installed or removed.

The Agency is not proposing any changes to § 75.332 at this time. However, questions have come to the attention of the Agency concerning the existing standard. The following discussion is intended to address these questions.

The existing requirements of § 75.332 are largely derived from earlier MSHA regulations (§ 75.311 and § 75.312). Under existing § 75.332, air which has passed through any area not examined under § 75.360, § 75.361 or § 75.364, or through any area which has been second mined, cannot be used to ventilate any working place. After the rule became effective, it was suggested that it would be possible to ventilate working places with intake air coursed through an evaluated, nonpillared worked-out area, because evaluation in lieu of travel to the point of deepest penetration is at some times acceptable under § 75.364. As explained in the following discussion, this is not the case. Existing § 75.332(a)(1) requires that each working section and each area where mechanized mining equipment is being installed or removed be ventilated by a separate split of "intake air." Existing § 75.301 defines return air as "Air that has ventilated the last working place of any working section or any worked-out area, whether pillared or nonpillared * * *." Reading these two existing provisions together, one concludes that air that has ventilated a worked-out area is return air and therefore cannot be used to ventilate any working section or any area where equipment is being installed or removed.

A second question concerns the conditions under which air that has passed by an unsealed worked-out area can be used to ventilate a working section. Worked-out areas that are not sealed must be ventilated, § 75.334(a). Under § 75.332(b)(1) the air used to ventilate worked-out areas cannot be used to ventilate working sections, unless examined in accordance with § 75.360, § 75.361, or § 75.364. There is only one condition under which air that

passes by a worked-out area that is not examined can be used to ventilate a working section or an area where equipment is being installed or removed. This is when the worked-out area is ventilated by a separate split of air and the remainder of the intake air continues past the worked-out area. This remaining intake air could be used to ventilate a working section or an area where equipment is being installed or removed. However, the air that enters the worked-out area cannot reenter the intake air course because the definition of return air, in § 75.301, states in part that "If air mixes with air that has ventilated the last working place on any split of any working section or any worked-out area, whether pillared or nonpillared, it is considered return air." In the case of worked-out areas with multiple openings, this would preclude air from being used to ventilate a working place when it enters a worked-out area in one entry and exits the worked-out area in another entry to remix with the air passing by.

To determine that the air that has passed by a worked-out area has not been contaminated, proposed § 75.360(b)(4) would require that when intake entries carry air by worked-out areas to ventilate working places where persons are scheduled to work, the approaches to the worked-out areas be preshift examined immediately inby and outby each entry that carries air into the worked-out area. The purpose of this examination is to assure that the air is not oxygen deficient and does not contain methane in excess of allowable limits and to determine that the air is not coming from the worked-out area. By preshift examining the intake entries in these areas, it can be determined that the air in these entries is suitable for use in working places. Additionally, proposed § 75.360(b)(4) would require that when intake entries carry air by worked-out areas to ventilate working places where persons are scheduled to work, the entries used to carry air into the worked-out area be preshift examined at a point immediately inby the intersection of each entry with the intake air course. Preshift examining of these entries is intended to assure that air that enters a worked-out area in one entry does not reenter the intake air course.

While the Agency is not contemplating a change to § 75.332 at this time, comments are specifically solicited on the issues discussed.

Section 75.333 Ventilation Controls

The Agency is proposing to revise paragraphs (a), (b)(1), (b)(3), (b)(4), and

(e)(1) and add new paragraph (h) to § 75.333.

As proposed, paragraphs (b)(1), (b)(3), and (b)(4) would be revised to clarify the application of the permanent ventilation control standards when a continuous face haulage system is used. Continuous face haulage systems employ mobile bridge conveyors to transport coal directly from the continuous mining machine to a low profile conveyor belt. The mobile bridge system uses a "dolly" to transfer the coal to the low profile conveyor belt at the section loading point. Because the dolly travels along the low profile conveyor belt, the location of the section loading point changes during mining as the mobile bridge dolly moves. For escapeway purposes, paragraph (b)(4) would designate the loading point for a continuous haulage system as the inby most point of travel of the dolly.

In the past, the Agency has not required the use of permanent ventilation controls to separate continuous face haulage systems from return, intake, or primary escapeway entries in rooms developed 600 feet or less from the centerline of the entry from which the rooms were developed. As with the existing standard, proposed paragraph (b)(1) would require permanent stoppings or other permanent ventilation control devices between intake and return air courses, except temporary controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the room was developed. The proposal would clarify the existing standard by explicitly stating that when continuous face haulage systems are used, temporary controls may be used to separate the system from the return and intake in rooms developed 600 feet or less from the centerline of the entry from which the rooms were developed. Because the room in which the continuous haulage system is installed is continuously attended by the system operators, an immediate response to any safety-related problem with the haulage system would be expected. Additionally, two or three rooms are often concurrently developed using this system and the life of the actively developing rooms is often less than three days. The result of this short life is that mining in these rooms would often be completed before construction of permanent controls is finished. The proposal recognizes the short-lived nature of these rooms and permits the use of properly constructed temporary controls to deliver ventilation to the faces. Requiring the construction of permanent controls in these instances would result in no additional safety

benefit. The Agency has also received comment that additional material handling hazards would be associated with the transportation of permanent control construction materials into an often limited number of rooms during development. Additionally, access to the continuous haulage system is required through crosscuts for maintenance and operation of the system.

For these reasons, proposed paragraph (b)(3) would also be revised to require that when continuous face haulage systems are used, permanent stoppings or other permanent ventilation control devices must be built and maintained to separate the haulage entry in which the low profile belt structure is located from intake entries only to the outby travel point of the dolly. The proposal would also provide that for continuous haulage systems, temporary ventilation controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the rooms were developed. In all other cases permanent stoppings or other permanent ventilation control devices would continue to be required to separate belt conveyor haulageways from intake air courses when air in the intake air course is used to provide air to active working places.

Proposed paragraph (b)(4) would continue to require permanent stoppings or other permanent ventilation control devices " * * * to separate the primary escapeway from belt and trolley haulage entries, as required by § 75.380(g)." In addition, the proposal would require that when continuous face haulage systems are used, the loading point for purposes of § 75.380(g) would be the inby most point of travel of the dolly. The Agency intends that this separation be maintained to the most inby point of travel of the dolly in order to provide protection along the entire length of the conveyor belt entry. A greater or lesser distance for the separation of the conveyor belt structure from the primary escapeway may be specified and approved in the ventilation plan provided it poses no hazard to miners. This provision is consistent with the requirements of § 75.380(g).

The portion of the structure necessary to accommodate the movement of the dolly is considered as part of the face haulage system. Consistent with current MSHA policy, waterlines would not be required to parallel continuous face haulage systems using a low profile conveyor belt if the length of the belt is less than 600 feet and sufficient fire hose is available to extend to the working face. Fire suppression devices and signal and alarm systems are not

required to be installed along such conveyor belts. However, the belts considered as face equipment must have fire protection at the belt drive as required by § 75.1100-2(e) of the existing standard and, if hydraulically operated, must have fire suppression devices as required by existing § 75.1107. Additionally, for safety reasons, check curtains should not be installed across the area of travel of the dolly.

The Agency has become aware of questions on the part of a segment of the industry relative to what are acceptable construction methods and materials for the construction of permanent ventilation controls, excluding seals, that will result in controls that satisfy the definition of durable given in paragraph (a) of the existing standard. The Agency is addressing these questions by proposing to eliminate the definition of durable and to modify paragraph (e)(1) to require these controls to be constructed in a manner and of materials that results in a construction that has been tested and shown to have a minimum strength of 39 pounds per square foot as tested under ASTM E72-80 Section 12—Transverse Load-Specimen Vertical, load only. The proposal retains the intent and requirement of the existing standard because the 8-inch hollow-core concrete block stopping with mortared joints, to which all other constructions were tied under the definition of durable in the existing standard, has been tested and shown to have a minimum strength of 39 pounds per square foot.

The Agency recognizes that other construction methods and materials may be available or developed that will result in permanent ventilation controls that are suitable for the intended purpose. The proposal would permit alternative constructions for ventilation controls constructed after [INSERT THE EFFECTIVE DATE OF THIS RULE] under paragraph (e)(1)(i) provided they have been tested and shown to have a minimum strength of 39 pounds per square foot. For a control to be acceptable, the operator would have to demonstrate that the control has been tested and shown to provide a strength of 39 pounds per square foot as tested under ASTM E72-80 Section 12—Transverse Load-Specimen Vertical, load only. In instances where a construction has already been tested and shown to possess the requisite strength, the operator need only provide documentation of the test results. MSHA will maintain and will make available for review at each MSHA District Office a listing of construction methods and materials that have been

tested and have demonstrated a strength of at least 39 pounds per square foot. Persons wishing to have a construction method or material included in this listing should submit documentation of testing to the Agency. To the extent possible, MSHA will also maintain a listing of construction methods and materials that have failed to demonstrate a strength of at least 39 pounds per square foot when tested under ASTM E72-80 Section 12—Transverse Load-Specimen Vertical, load only. Persons wishing to have a construction method or material included in this listing should submit documentation of testing to the Agency. It should be noted that solid concrete block stoppings that are dry-stacked and plastered on only one side have not been shown to have a minimum strength of at least 39 pounds per square foot when tested under ASTM E72-80 Section 12—Transverse Load-Specimen Vertical, load only. Unless a stronger plaster is developed, it is unlikely that a stopping plastered on only one side would be acceptable under the current rule or this proposed revision.

As with the existing rule, the proposal would require, in paragraph (e)(1)(ii), that all overcasts, undercasts, shaft partitions, permanent stoppings, and regulators, installed after November 15, 1992, be constructed of noncombustible material.

Also like the existing standard, the proposal lists materials that would be suitable for these controls and would continue to prohibit ventilation controls installed after November 15, 1992, from being constructed of aluminum.

The Agency is proposing a new paragraph (h) to assure that all permanent ventilation controls, including all doors and seals, regardless of the construction date, be maintained to serve the purpose for which they were built. Existing § 75.333(e)(1) requires that ventilation controls be maintained to serve the purpose for which they were built. Because existing § 75.333(e)(1) also specifies that ventilation controls installed after November 15, 1992, be constructed of durable and noncombustible material, a commenter questioned whether the maintenance requirement applied only to ventilation controls constructed after November 15, 1992. That is not the case. Given the importance of these devices in preserving the integrity of the mine ventilation system, MSHA is proposing the maintenance provision in a new paragraph to explicitly state that all permanent ventilation controls, including seals, must be maintained to serve their intended purpose. With regard to seal maintenance, the Agency

does not intend that the maintenance standard would be applied to seals located within another sealed area. Further, the Agency does not intend that the standard would apply to seals which have become consumed within a gob area which is ventilated and evaluated in a manner approved through the mine ventilation plan.

Section 75.334 Worked-out Areas and Areas Where Pillars Are Being Recovered

MSHA is proposing to revise paragraph (e) and to repropose existing paragraph (f). A requirement would be added in paragraph (e) that provides that in addition to designing mining systems so that worked-out areas can be sealed, the location and sequence of construction of proposed seals would also be specified in the approved ventilation plan. Improper location and sequencing of seal construction can have a deleterious effect on mine air quality and ventilation and therefore the location and sequence of construction of these seals should be reviewed and approved as a part of the ventilation plan. Under the previous standard, the proposed location and sequence of construction of all necessary mine seals was required to be submitted for approval as part of the sealing plan required by § 75.330. Under the existing standard, the location of proposed seals is required to be shown on the ventilation map required by § 75.372. Showing the location on the map does not subject the location to approval and therefore the Agency agrees that it does not satisfy the objective of assuring proper location and sequencing. The proposal would rectify this situation.

Through meetings with various segments of the mining community, the Agency also became aware of a concern that paragraph (f) of § 75.334 may have been promulgated without the benefit of adequate comment. Paragraph (f) addresses mines with a demonstrated history of spontaneous combustion or those located in coal seams determined to be susceptible to spontaneous combustion. Although the Agency believes that the promulgation of paragraph (f) of this standard was done appropriately, it is being repropose for the purposes of receiving and giving consideration to all pertinent comments.

As discussed in the preamble to the existing standard, several commenters suggested that bleeder systems should not be required for all mines, stating that in some mines the practice of ventilating worked-out areas increases the risk of spontaneous combustion by supplying oxygen to combustion-prone materials in these areas. These

commenters requested that the final rule include provisions to address spontaneous combustion. MSHA recognized the need to reduce the flow of oxygen to areas where there is a likelihood of spontaneous combustion and the existing rule requires the approved ventilation plan to address spontaneous combustion in mines with a demonstrated history of this hazard or mines that are located in coal seams determined to be susceptible to spontaneous combustion.

Experience gained through application of this standard has demonstrated that paragraph (f) applies to only a few mines. However, studies by the Bureau of Mines have identified the volatile properties of coal seams and have determined that certain seams are susceptible to spontaneous combustion. The existing standard, as repropose, is also directed to mines in these seams.

Under paragraph (f) of the proposal, the approved ventilation plans for mines that are susceptible to spontaneous combustion must specify measures to detect methane, carbon monoxide, and oxygen concentrations in worked-out areas. These measures must be taken during and after pillar recovery and in worked-out areas where no pillars have been recovered. The purpose of these measures is to determine if worked-out areas must be ventilated or sealed. If the methane concentration or other hazards in the worked-out area cannot be controlled while the mine is limiting airflow to avoid spontaneous combustion, it may be necessary to ventilate or seal the worked-out area. These measures also help to determine the extent to which the worked-out areas can be ventilated without increasing the spontaneous combustion hazard.

The Agency is concerned with the inability of some mines that have a spontaneous combustion problem to reduce the oxygen content to a sufficiently low level. It is well known that the oxygen level in a gob varies depending on the location where the measurement is made. For example, the periphery of a gob normally will have higher oxygen levels than the interior of the gob. The oxygen level in the interior of the gob is critical when dealing with spontaneous combustion. If conditions are such that the oxygen content in critical areas within a gob cannot be reduced below that necessary for a methane ignition to occur, a bleederless system may not be appropriate. The Agency solicits comments on this subject.

Under the provisions of paragraph (f) the operator is required to specify the action that will be taken to protect

miners from the hazards of spontaneous combustion. This requirement would be triggered if the mine has a demonstrated history of spontaneous combustion, or, if an evaluation of the susceptibility of the coal seam to spontaneous combustion leads to a mine operator determination that a bleeder system should not be used. In these cases the approved ventilation plan must specify the methods that the operator will use to control spontaneous combustion, as well as accumulations of methane-air mixtures and other gases, dusts, and fumes in the worked-out area.

During informational meetings and through the application of this standard, the Agency has become aware that the conditions under which air flow can be adjusted within a bleeder system is the subject of some concern. The following discussion is intended to address this concern and clarify the Agency's position. When adjustments to air flow in the bleeder entries are needed to assure proper functioning of the system, these adjustments would be made in accordance with § 75.324, Intentional changes in the ventilation system. As explained in the preamble discussion of existing § 75.324, when the adjustment in the bleeder system results in a change in direction of the air in the bleeder entry, this is a change in ventilation that could materially affect the safety or health of miners, and the precautions of § 75.324 apply. As addressed under § 75.324, other changes to air flow in the bleeder entry may also materially affect the safety or health of miners, and the precautions of § 75.324 would apply. However, it is not intended that each and every change to bleeder ventilation be considered to materially affect the safety or health of miners. For example, minor changes needed to correct a localized condition, such as removing a methane accumulation in a high spot, may be possible. The operator must evaluate each change prior to its implementation and, if doubt exists as to whether the change is material, safety dictates that the change be treated as a material change and the provisions of § 75.324 be followed.

Section 75.340 Underground Electrical Installations

MSHA proposes to revise paragraph (a) of existing § 75.340 for the purpose of clarifying the standard and to add requirements that a visual and audible alarm be provided on installations utilizing automatically activated doors and that, for installations equipped with sensors, monitoring of intake air ventilating battery charging stations be done with sensors not affected by hydrogen. For clarity, requirements for

underground electrical installations to be in either noncombustible structures or areas or to have fire suppression systems have been put into separate paragraphs. Paragraph (a)(1) sets out the requirements that apply when a noncombustible structure or area is used for underground electrical installations. Similarly, paragraph (a)(2) sets out the requirements that apply when a fire suppression system is used. A provision has been added to proposed paragraph (a)(1)(iii) that requires that electrical installations be equipped with a device to activate a visual and audible alarm located outside of the enclosure on the intake side of the installation. In addition, to maintain consistency with proposed paragraphs (a)(1)(ii) and (a)(2)(ii) of this section, proposed paragraph (a)(1)(iii) would be revised to include the provision that monitoring of intake air ventilating battery charging stations be done with sensors not affected by hydrogen. Proposed paragraph (a)(1)(iii) addresses installations which are ventilated with intake air and equipped with sensors to monitor for heat and for carbon monoxide or smoke for the purpose of activating and automatically closing doors. The device would activate when the temperature reaches 165 degrees Fahrenheit or the carbon monoxide concentration reaches 10 parts per million above the ambient level for the area, or the optical density of smoke reaches 0.05 per meter. The visual and audible alarm required should be situated so that it can be seen or heard by persons traveling in the intake entry immediately adjacent to the installation. It was suggested to the Agency that these electrical installations may be susceptible to fire and the fire could go undetected. The visual and audible alarms would provide additional safety at these installations.

Section 75.342 Methane Monitors

Informational meetings, later discussions on the rule, and recent experience have indicated that simply requiring methane monitors to be maintained in permissible condition does not completely satisfy the need for assuring proper maintenance. It was suggested that it is necessary to have a requirement that a trained person perform maintenance to preclude the possibility that a person with less than the necessary understanding of the monitor and the permissibility requirements would be assigned the task. Under the proposal, methane monitors must be properly maintained at all times. Like the existing rule, proposed paragraph (a)(4) would require that each methane monitor be calibrated

with a known air-methane mixture at least every 31 days. The Agency would expect that, when necessary to maintain permissibility, methane monitors would be calibrated more frequently. To assure the appropriate level of maintenance, paragraph (a)(4)(i) would require that this maintenance be done by a trained person. To further assure the adequacy of the maintenance provided, paragraph (a)(4)(ii) would require, similar to the previous standard, the operator to develop and adopt a written maintenance program, a copy of which would be made available for review by authorized representatives of the Secretary and the representative of miners. The investigation into the recent explosion at the No. 3 Mine, Southmountain Coal Company, Inc., illustrates the importance of proper maintenance of methane monitors and the need for assuring that maintenance and calibration are being done properly. Although the Southmountain investigation report did not conclude that the methane monitor on the continuous mining machine was involved in the explosion, it did state that, " * * * the methane monitor was likely in a condition that would not have allowed for accurate atmospheric monitoring of the area prior to and at the time of the explosion * * *." Appendix H of the report states, "The methane monitor was not maintained as approved due to the use of a rag in place of the sintered metal screen filter in the dust guard. The methane monitor was not properly calibrated, as received. If this condition existed at the time of the explosion, the methane monitor would not have been able to accurately detect the presence of methane." The Agency believes that the best way to assure that maintenance and calibration are properly done is through a written maintenance program with which everyone involved is familiar.

The Agency would expect that, at a minimum, the maintenance program would include the following: (1) Checks to assure that all components of the methane monitor are securely attached to the machine on which it is mounted and that all packing glands are properly packed and secured; (2) Checks to assure that the sensor head is installed as close to the face end of the machine as practicable and that the vent holes and filter(s) on the sensor head are not clogged with water, dust, or other material; and (3) Checks to assure that the warning device can be seen or heard by the machine operator at all locations from which the machine is operated and that the lens(es) protecting the meter and indicating lamps is not cracked or

broken. The maintenance program should also make provisions to assure that the methane monitor meter or readout assembly is properly adjusted to indicate zero percent methane when no methane is present and that it is not possible to defeat the monitor by holding or blocking the machine's reset switch in the start position. The program should also specify the procedure for assuring that a warning is given when 1 percent methane is indicated on the meter or readout assembly and that all motors and lights on the machine are automatically deenergized when 2 percent methane is indicated on the meter or readout assembly.

During informational meetings and subsequent discussions, MSHA heard suggestions that without a requirement for a record to be maintained of calibration tests, similar to that required by the previous regulation, there would be no way for the Agency or miners to verify that the tests were made. Upon reconsideration, and in light of the Southmountain explosion investigation, MSHA agrees that records of calibration tests would be beneficial and is therefore proposing, in paragraph (a)(4)(iii), that a record of all calibration tests be kept in a book maintained for this purpose on the surface at the mine. Like other records required by this proposal, the records of methane monitor calibration tests are to be made in a state-approved book or in a bound book with sequential machine-numbered pages. This is being proposed to reduce the likelihood that pages or records could be lost or misplaced. Comments are solicited on the use of this type of recordkeeping book and on an alternative approach wherein the Agency would develop, in coordination with the states, books specific for the required records.

Under paragraph (a)(4)(iv) of the proposal, the records would be required to be retained for at least 1 year at a surface location at the mine and be made available for inspection by representative of miners and by authorized representatives of the Secretary.

Section 75.344 Compressors

This standard specifies requirements for compressors in underground coal mines. The proposal would revise paragraph (a)(1), redesignate existing (b)(2) as (b)(3) and add new (b)(2) and (e).

Improperly used or maintained compressors can present a significant risk of fire. To minimize this hazard to miners, the existing regulation addresses the detection and suppression

of compressor fires, and specifies installation and operation requirements for compressors. The Agency has stayed paragraph (a)(1) of § 75.344 of the existing regulation, which requires all compressors to be located in noncombustible structures or areas. During the informational meetings, it was brought to MSHA's attention that in some instances requiring such a structure could present a fire hazard.

The proposal recognizes in paragraph (a)(1) that it is possible to provide the desired level of protection by permitting compressors to be operated while attended, rather than requiring that they be located in noncombustible structures or areas. Commenters pointed out that requiring all compressors, including portable compressors, to be located in noncombustible structures or areas might result in a fire hazard. The primary hazard identified in these instances is the buildup of heat within the structure if sufficient ventilation for cooling is not provided. Another hazard identified during discussions on this section is potential delay in roof bolting during construction of a suitable structure or area for the compressor used for bolting. Recognizing these potential hazards, the proposal would require compressors to be located in noncombustible structures or areas, provided adequate ventilation is maintained for cooling or, as an alternative, would require compressors to operate while attended. If the compressor is operated while attended, it is the Agency's intention that the person be able to see the compressor and recognize a problem and is close enough to activate the required fire suppression system and assure that the compressor is deenergized or shut off. This would not preclude the individual from performing other duties, including those involving the use of the compressor. However, it would require that the individual be in close proximity to the compressor. The Agency solicits comments on whether the standard should specify a distance and what that appropriate distance would be. If a specific distance is recommended, the commenters should also provide the rationale for that distance.

Regardless of whether the compressor is located in a noncombustible structure or area or operated while attended, existing paragraph (b)(1) requires that the compressor, if not ventilated with air coursed directly into a return air course or to the surface, be operated only while it can be seen by a person designated by the operator. The difference between proposed paragraph (a)(1), and the existing paragraph (b)(1) would be the distance the designated

person could be from the compressor. Under proposed paragraph (a)(1) the designated person would be required to be close enough to activate the fire suppression system, to deenergize or shut off the compressor, and to see the compressor. Under paragraph (b)(1), the designated person need only be able to see the compressor.

In response to comments, the Agency is proposing paragraph (b)(2), which provides additional flexibility for compressor installations while maintaining the same level of protection. Proposed paragraph (b)(2) would add an alternative that would apply to compressors located immediately adjacent to a return air course where a substantial pressure differential exists. This alternative would not be appropriate for applications near working sections where low ventilation pressure differentials exist.

Substantial pressure differentials are necessary to provide the air velocities required to prevent smoke rollback.

Under proposed (b)(2), a compressor could be situated adjacent to a return air course, between two permanent ventilation controls through which an air split would be maintained from a small diameter opening in the intake-side control to a larger diameter opening in the return-side control. In lieu of the intake-side ventilation control, a door may be constructed in accordance with § 75.333 (d)(1) and (d)(2). Section 75.333(d)(3), which requires doors to be constructed in pairs, would not apply in this case. The Agency intends that this door remain closed at all times while the compressor is operating. This door would provide easy access to the compressor. The Agency would continue the practice of accepting as doors the fire-resistant check curtains described by Steven J. Luzik in "MSHA Develops New Fire-Resistant Check Curtains," *Coal* magazine, pages 102-104, June 1993. The ventilating air quantity must be adequate to provide the essential cooling of the compressor. The Agency expects operators to provide the air quantity necessary to assure that the maximum ambient operating temperature specified by the compressor's manufacturer is not exceeded. Similarly, any other ventilating or temperature parameters specified by the manufacturer would be considered in determining an adequate ventilating air quantity.

In addition to an air quantity necessary to provide cooling, the air velocity through the intake-side opening would be required to be sufficient to prevent any air reversal or possible smoke rollback in the event of a

compressor fire. In determining sufficient air velocities, the Agency has placed in the rulemaking record the 1977 MESA Informational Report, Ventilation to Control the Smoke From a Fireproof Structure, (IR 1054). That report concludes that smoke rollback should not occur if the centerline velocity through the intake-side opening (not to exceed 16 x 24 inches) is at least 1,100 feet per minute (fpm) and the discharge opening is not smaller than the intake opening with at least 10 feet between the ventilation controls. The report also indicates that the intake opening should be close to the floor and the discharge opening should be near the roof. The Agency solicits comments on whether the velocity and associated parameters outlined in IR 1054 are appropriate.

The proposed paragraph (b)(2) alternative also requires sensors for heat or carbon monoxide or smoke to be installed between the two permanent ventilation controls. The sensors would be required to activate a visual and audible alarm located outside of the enclosure on the intake side when either condition specified in paragraph (b)(3) (i) or (ii) occurs. The visual alarm should be situated so that it can be seen by persons traveling in the intake entry immediately adjacent to the enclosure.

Paragraph (e) of the proposal has been added in response to suggestions that compressors have an automatic shutdown feature that deenergizes or shuts off the compressor when the required fire suppression system is activated. The Agency recognizes that under § 75.1107-4 automatic deenergization is required if the automatic fire suppression system is activated on unattended electrically powered compressors. However, paragraph (e) would clarify that automatic deenergization or shutdown is required for both attended and unattended electric and diesel powered compressors. This paragraph also would require the compressor to be automatically deenergized or shut off if one or more of the doors (required by paragraph (b)(3)) close. Historically, fires on compressors that continue to operate have resulted in oil being released, which has contributed to the severity of the fire. For this reason, the Agency believes that safety is best served by requiring compressors to be automatically deenergized or shut off when the fire suppression system is activated.

It was suggested that the cutoff for application of § 75.344 be changed from 5 horsepower for all compressors to 30 horsepower for reciprocating compressors and 5 horsepower for all

other types of compressors. The rationale presented for this suggestion is that reciprocating compressors of up to 30 horsepower contain about the same amount of lubricating oil as a 5 horsepower oil-flooded rotary compressor. This suggestion is not adopted in the proposal because the Agency has information (Report No. 06-292-87 of the Industrial Safety Division, Pittsburgh Safety and Health Technology Center) that the predominant hazard for fire or explosion in reciprocating compressors is not the lubricating oil but rather the formation of carbonaceous deposits in the discharge system. A review of accident reports indicated that nine mine fires started in compressors between 1970 and 1992. Two of these nine fires occurred in compressors of the type subject to a buildup of carbonaceous deposits. Although it is not known that this buildup was the cause of these fires and the compressors involved were larger than 30 HP, these fires are of concern to the Agency. The Agency solicits additional comments on the safety considerations associated with reciprocating compressors.

Section 75.360 Preshift Examination

MSHA is proposing several modifications to the requirements in the existing § 75.360, Preshift examinations. Paragraph (e) would be removed, existing paragraphs (f) through (h) would be redesignated as (e) through (g), paragraphs (a), (b), (c), and (f) would be revised, and new paragraphs (b)(8) through (b)(10) would be added.

The informational meetings and later discussions on the rule indicated some confusion over the application of preshift examination requirements to pumpers. The questions focused on the need to preshift examine areas of the mine where pumpers were scheduled to work or travel. In response to these questions, the Agency has reviewed its position on this issue and has determined that the interest of safety is best served by permitting pumpers to perform examinations for themselves, provided they are certified. The existing regulation requires that areas where pumpers are assigned to work or travel be preshift examined even if the pumper is certified. The proposal would modify § 75.360 by requiring in proposed paragraphs (a)(1) and (a)(2) that certified pumpers perform these examinations if the area has not been preshift examined. However, if the pumper is not certified, the proposal would continue to require the areas where the pumper is assigned to work or travel to be preshift examined. Paragraph (a)(2) of the proposal would require that the pumper

make a record by or at the end of the shift of all hazardous conditions found.

As with other examinations required by this subpart, no one may accompany the pumper during this examination. If persons other than the certified pumper are scheduled to enter the area, a preshift examination is required. However, pumpers may conduct supplemental examinations in accordance with § 75.361 for other persons, provided certified pumpers: (1) have been designated by the operator to conduct these examinations; (2) conduct these examinations within 3 hours prior to anyone's entering the area; and (3) conduct these examinations in areas where persons were not scheduled to work prior to the beginning of the preshift examination. The proposal would provide at least the same level of safety as the existing regulation because a complete examination by a certified person would still be required and the examination would be conducted closer to the time that miners would actually enter the area.

Paragraph (b) is proposed for revision to address conditions to be checked by the preshift examiner. Under the existing rule, the preshift examiner is required to examine for hazardous conditions. The preamble to the existing rule states the Agency's position that "Most 'hazards' are violations of mandatory standards." (57 FR 20894, May 15, 1992.) It further states that requiring a preshift examiner to look for all violations could distract the examiner from the more important aspects of the examination and that a district manager could require the preshift examiner to include examination for other hazards. Upon reconsideration, the Agency is proposing that the preshift examination be expanded to include an examination for noncompliance with mandatory safety or health standards that could result in a hazardous condition, as well as other hazardous conditions. This proposal places the examiner and the operator in a proactive rather than a reactive role and therefore has the potential to enhance safety by identifying a condition before a hazard exists.

Under proposed paragraph (b)(1), roadways, travelways and track haulageways where persons are scheduled to work or travel during the oncoming shift must be preshift examined. The proposal would clarify that the preshift examination includes travelways in addition to roadways and track haulageways. This is being proposed based on comments received that the terms "roadways" and "track haulageways" specifically refer to areas

where mobile powered equipment is operated. The addition of the term travelways in the proposal would require areas where persons are scheduled to travel on foot to also be preshift examined since hazards may also exist in these areas. The remaining portion of the existing paragraph has been transferred to paragraph (b)(10).

Proposed paragraph (b)(3) would require an examination for hazardous conditions and noncompliance with mandatory safety or health standards that could result in a hazardous condition, tests for oxygen deficiency and methane, and a determination if the air is moving in its proper direction on any section that is not scheduled to operate but is capable of producing coal by simply energizing equipment. This is in addition to the existing requirement that these examinations and tests be made on working sections and areas where mechanized mining equipment is being installed or removed. It has been the Agency's position that sections that are capable of producing coal by simply energizing equipment should be examined in accordance with § 75.361, Supplemental examinations. However, as pointed out by commenters, a number of fatalities have been the result of persons being sent into areas that should have been examined but were not. Because there is a reasonable likelihood that miners will at some point during a working shift enter sections that are set up to mine coal, the Agency is proposing that these sections be preshift examined.

The Agency has become aware of an opinion of a segment of the mining community that those parts of § 75.360 related to areas where mechanized mining equipment is being installed or removed were promulgated without the benefit of adequate comment. Although the Agency believes that the promulgation of this standard was done appropriately, it is being repropounded for the purposes of receiving and giving consideration to all pertinent comments.

As stated in the preamble to the existing rule, "The Agency has always considered these areas to be subject to the requirements of the preshift examination; however, an investigation following an explosion at the William Station Mine indicated that some confusion existed on this issue." (57 FR 20894, May 15, 1992.) The Agency's position on this issue remains unchanged at this time; however, comments are specifically solicited relative to the need to preshift examine these areas.

Paragraph (b)(3) would also require the examination to include a test of the roof, face and rib conditions on these

sections or in these areas. This is to clarify the Agency's position that failures of the roof, face and rib pose a hazard to miners. It has been suggested to the Agency that specifically requiring this examination is proactive rather than reactive and is therefore the preferred approach. The Agency has reconsidered its approach and agrees.

Existing paragraph (b)(4) requires that a preshift examination of the approaches to worked-out areas along intake air courses be conducted if intake air passes by the worked-out area to ventilate working sections where anyone is scheduled to work during the oncoming shift. The proposal would revise paragraph (b)(4) by also requiring that the entries used to carry air into these worked-out areas be preshift examined. Under the provisions of existing § 75.332(a)(1), air that ventilates a working section or an area where mechanized mining equipment is being installed or removed must be a separate split of intake air. Air that ventilates a worked-out area is return air and cannot be used. The preshift examination required by proposed paragraph (b)(4) is intended to assure that miners are not exposed to the hazards associated with ventilating working sections with return air and that air that enters a worked-out area in one entry does not reenter the intake air course. Additionally, the proposal would clarify the Agency's intent that the examination of the approaches to these worked-out areas be made immediately inby and outby each entry used to carry air into the worked-out area.

Paragraph (b)(6) of the proposal addresses concerns raised during the informational meetings and later discussions on the rule that requiring examination or rehabilitation of rooms and entries described in paragraphs (i) and (ii) could constitute a hazard. The existing standard requires a preshift examination of entries and rooms driven more than 20 feet off an intake air course without a crosscut or more than 2 crosscuts off an intake air course without permanent ventilation controls where intake air passes through or by these entries or rooms to a working section where anyone is scheduled to work during the oncoming shift. It was pointed out that often these rooms and entries have existed without incident for many years, which has allowed methane to bleed off. The Agency also heard assertions that as written the existing regulation may cause a diminution of safety to miners. It was stated that certain areas have been timbered heavily and cribbed because of adverse roof conditions and that rehabilitating such areas would unnecessarily expose

workers removing or repositioning cribs to hazards. It was also stated that these areas are subject to roof falls and may remain prone to roof falls and hazardous conditions even after rehabilitation. Finally, it was stated that any advantages that come from physical inspection of these entries or rooms are outweighed by the danger to which the examiner may be exposed.

In light of these concerns, the Agency has proposed that rooms and entries developed prior to November 15, 1992, need not be preshift examined and requests additional comment as to the impact on safety. Proposed paragraph (b)(6) requires that entries and rooms developed after November 15, 1992, either be preshift examined or ventilated using permanent ventilation controls.

In response to comments, the Agency is proposing in paragraph (b)(8) that the preshift examiner check high spots along intake air courses where methane is likely to accumulate if equipment may be operated in the air course during the shift. It has long been recognized by the industry that methane can accumulate in high areas with no indication in the normal mine entry. As equipment passes under these areas, the methane is pulled down and mixed with the air in the entry and may be ignited by the equipment. Through proper ventilation and examination, this hazard can be eliminated.

During informational meetings, commenters expressed concern about the potential fire and ignition hazards associated with electrical installations and compressors. Paragraph (b)(9) of the proposed rule would require that electrical installations referred to in § 75.340(a), except for water pumps, and the areas where compressors subject to § 75.344 are located, be preshift examined if the installation or compressor is or will be energized during the shift. Pumps would be exempted because of the limited hazard presented by pumps and because certified pumpers would conduct examinations for themselves in accordance with paragraph (a)(2) as they entered the area where the pump is located. The purpose of examining electrical installations and compressors would be to assure that methane in unacceptable concentrations is not present in these areas and that there are no signs of fire. The Agency solicits comments on this proposed requirement.

In addition, the proposed rule would modify existing § 75.360 to more clearly address those situations where miners are scheduled to work or travel after the preshift examination has begun. The

proposal would amend paragraph (a), add a new paragraph (b)(10), and make a conforming editorial change to existing § 75.360(b)(1). The existing § 75.360(b)(1) requires that a preshift examination include areas where miners are scheduled to work or travel during the oncoming shift. The proposal reflects the fact that on occasion miners may be given their work assignments, and thus be scheduled to work or travel in an area, after the preshift examination has begun. This may occur, for example, due to changing conditions in the mine. In these cases the supplemental examination, rather than the preshift examination, would be required. In accordance with provisions of § 75.361, a certified person must perform an examination of any area where a preshift examination was not made before any person enters the area. To permit these areas to be examined other than on the preshift examination maintains the existing level of safety because a complete examination by a certified person would be required. The examination would be conducted closer to the time that persons will actually enter the area, and any area where a hazardous condition exists will be posted.

Consistent with the proposed change to paragraph (b)(3) requiring a preshift examination on any section that is not scheduled to operate but is capable of producing coal by simply energizing equipment, proposed paragraph (c) would require the preshift examination to include air measurements in these areas. Adequate ventilation is the primary means for assuring that methane does not accumulate in these areas, and therefore it is necessary to determine that an adequate volume of air is present. As stated previously, because there is a reasonable likelihood that miners will enter sections that are set up to mine coal at some point during a working shift, the Agency is proposing that these sections be preshift examined and that this examination include the air measurements described in proposed paragraph (c).

Requirements for the posting of hazardous conditions found during the preshift examination are specified in existing paragraph (e) of § 75.360. They would be transferred to § 75.363. Additionally, under the requirements of proposed § 75.363(a), hazardous conditions found by the preshift examiner or the pumper would have to be corrected immediately. Also, if these conditions create an imminent danger, everyone except those persons referred to in section 104(c) of The Federal Mine Safety and Health Act of 1977 (the Act) must be withdrawn from the area

affected to a safe area until the hazardous condition is corrected. Only persons designated by the operator to correct or evaluate the conditions would be permitted to enter the posted area. The requirement that the hazardous condition be corrected immediately is not intended to require correction by the preshift examiner. To do so would delay the completion of the preshift examination. Rather, it is intended that the condition be corrected immediately following its reporting by the preshift examiner. Under the proposal the area would be posted and would remain posted until the hazardous condition is corrected.

The existing paragraph (g) that addresses the record that must be made of the preshift examination would be redesignated as paragraph (f). Commenters felt that the requirement left no latitude for recording findings of the examiner other than those listed. The preamble to the existing rule states that the reason for revising recordkeeping requirements was to " * * * lessen paperwork burden without lessening the protection provided miners." This has not changed. However, commenters indicated that by not permitting examiners to record the results of their examinations, the protection afforded miners could be lessened. In response to these comments, the Agency is proposing to modify existing paragraph (g) by reinstating a previous requirement that examiners record the results of the examination. This would include hazardous conditions and their locations and the results and locations of air and methane measurements. This is intended to require the preshift examiner to record noncompliance with mandatory standards that could result in a hazard and observations made during the examination, such as changes in water levels, which, if left unattended, could block ventilation, resulting in a hazard to miners.

The proposal would also clarify that the examiner must record the results of methane tests in terms of the percentage of methane found, as opposed to being characterized by terms such as "trace." Recording a percentage would provide more precise information for the reviewing officials. The Agency solicits comments on this approach to recording the results of preshift examinations.

Additionally, proposed paragraph (f) would require that a record be made of the action taken to correct hazardous conditions found during the preshift examination. Knowledge by mine management of the action necessary to correct a hazardous condition is important for the proper evaluation of

the effectiveness of various actions. For example, if a hazardous condition occurs repeatedly and the action taken to correct it is the same each time, management should consider the effectiveness of the corrective action being taken. This requirement is consistent with recordkeeping requirements found in § 75.363 and § 75.364.

Following publication of the final ventilation rule in May 1992, comments received by the Agency indicated that a change was perceived in the requirement for "prompt" countersigning by the mine foreman or, in the absence of the mine foreman, by the person designated to perform the duties of the mine foreman. The final rule did not include the previous requirement that the mine foreman must countersign the report "promptly." Although no change was intended by the Agency, MSHA is proposing in paragraph (f) that the preshift examination report be countersigned by the mine foreman by the end of the mine foreman's next scheduled working shift. The Agency intends that the mine foreman, the person most responsible for the day-to-day operation of the mine, be notified of the information contained in the reports. Allowing until the end of the mine foreman's next regularly scheduled working shift to countersign the report would assure that the mine foreman is aware of the results of all preshift examinations and can implement necessary corrective actions in a timely manner.

The proposal would also require that within two scheduled production days after the mine foreman has countersigned, the record of the examination be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. This would be similar to the requirement of the previous regulation that the superintendent countersign records of the preshift examination. The preamble to the existing standard discusses removing the countersigning requirement by the superintendent on the basis that the superintendent, in many cases, is not a certified person and the mine foreman is given responsibility for countersigning because the mine foreman is the person most knowledgeable of the day-to-day operation of the mine. Countersigning by the mine foreman was retained. However, as indicated during informational meetings and subsequent discussion, the mine foreman is not necessarily the person in a position to redirect resources to address the safety concern. After reconsidering the

existing language, the Agency is proposing to require countersigning by the mine foreman and by the superintendent, mine manager, or other official to whom the mine foreman is accountable, to assure that a higher level official, empowered to redirect resources, is aware of any condition requiring corrective actions. Since this second level official may not be physically located at the mine on a full-time basis, a period of two scheduled production days is proposed as a reasonable period of time for countersigning. The Agency solicits comments on this approach to countersigning the report of the preshift examination.

The proposal would require that the record be made in a state-approved book or in a bound book with sequential machine-numbered pages. Comments are solicited on this approach and on an alternative approach wherein the Agency would develop, in coordination with the states, books specific for the required records.

Identical provisions to those proposed in paragraph (f) of § 75.360 for countersigning records and for keeping the records in a state-approved book or in a bound book with sequential machine-numbered pages appear in § 75.363(c) and § 75.364(h).

Section 75.362 On-shift Examination

MSHA is proposing to redesignate existing (d)(1)(i) and (ii) as (d)(1)(ii) and (iii), revise paragraphs (a)(1), (c)(1), (d)(1)(iii) and (d)(2), remove paragraph (a)(2), and add new paragraph (a)(2) and (d)(1)(i). MSHA also proposes to transfer the paragraphs (g) and (h) recordkeeping and retention requirements to § 75.363, Hazardous conditions, posting, correcting, and recording, and add a new paragraph (g).

Paragraph (a) would be modified in paragraph (a)(1) to require a certified person to conduct an on-shift examination of a section during any shift when anyone is assigned to work on the section and where mechanized mining equipment is being installed or removed. The existing rule requires that an on-shift examination be performed only on sections where coal is produced and where mechanized mining equipment is being installed or removed. The Agency agrees with comments received during informational meetings that many of the same hazards can exist for persons working on a section, regardless of whether coal is being produced. For example, many times miners are assigned to perform maintenance work on a section when no production is scheduled. This maintenance work can

involve disabled equipment that cannot be moved from the face area or from an area near a pillar line. In these situations, hazards can be equivalent to those encountered by miners during normal coal-producing operations or similar operations on the section.

The Agency proposes to revise paragraph (a) to incorporate the word "on-shift" in the first sentence of the paragraph. The word "on-shift" was inserted for clarification and consistency with other paragraphs of § 75.362. The Agency is also proposing to revise paragraph (a)(1) to clarify that sufficient on-shift examinations be conducted to assure safety. It was suggested to the Agency that MSHA should include language to require more than one examination if necessary for safety, as provided for in the previous standard. The Agency is adopting this approach and is proposing that at least once during each shift, or more often if necessary for safety, a certified person designated by the operator would be required to conduct an on-shift examination of each section where anyone is assigned to work during the shift and any area where mechanized mining equipment is being installed or removed during the shift.

The Agency has become aware of an opinion of a segment of the mining community that language in paragraphs (a)(1), (c)(1) and (c)(2) requiring an on-shift examination of areas where mechanized mining equipment is being installed or removed was promulgated without the benefit of adequate comment. Although the Agency believes that the promulgation of this standard was done appropriately, these paragraphs are being repropounded for the purposes of receiving and giving consideration to all pertinent comments. The word "working" is removed from (c)(1) to assure the application of the standard would extend to all sections.

The Agency has determined that a specific examination requirement should be added to assure compliance with the respirable dust control parameters designated in the mine ventilation plan. Assuring full compliance with these parameters is important in safeguarding the health of the miners. Agency experience shows that needed attention has not always been given to the required respirable dust control parameters. Citations issued by the Agency during a special spot inspection program, undertaken in 1991 at the request of MSHA's Coal Mine Respirable Dust Task Group, in which Agency inspectors conducted several checks of the dust control parameters during the course of each sampling shift, revealed that 21 percent

of the 781 mining units sampled were not complying with one or more of the parameters. In its 1992 report, the Agency's Task Group recommended that MSHA " * * * require coal mine operators to make periodic on-shift examinations to verify that the ventilation plan parameters are in place and functioning as intended" (p. 47). The Agency agrees and considers on-shift examinations of dust control parameters an important part of reasonable and prudent dust control strategy.

Thus the proposal, in paragraph (a)(2), would add a new on-shift examination requirement to address respirable dust control. Under the proposal, at or near the beginning of any shift before coal production begins on a section, a certified person designated by the operator would conduct an examination for compliance with the dust control parameters established in the mine ventilation plan. Corrective actions to assure compliance would be required to begin immediately. The proposed examination would include measurements for compliance with required water pressures and flow rates, number and orientation of water sprays, air quantities and velocities, section ventilation setup and control device placement, and any other dust control parameter required in the ventilation plan.

Several methods of measuring water spray pressures would be acceptable. For example, water flow and pressure can be monitored through the installation of an in-line water meter and a pressure transducer. Water pressure can also be measured by permanently installing a pressure gauge on a machine. Operators would determine the working relationship between the pressure gauge reading and the actual operating pressure at the sprays. Once the working relationship has been established, the gauge pressure could be used to indicate the actual spray pressure specified in the ventilation plan for a given number of operating sprays.

Measurement of any required water flow rate could be accomplished through the installation of a flowmeter. A flowmeter provides a direct and reliable measurement and is the preferred method of determining water flow rate. Another acceptable method of determining flow rate would be to establish the relationship between the water pressure and the spray orifice diameter, either through engineering data or through actual tests. Once established, the water pressure gauge reading could be used to reliably

indicate a flow rate for a specific number of sprays at a given orifice size.

The proposed requirement would specify that the number of water sprays and their orientation be included in the examination. While spray orientation is important in air-directing spray systems such as sprayfans and shearer-clearers, the Agency does not intend that precise angles be determined during each examination by the use of engineering instruments. Rather, the correct direction and orientation of the sprays would be determined by comparison with the requirements of the ventilation plan.

The proposed requirement would also specify that the section ventilation setup and control device placement be examined for compliance with the ventilation plan. Information concerning section ventilation systems is currently required to be contained in the ventilation plan through § 75.371(f). Any other respirable dust control parameters specified in the approved ventilation plan would be included in the examination under the proposal. An example could be the cleaning and maintenance procedures for a wet bed scrubber installed on a continuous mining machine.

Given the importance of and the need for continually maintaining compliance with the dust control parameters to assure dust control, dilution and removal, an effective system of continuous monitoring of the performance and condition of the dust control parameters is desirable. The Agency is aware that through advances in technology it may be feasible to monitor air quantity and velocity, and spray water flow rate and pressure. Continuous monitoring offers the potential to further improve miner protection by providing real-time data on the performance and condition of the dust control parameters. This information can be used to give early warnings of deteriorating dust control conditions which can be corrected before the dust control system operates below the accepted standard. Although the application of continuous monitoring will eliminate the need for periodic physical measurements of key dust control parameters, visual observation will be necessary to verify compliance with other ventilation plan parameters. Among these are the number and location of operating water sprays, their general condition and orientation, the section ventilation setup and control device placement, and other control measures where performance and operating condition can only be assessed visually.

Although the proposal includes continuous monitoring as an option, the Agency is considering requiring the use of this technology at some later date when it becomes available. Comments are solicited on this approach. Specifically, comments are solicited on the parameters that lend themselves to continuous monitoring, the need for performance standards for monitoring devices, levels of detection, accuracy and precision requirements for monitoring devices, the need for alarms and/or warning signals when parameters monitored are outside of specified tolerances, and the polling frequency necessary to provide monitoring that is substantially continuous.

Paragraph (c)(1) would be modified to remove the word "working" modifying the word "section" in the current rule. The reason for this proposed change is to achieve consistency between paragraphs (a) and (c). Many of the activities to which persons are assigned would be on sections not normally thought of as working sections, since the term "working section" is often associated with coal production. For purposes of § 75.362, a section in the mine is considered to be the area inby the loading point, or the proposed loading point in the case of the installation of equipment, or the location of the last established loading point in the case of the removal of mechanized mining equipment. The certified person conducting the examination would examine the section in much the same way as it would be examined during a coal producing shift, including checking for hazardous conditions, testing for methane and oxygen deficiency, and determining if the air is moving in its proper direction.

Paragraph (c) would require certified persons conducting on-shift examinations to take the air measurements at the same locations where air measurements are required during the preshift examination. This would include areas where mechanized mining equipment, including longwall or shortwall mining equipment, is being installed or removed. This provides an additional check of the mine's ventilation system and verifies that ventilation changes in the mine during the production process have not occurred. Reduced volume or velocity of air during the shift can contribute to increased levels of respirable dust and the occurrence of methane accumulations or oxygen-deficient atmospheres.

The proposal includes an additional requirement under paragraph (d)(1). The new item appears as (i) while former (i)

and (ii) are redesignated as (ii) and (iii). Paragraph (i) would require that at the start of each shift an examination for methane be conducted at each working place before electrically operated equipment is energized on the section. Under the proposal, at the beginning of each shift, a methane examination would be conducted at each working place prior to energizing equipment. The provision would assure that the working places on the section are examined and determined to be safe before electrically operated equipment on the section is energized and normal work activities commence. The operation of electrically powered equipment is a recognized potential methane ignition source. The proposed rule would reduce the likelihood of ignition by requiring an examination for methane before this equipment is energized.

The Agency is also proposing to revise paragraph (d)(1)(iii) to require methane tests more often than at the current 20-minute intervals at specific locations during the operation of equipment in the working place when required in the approved ventilation plan. Commenters have expressed a concern that some mines, because of the methane liberation at the face during mining operations, need additional methane tests for safety. MSHA agrees and is proposing to reinsert language similar to that in the previous standard that would require that when necessary for safety, more frequent tests are to be made. It should be noted that the methane monitor installed as required by § 75.342, Methane monitors, has never been accepted as a means for satisfying the test requirements of this section, and likewise would not be accepted under the proposed rule.

It is proposed to modify paragraph (d)(2) to require that methane tests be made at the face of each working place using extendable probes or other acceptable means. The existing standard requires that these tests be made at the last row of permanent roof support, unless tests are required to be made closer to the working face using extendable probes. The previous standard, like the proposal, required these tests to be made at the face. However, it should be noted that it was a common practice at one time for miners to set temporary support in order to proceed inby permanent support to make methane tests. Given the hazards associated with advancing inby permanent support for any reason, the Agency prohibited this practice in the mid 1980's. The use of probes would permit methane tests at the face while continuing the Agency's policy of

prohibiting a person going inby the last permanent roof support to conduct a methane test. Comments received during informational meetings with the mining community stressed the need for methane tests to be conducted at the face during any mining operation. MSHA agrees that proper testing for methane at the face is essential for safe mining operations. Commenters questioned whether methane tests were being conducted adequately during deep cut operations. Some of the extended cuts currently being taken are up to 40 feet inby the last row of permanent roof supports. However, the Agency knows of no commercially available probe greater than 30 feet in length. In proposing the use of extendable probes or other acceptable means to test for methane during deep cut operations, MSHA realizes that the provision is technology forcing. By requiring methane tests at the face without having miners go inby the last row of permanent roof support, it is the intent of the Agency to achieve the maximum safety feasible. It is not the intent of the Agency to prohibit extended or deep cuts that are consistent with technologically feasible safe mining practices. In the interim, the Agency is soliciting comments on alternative compliance measures that could be acceptable in lieu of an extendable probe. The other changes proposed in paragraph (d)(2) clarify the location and frequency of the methane tests.

The proposal would transfer the existing recordkeeping and retention requirements under paragraphs (g) and (h) to § 75.363 Hazardous conditions, posting, correcting, and recording, and add a certification requirement under a new paragraph (g). The Agency received comments that without certification, no mechanism would exist to verify that examinations were conducted in belt conveyor entries. In response to these comments, proposed paragraph (g) would require, similar to a requirement of the previous standard, the on-shift examiner to certify by initials, date, and time that the belt conveyor entry was examined. The examiner would make this certification at a sufficient number of locations to indicate that the entire belt conveyor entry has been examined. This certification process is a common practice in the industry and is required by several state regulations.

Section 75.363 Hazardous Conditions; Posting, Correcting, and Recording

Section 75.363 is a new provision included in the proposal in response to comments received by the Agency. The commenters stressed the importance of

recording all hazardous conditions and questioned whether the existing standards require such a record in all cases. The Agency agrees that recording all hazardous conditions will result in a safety benefit by assuring notification of the mine foremen and certified persons who may be required to enter the areas to conduct the examinations. This would enable the examiner to double-check, during subsequent examinations, the areas where problems have occurred. The proposal would not require a record to be made for those shifts during which no hazardous conditions were found.

Proposed § 75.363 is intended to apply to all hazardous conditions except for the recording of hazardous conditions discovered during preshift and weekly examinations governed by §§ 75.360 and 75.364, respectively and the action taken to correct these conditions. Section 75.363 would also apply to hazardous conditions found during the supplemental examination, examinations conducted by pumpers for themselves, and the on-shift examination, as well as any other hazardous condition. The proposal recognizes that the existing rule already requires the recording of hazardous conditions found during preshift and weekly examinations. Records completed in accordance with §§ 75.360 or 75.364 need not be duplicated in the § 75.363 records. The Agency believes that records of hazardous conditions discovered during these examinations would be more appropriately kept in the books maintained exclusively for those examination results and that no purpose would be served by duplicating those records.

Paragraph (a) would require any area where a hazardous condition is found by or reported to the mine foreman, assistants to the mine foreman, or other certified persons designated by the operator to make examinations, to be posted against entry with a conspicuous danger sign. The danger sign would be placed at a location where anyone entering the area of the hazardous condition would pass so that persons approaching the area would be expected to see the danger sign. The posting of areas where hazardous conditions exist to alert persons is an accepted safety practice in the mining community. The area would remain posted until the hazardous conditions are corrected. As with the existing requirement in § 75.364, Weekly examination, paragraph (a) of the proposal would require that hazardous conditions be corrected immediately and that only persons designated by the operator to correct or evaluate the condition may

enter a posted area. Additionally, if the hazardous condition creates an imminent danger, everyone must be withdrawn from the affected area to a safe area until the condition is corrected. Persons referred to in section 104(c) of the Act are permitted to remain in the area.

Paragraph (b) of the proposal would require that once a hazardous condition is found, a record would be required to be kept in a book maintained for this purpose on the surface at the mine. A description of the hazardous condition, its location, and actions taken to correct the condition would be recorded. So as to make the information concerning hazardous conditions available to oncoming shifts, the proposal would require the record to be entered in the book by or at the end of the shift in which the hazardous condition was discovered. As explained in the preamble to the existing rule, commenters stated that a record of all hazards found during the examination is necessary to enable the examiner to double-check, during subsequent examinations, areas where problems have occurred. The Agency agrees with this position and therefore, consistent with the requirements of § 75.360, is proposing in paragraph (b) that a record be made of any hazardous condition found by or reported to the mine foreman, assistants to the mine foreman, or other certified person designated by the operator to conduct examinations under this subpart D. Additionally, knowledge by mine management of the action necessary to correct a hazardous condition is important for the proper evaluation of the effectiveness of various actions. For example, if a hazardous condition occurs repeatedly and the action taken to correct it is the same each time, management should reevaluate the effectiveness of the corrective action being taken. Therefore, the Agency is proposing in paragraph (b) that the record also include the action required to correct the hazardous condition. Paragraph (b) would not require a record of hazardous conditions found during preshift or weekly examinations, since the proposed regulations at §§ 75.360(f) and 75.364(h) would require records of hazardous conditions found during these examinations.

To assure the accuracy and completeness of the record, paragraph (c) of the proposal would require that the record be made either by the certified person or by a person designated by the operator. As with other records required by this subpart, when the record is made by a designated person other than the

certified person making the examination, the person making the record need not be certified. If the record is made by a person designated by the operator, the certified person would be required to verify the record by initials and date. Paragraph (c) of § 75.363 would also include provisions identical to those proposed in paragraph (f) of § 75.360 and paragraph (h) of § 75.364 for countersigning records and for keeping the records in a state-approved book or in a bound book with sequential machine-numbered pages. As discussed above under the section-by-section discussion for § 75.360(f), the requirements for countersigning would increase safety, particularly through increasing the awareness of the appropriate mine officials of the hazardous conditions requiring correction.

Consistent with the requirements for the retention of records in the existing rule, paragraph (d) of the proposal would require the record to be retained for at least 1 year at a surface location at the mine and be made available for inspection by the representative of the miners and by authorized representatives of the Secretary. Records of examinations provide the operator and other interested parties with a history of the types of problems discovered and changes in the ventilation system that have occurred. In the opinion of the Agency, a 1-year retention period is sufficient to satisfy this need.

Section 75.364 Weekly Examination

MSHA proposes to revise paragraphs (a), (b) and (h) of existing § 75.364. Paragraph (a) of the proposal would modify the requirements addressing the measurements to be made during the weekly examination to evaluate the effectiveness of bleeder systems and the ventilation of worked-out areas.

Proposed paragraph (a)(1) would require that in addition to measuring the methane and oxygen concentrations and determining if the air is moving in its proper direction in worked-out areas where no pillars have been recovered, the examiner would measure the air quantity where the air enters and leaves the worked-out area. Paragraph (a)(1) would also clarify that sufficient oxygen and methane measurements be made to assure adequate air quality. Commenters suggested, and the Agency agrees, that all of these measurements, including quantity and quality, are essential to the proper evaluation of the ventilation of the worked-out area.

Proposed paragraph (a)(2) would require that air quantity measurements be made at specific locations in bleeder

entries. These locations include: where air enters the worked-out area, paragraph (a)(2)(i); where air leaves the worked-out area, paragraph (a)(2)(ii); and, locations specified in the mine ventilation plan to determine the effectiveness of the bleeder system, paragraph (a)(2)(iii). The proposed measurement of air quantity, as with the currently required measurement of methane and oxygen and determination that air is traveling in its proper direction, is essential to the proper evaluation of the effectiveness of a bleeder system.

Proposed paragraph (a)(2)(iv) is intended to provide a mechanism for evaluating the effectiveness of bleeder systems without traveling the bleeder entries in their entirety. It is anticipated that this alternative will be utilized in those cases when travel is not possible or when it is not safe to travel the bleeder entries in their entirety. When elected, the method proposed for evaluation would be required to provide proper evaluation of the effectiveness of the bleeder system.

The following discussion is intended to address comments received relative to weekly examinations for hazardous conditions to the area of deepest penetration in rooms where no pillars have been recovered.

It is a common practice in the mining industry to develop rooms off of a set of advancing entries with the return-side rooms being mined on the advance and intake-side rooms being mined on retreat. Once each set of rooms is developed to the projected depth, mining is considered completed in that specific area. As each set of rooms is advanced, connections are normally made between the previously developed rooms and the set of rooms being advanced. The rooms are usually connected by crosscuts at the point of deepest penetration. Work in these rooms is discontinued as each set of rooms is completed, creating a worked-out area.

Commenters have raised questions concerning the extent of the examination required in these sets of rooms once they are completed. Also, comments have suggested that in this mining scenario, the area may not be considered worked out until the final set of intake-side rooms is completed.

The Agency considers rooms and sets of rooms where mining is completed to be worked-out areas. Therefore, a weekly examination for hazardous conditions by traveling to the area of deepest penetration of the rooms or set of rooms is required. The required examination includes measurements of oxygen and methane concentrations and

tests to determine if the air is moving in its proper direction.

If the rooms are connected from the first set of return rooms to the point of deepest penetration of the return rooms with no barriers providing separation, and similarly connected on the intake side, travel around the periphery of the rooms to the area of deepest penetration and conducting the required air and methane tests will satisfy the requirements of the section.

As provided in existing § 75.364(a)(1), an alternate method which provides effective evaluation of the area may be approved in the ventilation plan. However, approval of an alternate method in lieu of examination at the points of deepest penetration within a developed area would be unlikely unless the area were penetrated and ventilated by shafts, bleeder entries, or some other effective method of adequately evaluating ventilation of the area. Comments are specifically solicited on the issues discussed.

It has been suggested to the Agency that the requirement to evaluate the effectiveness of bleeder systems under paragraph (a)(2)(iii) can be satisfied by simply traveling the bleeder entries. Since the purpose of traveling bleeder entries is to evaluate the effectiveness of the bleeder system, this cannot be accomplished by simply traveling the entries. It is inherent in the requirement that the entries be traveled that the examiner periodically stop at critical locations to make such tests and measurements as may be necessary to determine that the bleeder system is working effectively. It would serve no purpose to require that the entries be traveled without an evaluation of the system's effectiveness. Although the Agency believes that the rule accurately reflects this intent and is not proposing to change the standard at this time, comments are solicited on this issue. Specifically, the comments should address the need for specifying where tests and measurements should be made, the nature of these tests and measurements, and whether this information should be included in the ventilation plan.

Paragraph (b) is proposed for revision to address conditions to be checked by the weekly examiner. Under the existing rule, the weekly examiner is required to examine for hazardous conditions. The preamble to the existing rule states the Agency's position that "Most 'hazards' are violations of mandatory standards." As with the preshift examiner, requiring the weekly examiner to look for all violations could distract the examiner from the more important aspects of the examination. Nonetheless, the Agency

feels there is merit in placing the examiner and the operator in a proactive rather than a reactive role in terms of identifying hazards. Consistent with proposed § 75.360(b), the Agency is proposing that, similar to the previous standard, the weekly examination include an examination for hazardous conditions as well as noncompliance with mandatory safety or health standards that could result in a hazardous condition. The preamble to the existing rule states the Agency's position that " * * * most hazardous conditions in a mine would result from a violation of a safety or health standard." (57 FR 20897, May 15, 1992.) It further states that requiring the examiner to look for all violations could distract the examiner from the more important aspects of the examination. Upon reconsideration, the Agency is proposing that the weekly examination be expanded to include an examination for noncompliance with mandatory safety or health standards that could result in a hazardous condition, as well as other hazardous conditions. This proposal places the examiner and the operator in a proactive rather than a reactive role and therefore has the potential to enhance safety by identifying a condition before a hazard exists.

Paragraph (h) of the proposal would require that a record be made of the results of the weekly examination, including the results of air and methane measurements, either by the certified person or by a person designated by the operator. The proposal clarifies that the results of methane tests would be recorded as the percentage of methane measured by the examiner, as opposed to being characterized by terms such as "trace." Recording a percentage would provide more precise information for the reviewing officials. If the record is made by a person designated by the operator, the certified person would be required to verify the record by initials and date by or at the end of the shift for which the examination was made. Paragraph (h) of § 75.364 would also include provisions identical to those proposed in paragraph (f) of § 75.360 and paragraph (c) of § 75.363 for countersigning records and for keeping the records in a state-approved book or in a bound book with sequential machine-numbered pages. As discussed above under the section-by-section discussion for § 75.360 (f), the requirements for countersigning would increase safety, particularly through increasing the awareness of the appropriate mine officials of the

hazardous conditions requiring correction.

Section 75.370 Mine Ventilation Plan; Submission and Approval

MSHA is proposing to revise portions of § 75.370 to address comments received relative to the role of the representative of the miners in the ventilation plan approval process. Paragraph (a) would be revised by the proposal, paragraphs (b) and (e) would be revised and redesignated as paragraphs (c) and (f), a new paragraph (b) would be added, and other paragraphs would be redesignated as appropriate.

One comment received was that the miners who work under the plan are often in the best position to know the effect of proposed revisions. The Agency has consistently recognized the importance of input from the miners' representative in all aspects of the plan-approval process. This is clear in the preamble to the existing standard, which states:

MSHA agrees with commenters that miners have a stake in the implementation of the ventilation plan at each mine. Recognizing this role and the importance of mine plans to an effective safety and health program, commenters noted that many operators provide miners with a copy of the proposed plan before it is submitted to MSHA for approval. The commenters also noted that some existing wage and hour agreements in the industry address this issue, and under these contracts miners have the right to review plan provisions before they are submitted to MSHA. Also, MSHA district managers meet with miners' representatives to discuss plan provisions upon request and have accepted written material the miners would like MSHA to consider while the plan is being reviewed. Related to this issue, miners have the right under § 103(g) of the Act to request an inspection by MSHA of any alleged hazardous condition in the mine. Under the final rule, these practices and procedures will continue to involve miners' representatives in the development of meaningful and effective plans.

MSHA recognizes that the operator has the legal responsibility for developing a ventilation plan. In that context, the Agency has reconsidered whether the role of the miners' representative in the plan-approval process should be formalized in this rule. To clarify the intent of the Agency and to assure that the miners' representative has an opportunity to comment on each proposed ventilation plan and revision submitted, the Agency is proposing several changes to the existing standard. As discussed in more detail below, the basic approach proposed is for the miners' representative to be given the opportunity to review proposed

ventilation plans and revisions and submit comments to MSHA. MSHA would review the plan and consider all timely comments received in making its determination to approve or disapprove a proposed plan.

Paragraph (a)(3)(i) of the proposal would require that at the time of submittal of a ventilation plan or a revision to an existing ventilation plan to the Agency by the operator, the operator would also be required to provide a copy of the plan or revision to the representative of miners. This requirement is intended to assure that the miners and their representative are promptly made aware of what is being submitted and are afforded time to comment. Additionally, the proposal would continue to require in paragraph (a)(3)(ii) that a copy of the proposed plan or any proposed revisions be made available for inspection by the representative of the miners. Although this proposal may appear superfluous in light of the proposed requirement in paragraph (a)(3)(i), it is the Agency's opinion that the review process and the submittal of comments in a timely manner are facilitated by requiring that the proposed plan or revision be made available for inspection by the representative of miners as well as providing the representative with a copy. Further, in those instances where a representative of miners has not been designated, it is necessary that miners have a copy of the plan available for inspection.

Paragraph (a)(3)(iii) of the proposal retains the existing requirement that copies of the proposed plan and proposed revisions be posted on the mine bulletin board and clarifies that posting is required at the time of submittal. The Agency believes that the posting requirement is necessary to assure that all miners at a mine will have the opportunity to review the proposed plan or revision and provide input during the review process. The Agency solicits comments on this approach to providing miners with information relative to proposed ventilation plans and revisions.

Paragraph (b) of the proposal specifies the means by which the representative of miners would have input to the review process. Under the proposal, the representative of miners may submit comments on the proposed plan or revision to the district manager for consideration. Recognizing that in some instances a decision relative to the approval or denial of a revision must be made in a short timeframe, the proposal would require that comments be made in a timely manner. The Agency does not define "timely manner" but would

construe it to be a period of time that would not delay the approval process. Recognizing the importance of miners' input, the district manager will continue to be available to discuss with the representative of miners all aspects of the plan as they affect miners' health and safety following approval or denial of a proposed plan or revision. MSHA solicits comments on this approach.

Paragraph (c)(1) of the proposed standard would continue the requirement of the existing regulation that the district manager notify the operator in writing of the approval or denial of a proposed plan or proposed revision. Additionally, it is proposed in paragraph (c)(1) that a copy of this notification be sent by the district manager to the representative of miners. This approach is being proposed to assure that the representative of miners is kept informed of the progress of the plan approval from submission to final action.

In order to assure that the miners themselves, as well as the representative of miners, are aware of the provisions of the ventilation plan once it is approved, the proposal under paragraph (f)(1) would require that the operator provide the representative of miners with a copy of the plan or revision following notification of approval. Also, the proposal would continue in paragraphs (f)(2) and (f)(3) the existing requirements that the approved plan or revision be made available for inspection by the representative of miners and be posted on the mine bulletin board. Under a new requirement in proposed paragraph (f)(3), an approved plan or revision would be required to be posted within 1 working day of notification of the approval and would remain posted for the entire period that the plan is in effect.

Section 75.371 Mine Ventilation Plan; Contents

The Agency proposes to revise paragraphs (b), (s), (z) and (bb) and to repropose paragraph (r) of this standard.

The proposal would revise existing paragraph (b) to add language that reflects the proposed changes in paragraphs (c) and (d) of § 75.312 allowing alternative testing methods for main mine fan automatic closing doors and fan signals. Paragraphs (c) and (d) of § 75.312 would require that an operator wishing to use an alternative method to stopping the main mine fan have the alternative method approved in the ventilation plan.

MSHA proposes to revise paragraph (s) to conform to proposed § 75.362(d)(1)(iii). The proposal would delete the portion of existing

§ 75.362(d)(2) requiring, in the approved ventilation plan, the location of tests which are to be made closer to the working face than the last permanent roof supports using extendable probes or other acceptable means. Proposed (d)(1)(iii) would require that the ventilation plan specify the frequency of the methane tests if required more often than 20 minutes by § 75.362(d)(1)(iii). It would also require that the ventilation plan specify the location of these tests; e.g., "in the working places on section MMU No. 123," or in "the working places off first right off of east mains."

MSHA proposes to revise paragraph (z) to conform to proposed § 75.364(a). Paragraph (a) of the proposed § 75.364 would modify the requirements addressing the measurements to be made to evaluate the effectiveness of bleeder systems and the ventilation of worked-out areas during the weekly examination. The measurement of air quantity, as well as the other measurements required by the existing standard, are essential to the proper evaluation of the ventilation of the worked-out area and the effectiveness of bleeder systems. It is proposed that the locations where these measurements will be made or alternative methods of providing these evaluations be included in the ventilation plan.

Existing paragraph (bb) requires that the location of ventilating devices used to control air movement through worked-out areas be included in the ventilation plan. The proposal would add a requirement contained in the previous regulation, that the location and sequence of construction of proposed seals also be indicated. Improper sequencing of seal construction can have a deleterious effect on mine air quality, and therefore the location and sequence of construction of these seals should be reviewed and approved as a part of the ventilation plan.

Although the Agency believes that the promulgation of paragraph (r) of this standard was done appropriately, it is being repropose for the purposes of receiving and giving consideration to all pertinent comments. Section 75.325(d), as repropose, would require that areas where mechanized mining equipment, including longwall equipment, is being installed and removed be ventilated. Paragraph (r) of § 75.371 would require that the quantity of air that will be provided be included in the ventilation plan.

Section 75.372 Mine Ventilation Map

The proposed paragraph (b)(3) would revise existing § 75.372(b)(3) to assure that all known adjacent workings are

shown on the mine map, regardless of whether they are located on mine property or on adjacent property. It would do so by deleting the phrase "on mine property" from the existing standard. In response to comments received, the Agency has concluded that it would be inappropriate to exclude from the mine ventilation map all known workings located in the same coalbed within 1,000 feet of existing or projected workings simply because they are not located on the mine property. Safety benefits associated with the knowledge of nearby mine workings accrue, even when the nearby workings are not on the mine property. The Agency also notes that this revision would be consistent with existing paragraph (h) of § 75.1200, Mine map. Paragraph (h) of § 75.1200 requires that the mine map show all adjacent mine workings within 1,000 feet. Like the previous standard, this revision would assure that all adjacent mine workings appear on the § 75.372 map in those cases where operators do not use a § 75.1200 map for their required submission.

In response to comments, the proposed paragraph (b)(19) would reinstate the requirement in the previous standard that the mine map include the entry height, velocity and direction of the air current at or near the midpoint of each belt flight where the height and width of the entry are representative of the belt haulage entry. The belt entry is required to be examined in accordance with subpart D. The proposal would assist the examiner in rapidly determining whether the air is flowing in its normal velocity and direction.

As explained in the discussion of proposed § 75.301, instances have developed where operators take air from an intake air course to ventilate shops, electrical installations, or for other purposes, and this air is then coursed to the surface and is not used to ventilate working places. Under one interpretation of the existing definition, because this air has not ventilated a working place or a worked-out area, the air course cannot be considered a return air course. In these instances, the proposal would expressly permit the redesignation of the affected portion of the air course as a return. Because it is important that personnel, including examiners, the miners' representative, and representatives of the Secretary, know which air courses have been redesignated, the proposal would require that they be shown on the map. The proposed paragraph (b)(20) would require that the designation and location of air courses that have been

redesignated from intake to return for the purpose of ventilation of structures, areas or installations that are required by this subpart D to be ventilated to return air courses, and for ventilation of seals, be shown on the map.

Section 75.380 Escapeways; Bituminous and Lignite Mines

This section would revise paragraph (f) and portions of paragraphs (d) and (i) and repropose paragraphs (b)(1) and (b)(2).

Under the proposal, § 75.380(d)(3) would provide that in areas of mines where escapeways pass through doors or in areas of mines developed before November 16, 1992, where escapeways pass across or under overcasts or undercasts, the height of the escapeway may be less than 5 feet provided the height is sufficient to enable miners, including disabled persons, to escape quickly in an emergency situation. It was brought to the attention of the Agency that in some instances the removal of roof support or the lowering of the tops of overcasts may be necessary to provide the 5-foot height required by the existing rule. It has been suggested that this could, in and of itself, result in a diminution of safety. Historically, the dimensions of escapeways were addressed through criteria. Some mine operators have requested and received approval for lesser dimensions than that in criteria based on a performance test referred to as a "stretcher test." Under this test, 4 persons are required to carry a person on a stretcher through the area in question to demonstrate that the lesser dimension would not delay escape. The Agency would expect that when there is a need to determine whether sufficient height is provided, the stretcher test discussed above would be applied. Since the goal of the standard is to assure that the escape of miners is not impeded, the demonstration that there would be no delay assures that there is no reduction in safety when the proposed standard is compared to the existing standard.

It was also suggested to the Agency that where escapeways developed on or after November 16, 1992, (the effective date of the existing rule) pass across or under overcasts or undercasts, the height of the escapeway should be permitted to be less than 5 feet provided the height is sufficient to enable miners, including disabled persons, to escape quickly in an emergency situation. The Agency has considered this suggestion but has adopted it because sufficient clearance should have been provided in these escapeways through proper planning and engineering.

The Agency received questions during informational meetings regarding the need for minimum requirements for door height. The Agency has reviewed its position concerning door heights and is proposing in paragraph (d)(3) to permit door heights of less than 5 feet under certain conditions. Door heights of less than 5 feet would be permitted provided the operator demonstrates by the stretcher test described above that persons, including disabled persons, can escape without delay. Passing this test assures that there would be no diminution of safety under the new provision. Allowing heights less than 5 feet in these doors is not expected to result in a delay. Normally, there are few doors in an escapeway and the distance to be traversed in a door is short. Also, since significant pressure differentials can exist in escapeways, doors which are less than 5 feet would be easier to open.

Paragraphs (d)(4)(i), and (ii) would be unchanged under the proposal, aside from editorial revisions. These paragraphs are retained to provide for situations where escapeways are permitted to be less than 6 feet in width.

Paragraph (d)(4)(iii) of the proposal would apply to alternate escapeways only. As discussed above, paragraphs (d)(4)(i) and (ii) permit both escapeways to be less than 6 feet, but not less than 4 feet, in width under certain conditions. Paragraph (d)(4)(iii) would permit widths less than 4 feet in alternate escapeways when conditions warrant and a test is conducted to demonstrate the adequacy of the width. The conditions that could warrant lesser widths would include the locations where the alternate escapeway passes through doors or other permanent ventilation controls or where supplemental roof support is required. The Agency would expect that when there is a need to determine whether adequate width is provided, the stretcher test discussed above would be applied. Under this provision, it is conceivable that escapeway widths less than 4 feet could be warranted by the conditions in the entry through which the escapeway is routed.

The Agency has developed proposed paragraph (d)(4)(iii) based on comments received since May 1992 and on its own internal review. Previously, approval has been requested and granted for reduced horizontal escapeway widths using the above-described stretcher test. These approvals were based on the need to provide additional roof support and, in some cases, the need for passage through ventilation controls. Additionally, as newer portions of a mine age and may require additional

roof support, the proposal would allow clearances of less than 4 feet in the alternate escapeway, provided the stretcher test is passed. The Agency solicits comments as to whether this proposed approach achieves the result of the standard while adequately addressing the safety issues of providing necessary supplemental roof support in the alternate escapeway. The Agency also solicits comments on whether the distance that the escapeway is permitted to be less than 4 feet should be limited and if so, what the limit should be.

Following the publication of the existing ventilation rule, some persons interpreted § 75.380(d) to require the width of mobile equipment to be considered when determining compliance with width requirements for escapeways. It is not the Agency's intent that mobile equipment be considered in this determination unless the equipment has been permanently abandoned in the escapeway or would be obstructing the escapeway for a significant portion of a shift. As an example, where a track entry is used as the primary escapeway on a longwall section, material cars would not be permitted to obstruct the escapeway since the obstruction would exist for long periods of time.

During the informational meetings, a question arose as to the Agency's intent in eliminating the requirement that escapeways be routed to the "nearest mine opening." It was not the Agency's intent to change this requirement from the previous standard. The existing requirement that the escapeway follow the most direct route to the surface would, in fact, require the route to go to the nearest mine opening. However, to eliminate any confusion that may exist, the proposal would revise paragraph (d)(5) and adopt language similar to that in previous regulation § 75.1704-2(a), that the escapeway follow the most direct, safe and practical route to the nearest mine opening suitable for the safe evacuation of miners.

A number of factors affect whether or not the safest, most direct, practical route has been selected. These factors include roof conditions, travel height, fan location, physical dimensions of the mine opening, and similar considerations. For example, if bad roof conditions are present along the shortest direct route and those roof conditions are beyond reasonable control, then an alternate "safest" route designated by the mine operator may be appropriate. However, the presence of roof falls does not necessarily indicate that the passageway would not be suitable for evacuation. By way of another example, where coal seam thickness varies to the extreme, the shortest route may be

through lower coal, making travel relatively slow and difficult. An alternate route through a high passageway may permit easier travel. Such an alternate route, although longer, may be acceptable. Similarly, there can be instances where the "nearest mine opening" may not be suitable for safe evacuation of miners. For example, an old mine shaft may not be safe for travel because of badly deteriorated conditions, such as a deteriorated shaft lining or deteriorated timbers, even though the shaft is still suitable for mine ventilation purposes. A mine shaft developed and equipped with a ventilation fan prior to the effective date of this regulation may not be suitable for safe evacuation of miners if alterations were necessary for compliance with new safety regulations that would adversely affect mine ventilation in the event of an emergency.

As with the existing standard, mine development projections would not have to be altered to provide additional rooms, entries, or crosscuts for the sole purpose of providing a passageway to the nearest mine opening. However, the construction of ventilation controls such as stoppings, overcasts and undercasts, or the installation of an escape facility may be required to provide the most direct, safe and practical route to the surface.

As with the existing standard, proposed paragraph (f)(1) would require one escapeway that is ventilated with intake air to be designated as the primary escapeway.

The proposed requirement for prohibiting certain equipment from operating in primary escapeways in paragraphs (f)(3) through (f)(5) would not apply to areas of escapeways where separation of belt and trolley haulage entries from designated primary escapeways did not exist before November 16, 1992. To require mobile equipment in these areas of escapeways to be equipped with fire suppression would have no appreciable safety benefit because of the presence of trolley wires, trolley haulage equipment, and conveyor belts in these escapeways.

Paragraph (f)(3) of the proposal would clarify existing requirements by explicitly prohibiting coal haulage in the primary escapeway. The existing standard permits equipment to be in the escapeway for purposes of hauling miners and materials and for maintaining the escapeway. The existing standard does not expressly prohibit the haulage of coal in the primary escapeway. As a matter of clarification of intent, the proposal

would specifically prohibit coal haulage in the primary escapeway.

Through experience with the existing rule and after considering comments received, the Agency is proposing to extend the prohibition of certain equipment to other areas of primary escapeways so that the prohibitions would properly extend to the majority of primary escapeways. The proposal would extend the prohibitions to areas of primary escapeways developed prior to November 16, 1992 where separation of the escapeway from belt and trolley haulage entries existed as of November 16, 1992. As with the existing rule, the prohibition would not apply to equipment necessary to maintain the primary escapeway in safe, travelable condition. The primary escapeways excluded from these prohibitions are the same as those excluded from the application of § 75.380(g), that is, areas of escapeways where separation of belt and trolley haulage entries from designated primary escapeways did not exist before November 16, 1992. Comments are solicited on the proposed expansion of the requirements for protecting additional areas of the primary escapeway.

MSHA recognizes the need to protect the primary escapeway and also realizes that different mine designs, the need to maintain air courses safe for travel, and the need to occasionally move equipment necessitates the operation of some mobile equipment in the primary escapeway. MSHA would allow certain equipment in the primary escapeway but would require fire suppression systems on the equipment. Paragraph (f)(3) clarifies that mobile equipment not hauling coal and the equipment listed in § 75.340(b)(1) through (b)(6) may be used in the primary escapeway.

Unlike the existing standard, proposed paragraph (f)(4) would permit certain mobile equipment to be protected with a manual fire suppression system instead of an automatic system, provided it is continuously attended by a person trained and proficient in the use and operation of the fire suppression system. For the purposes of § 75.380(f) by "attended," the Agency means that the mobile equipment operator would be on the equipment and be capable of responding immediately in the event of a fire. When a piece of mobile equipment is in the primary escapeway and is properly attended and equipped with a manual fire suppression system, the equipment operator can immediately respond to the situation, and the safety afforded by the existing standard is maintained. However, if no one is attending the equipment, an

automatic system would be necessary to protect against fire. Protection is thereby provided against a fire when a machine is deenergized or shut off. If a machine is solely equipped with a manual fire suppression system, continuous attendance would be required under the proposal, regardless of whether the machine were operating or shut off, if located in the primary escapeway.

Following publication of the existing ventilation rule, some persons construed the requirement for an automatic fire suppression system to apply to electric face equipment. This was not the intent of the Agency. On November 16, 1992, MSHA issued Program Policy Letter No. P92-V-4 addressing the operation and location of equipment in primary escapeways to clarify the Agency's intent. Under existing regulation, subpart L—Fire Protection, face equipment is required to be protected by a manual fire suppression system. The proposal recognizes this requirement and, other than an exception to permit a situation such as the movement of continuous mining machines from section to section without a continuous water supply, requires that face equipment equipped with a manual fire suppression system be attended when in the primary escapeway by a person trained and proficient in the proper use and operation of the manual fire suppression system, providing protection equivalent to automatic fire suppression systems.

It is proposed in paragraph (f)(4) that with exceptions for continuous mining machines and as provided in § 75.380 (f)(5) and (f)(6) that each piece of mobile equipment in primary escapeways, (1) be equipped with manually operated fire suppression systems installed in compliance with § 75.1107-3 through § 75.1107-16 and be attended continuously, or (2) be equipped with an automatic fire suppression system that is capable of both automatic and manual activation and installed in compliance with § 75.1107-3 through § 75.1107-16.

Under paragraph (f)(5), personnel carriers and small personnel conveyances which are designed and used solely for transportation of personnel and small hand tools could be operated with a multipurpose dry chemical type automatic fire suppression system capable of both manual and automatic activation, if the system is suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory. The proposal recognizes the small size and limited potential for fire of this particular type of equipment. The types of machinery

under paragraph (f)(5) would not be required to meet the additional requirements of §§ 75.1107-3 through 75.1107-16. For example, it would be impractical and would not enhance safety to apply the minimum dry chemical poundage requirements of § 75.1107-9 to small equipment designed and used solely for personnel and small hand tools. Personnel carriers and small personnel conveyances would be more appropriately protected by fully automatic systems of adequate capacity which are suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory.

Commenters suggested that the term "dry chemical" would be more appropriate than the term "dry powder" used in the existing standard. The Agency agrees and the proposal would adopt this suggestion.

Under paragraph (f)(6), an additional exception is provided for mobile equipment when no persons are inby other than persons directly engaged in the use or moving of the equipment. The continuous mining machine exception recognizes that the fire suppression system for the continuous mining machine often relies on a water supply that may be impracticable to provide during moves. Paragraph (f)(6) is being proposed to permit the necessary movement of face equipment between sections and to permit the primary escapeway to be properly maintained. Under paragraph (f)(6) of the proposal, mobile equipment not having a fire suppression system may be in the primary escapeway if no persons are located inby except those directly engaged in the use of or the moving of such equipment. For example, when moving longwall shields, no one would be permitted to be inby equipment used to move the shield if this equipment is not provided with a fire suppression system. With no persons working inby, the use of machinery without a fire suppression system would not expose persons to the hazard of toxic gases and fumes carried inby.

It has been suggested to the Agency that certain types of emergency equipment, such as diesel powered ambulances, should also be exempt from the requirements for fire suppression systems. While the Agency recognizes the potential benefit that can be attached to the use of this type of equipment, the proposal does not exempt this equipment. Comments are solicited on this issue.

During the informational meetings, the Agency became aware of a concern that existing § 75.380(i)(2) would permit slopes of significant length and

inclination to exist without any mechanical escape facilities. An example used is a slope of 900 feet inclined at 18 degrees from the horizontal. It was suggested that such a slope could be particularly difficult for passage of injured persons under cold and icy conditions if mechanical escape facilities were not provided. In light of this concern, the Agency has reconsidered its position and is proposing in paragraph (i)(2) that any slope that is part of a designated escapeway and is inclined more than 9 degrees from the horizontal be provided with mechanical escape facilities. The Agency solicits comments on this proposal.

Following promulgation of the standard, the Agency received comments that the final rule language should have retained the proposed rule language relative to ventilation of the primary and alternate escapeways with separate splits of intake air. As discussed in the preamble to the existing standard, this issue, along with several other issues, was referred to an advisory committee appointed by the Secretary of Labor. The advisory committee has submitted its final report to the Secretary for review and appropriate action.

Section 75.380(b)(1) of the existing standard requires escapeways to be provided from each working section. A working section is defined in § 75.2 as beginning at the underground loading point. The proposal would continue the practice of permitting mines which have not established a loading point to haul coal with mobile equipment.

Providing escapeways during the installation and removal of mechanized mining equipment is necessary to provide safe escape for miners from hazards that may develop during these phases of the mining operations. Although the Agency believes that the promulgation of paragraphs (b)(1) and (b)(2) of this standard was done appropriately, they are being repropounded for the purposes of receiving and giving consideration to all pertinent comments.

Section 75.382 Mechanical Escape Facilities

Consistent with current requirements in subpart O—Hoisting and Mantrips, three new paragraphs are proposed under § 75.382. Paragraph (g) would require the designated examiner to certify by date, time, and initials that the mechanical escape facilities examination required by paragraph (c) was performed. The proposal would require that the certification appear at or near the facility examined. Certification has long been an accepted practice in

the mining industry for assuring that concerned individuals can readily determine that a required examination has been completed. In the case of mechanical escape facilities, if certification is not provided, precious time could be lost as the escape facility is tested prior to use. The certification proposed will provide the operator or the person using the facility with assurance that the facility is safe to use.

Paragraph (h) would require that a record be made of the examination performed in accordance with paragraph (c). The results of the examination would be included in the record, including any deficiency found along with the corrective actions taken to correct the condition. The intent is that deficiencies be documented and that both the mine foreman and superintendent, or other appropriate official be made aware of any problems, assuring that follow-up and corrective action will be taken. As with other records required by the existing rule and this proposal, the record of the examination of mechanical escape facilities provides valuable information to both the miners and the operator. The record not only indicates that the examination has been completed but also provides historical information on the nature of deficiencies found during the examination and the type of corrective action required.

The examiner would be permitted to complete the record immediately following the end of the shift in which the examination was performed. The record would be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. During an absence of the mine foreman, the person acting as mine foreman would countersign. The Agency intends that the mine foreman, the person most responsible for day-to-day operation of the mine, be notified of the information contained in the reports. Allowing until the end of the mine foreman's next regularly scheduled working shift to countersign the report would assure that the mine foreman is aware of the results of the examination and would enable corrective actions to be taken.

Paragraph (h) would also require that within two scheduled production days thereafter, the record of the examination be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The intent is to assure that a higher-level official, empowered to redirect resources, be aware of any condition requiring corrective actions. Since this second-level official may not be physically

located at the mine on a full-time basis, 2 scheduled production days are proposed as a reasonable period of time for countersigning.

The proposal would require that the record be made in a state-approved book or in a bound book with sequential machine-numbered pages. Comments are solicited on this approach and on an alternative approach wherein the Agency would develop, in coordination with the states, books specific for the required records.

As with other records required by this proposal, proposed paragraph (i) would require that these records be retained for at least 1 year at a surface location at the mine and be made available for inspection by authorized representatives of the Secretary and the representative of miners. Records of examinations, provide the operator and other interested parties with a history of the types of problems discovered and the types of corrective actions required. In the opinion of the Agency, a 1-year retention period is sufficient to satisfy this need.

Section 75.383 Escapeway Maps and Drills

Existing paragraphs (a) and (b)(1) deal with the escapeway map and drill requirements in areas where mechanized mining equipment is being installed or removed. Although the Agency believes that the promulgation of paragraphs (a) and (b)(1) of this standard was done appropriately, as with other provisions dealing with the installation and removal of mechanized mining equipment, they are being repropounded for the purposes of receiving and giving consideration to all pertinent comments. The Agency believes that for areas where mechanized mining equipment is being installed or removed, providing escapeways and posting maps identifying these escapeways and conducting drills specified in the standard are essential to maintain safety. These requirements help to assure that miners are familiar with escape routes so that, should escape become necessary, they can reach the surface as quickly as possible.

Section 75.384 Longwall and Shortwall Travelways

Existing § 75.384 addresses the requirements for a travelway on the tailgate side of a longwall or shortwall, the location and marking of the travelway, and procedures during a blockage of the travelway. While the Agency has received comments suggesting that additional involvement by the miners would be of benefit when a roof fall or other blockage occurs that

prevents travel in the tailgate travelway, no changes are proposed to § 75.384 at the present time. The Agency believes that the existing procedures and regulations appropriately address the hazards and provide a sufficient opportunity for input and involvement for all interested parties. The following discussion reviews the appropriate procedures and regulations.

The general procedures to be followed when such a blockage occurs are specified in § 75.384(c). The standard requires that work on the face must cease, miners must be withdrawn, and MSHA must be notified. The standard also prohibits work on the face until the procedures set out in §§ 75.215 and 75.222 are implemented.

Section 75.215 requires that the approved roof control plan specify the procedures that will be followed if a ground failure prevents travel out of the section through the tailgate side of the longwall. In this regard, § 75.222(g)(2), the roof control plan, would address notification of the miners, re-instruction of the miners regarding escapeways and escape procedures, re-instruction of the miners on the availability and use of self-contained self-rescue devices, monitoring and evaluation of air; location and effectiveness of communication, and a means of transportation from the section. All approved roof control and ventilation plans and revisions must be available to the miners according to current regulations.

District managers historically have met with and will continue to meet with interested parties to discuss plans under review or previously approved. As plans are developed, reviewed, and approved, MSHA considers written comments from all interested parties. Additionally, the Act entitles a representative of the miners to accompany an MSHA representative conducting an inspection or investigation as a result of the § 75.384(c)(3) notification to MSHA of a blocked travelway. Finally, under § 103(g) of the Act, miners are entitled to request an inspection by MSHA.

Section 75.388 Boreholes in Advance of Mining

The Agency is proposing to revise § 75.388(c) to require rib holes to be drilled in one or both ribs of advancing working places described in § 75.388(a) "as may be necessary for adequate protection of miners in such working places." The present standard requires that boreholes be drilled in at least one rib of advancing working places described in § 75.388(a). Although no change was intended by the Agency in promulgating the current language, comments indicate that the previous language was more specific and clearer to the mining community. The Agency is therefore proposing to adopt language similar to the previous regulation.

Section 75.389 Mining Into Inaccessible Areas

Section 75.389(c) addresses the special case where mining operations

mine through into areas where hazards and potential hazards may be unknown. During the informational meetings and later discussions, it became apparent that differing interpretations of the application of this provision existed. To clarify the intent of the Agency, the proposal would revise existing § 75.389(c) by adding an exception for routine mining-through operations that are a part of a retreat mining system approved in the mine ventilation plan.

In some circumstances, the mining through occurs during routine mining into an area which is covered by an approved ventilation plan. In this case, the potential hazards have already been addressed in the ventilation plan. The Agency believes that the requirements set out in § 75.389(c) should not apply in this situation and proposes an exception to these requirements where the mining-through operations are part of a retreat mining system approved in the mine ventilation plan and are routine operations. Requiring the operator to submit duplicate plans does not result in any safety benefit; therefore, the level of safety provided by the existing standard is maintained.

IV. Derivation Table

The following derivation table lists the number of each proposed standard and the number of the existing standard from which it is derived.

New section	Old section
75.301	75.301.
75.310(a)(3)	Partly new, 75.310(a)(3).
75.310(a)(4)	Partly new, 75.310(a)(4).
75.310(c)	Partly new, 75.310(c).
75.310(c)(5)	New.
75.311(d)	Partly new, 75.311(d).
75.312(a)	Partly new, 75.312(a).
75.312(b)(1)	Partly new, 75.312(b)(1).
75.312(b)(1)(i)	New.
75.312(b)(1)(ii)	75.312(b)(1) through (b)(1)(ii).
75.312(c)	Partly new, 75.312(c).
75.312(d)	Partly new, 75.312(d).
75.312(f)(1)	75.312(f).
75.312(f)(2)	New.
75.312(g)	Partly new, 75.312(g).
75.312(h)	Partly new, 75.312(h).
75.313(a)(3)	75.313(a)(3).
75.313(c)(2)	Partly new, 75.313(c)(2).
75.313(c)(3)	Partly new, 75.313(c)(3).
75.313(d)(1)(i)	Partly new, 75.313(d)(1)(i).
75.313(d)(1)(ii)	Partly new, 75.313(d)(1)(ii).
75.313(d)(2)	New.
75.320(e)	New.
75.321(a)(1)	Partly new, 75.321(a).
75.321(a)(2)	Partly new, 75.321(a).
75.323(b)(1)(i)	75.323(b)(1)(i).
75.323(b)(1)(ii)	Partly new, 75.323(b)(1)(ii).
75.323(b)(1)(iii)	75.323(b)(1)(iii).
75.323(b)(2)	75.323(b)(2).

New section	Old section
75.323(c)(1)	Partly new, 75.323(c)(1).
75.323(d)(2)(i)	Partly new, 75.323(d)(2)(i).
75.325(d)	75.325(d).
75.330(c)	New.
75.332(a)(1)	75.332(a)(1).
75.333(a)	Partly new, 75.333(a).
75.333(b)(1)	75.333(b)(1).
75.333(b)(3)	Partly new, 75.333(b)(3).
75.333(b)(4)	Partly new, 75.333(b)(4).
75.333(b)(5)	New.
75.333(b)(6)	75.333(b)(5).
75.333(e)(1)(i)	Partly new, 75.333(e)(1).
75.333(e)(1)(ii)	Partly new, 75.333(e)(2).
75.333(h)	New.
75.334(e)	Partly new, 75.334(e).
75.334(f)	75.334(f).
75.340(a)	Partly new, 75.340(a).
75.342(a)(4)	Partly new, 75.342(a)(4).
75.344(a)(1)	Partly new, 75.344(a)(1).
75.344(b)(2)	New.
75.344(b)(3)	75.344(b)(2).
75.344(e)	New.
75.360(a)(1)	Partly new, 75.360(a)(1).
75.360(a)(2)	New.
75.360(b)	Partly new, 75.360(b).
75.360(b)(1)	Partly new, 75.360(b)(1).
75.360(b)(3)	Partly new, 75.360(b)(3).
75.360(b)(4)	Partly new, 75.360(b)(4).
75.360(b)(6)(i)	Partly new, 75.360(b).
75.360(b)(6)(ii)	Partly new, 75.360(b).
75.360(b)(8)	New.
75.360(b)(9)	New.
75.360(b)(10)	New.
75.360(c)	Partly new, 75.360(c).
75.360(c)(1)	Partly new, 75.360(c)(1).
75.360(c)(3)	Partly new, 75.360(c)(3).
75.360(f)	Partly new, 75.360(g).
75.362(a)(1)	Partly new, 75.362(a)(1).
75.362(a)(2)	New.
75.362(c)(1)	Partly new, 75.362(c)(1).
75.362(c)(2)	75.362(c)(2).
75.362(d)(1)(i)	New.
75.362(d)(1)(iii)	Partly new, 75.362(d)(1)(ii).
75.362(d)(2)	Partly new, 75.362(d)(2).
75.362(g)	New.
75.363	Partly new, 75.360, 75.361, 75.362, 75.364.
75.364(a)	Partly new, 75.364(a).
75.364(b)	Partly new, 75.364(b).
75.364(h)	Partly new, 75.364(h).
75.370(a)(3)	Partly new, 75.370(a)(3).
75.370(b)	New.
75.370(c)(1)	Partly new, 75.370(b)(1).
75.370(f)	Partly new, 75.370(e).
75.371(b)	75.371(b).
75.371(r)	75.371(r).
75.371(s)	Partly new, 75.371(s).
75.371(z)	Partly new, 75.371(z).
75.371(bb)	Partly new, 75.371(bb).
75.372(b)(3)	Partly new, 75.372(b)(3).
75.372(b)(19)	New.
75.372(b)(20)	New.
75.380(b)	75.380(b).
75.380(d)(3)	Partly new, 75.380(d)(3).
75.380(d)(4)(ii)	Partly new, 75.380(d)(4)(ii).
75.380(d)(4)(iii)	New.
75.380(d)(5)	Partly new, 75.380(d)(5).
75.380(f)(1)	Partly new, 75.380(f)(1).
75.380(f)(2)	New.
75.380(f)(3)	Partly new, 75.380(f)(1).
75.380(f)(4)	Partly new, 75.380(f)(2).
75.380(f)(5)	Partly new, 75.380(f)(2).
75.380(f)(6)	New.
75.380(i)(2)	Partly new, 75.380(i)(2).
75.382(g)	New.

New section	Old section
75.382(h)	New.
75.382(i)	New.
75.383(a)	75.383(a).
75.383(b)(1)	75.383(b)(1).
75.388(c)	Partly new, 75.388(c).
75.389(c)	New.
75.389(1)	75.389(c)(1).

Redesignation Table

The following redesignation table lists the section number of the existing standard and the section numbers of proposed standards which contain revised provisions derived from the corresponding existing section.

New section	Old section
75.310(a)(3)	75.310(a)(3).
75.310(a)(4)	75.310(a)(4).
75.310(a)(5)	75.310(a)(6).
75.310(a)(6)	75.310(a)(7).
75.310(c)	75.310(c).
75.311(d)	75.311(d).
75.312(a)	75.312(a).
75.312(b)(1)(i)	75.312(b)(1)(ii)(A).
75.312(b)(1)(ii)	75.312(b)(1)(ii)(B).
75.312(c)	75.312(c).
75.312(d)	75.312(d).
75.312(f)	75.312(f)(1).
75.312(g)(1)	75.312(g)(1).
75.312(g)(2)	75.312(g)(3).
75.312(g)(3)	75.312(g)(4).
75.312(h)	75.312(h).
75.313(c)(2)	75.313(c)(2).
75.313(c)(3)	75.313(c)(3).
75.313(d)(1)(i)	75.313(d)(1)(i).
75.313(d)(1)(ii)	75.313(d)(1)(ii).
75.313(d)(2)	75.313(d)(2).
75.321(a)	75.321(a)(1).
75.321(a)	75.321(a)(2).
75.323(b)(1)(ii)	75.323(b)(1)(ii).
75.323(c)(1)	75.323(c)(1).
75.323(d)(2)(i)	75.323(d)(2)(i).
75.333(b)(5)	75.333(b)(6).
75.334(e)	75.334(e).
75.340(a)	75.340(a).
75.342(a)(4)	75.342(a)(4).
75.344(a)(1)	75.344(a)(1).
75.344(b)(2)	75.344(b)(3).
75.360(a)	75.360(a)(1).
75.360(b)	75.360(b).
75.360(b)(1)	75.360(b)(1).
75.360(b)(3)	75.360(b)(3).
75.360(b)(4)	75.350(b)(4).
75.360(b)(6)	75.360(b)(6)(i).
75.360(b)(6)	75.360(b)(6)(iii).
75.360(c)	75.360(c).
75.360(c)(1)	75.360(c)(1).
75.360(c)(3)	75.360(c)(3).
75.360(e)	75.360(e), 75.363.
75.360(g)	75.360(g).
75.362(a)(1)	75.362(a)(1)(i).
75.362(c)(1)	75.362(c)(1).
75.362(d)(1)(i)	75.362(d)(1)(ii).
75.362(d)(1)(ii)	75.362(d)(1)(iii).
75.362(d)(2)	75.362(d)(2).
75.362(g)	Removed.
75.362(h)	Removed.
75.364(a)	75.364(a).
75.364(b)	75.364(b).
75.364(h)	75.364(h).
75.370(a)(3)	75.370(a)(3).
75.370(b)(1)	75.370(c)(1).
75.370(c)	75.370(d).
75.370(d)	75.370(e).
75.370(f)	75.370(g).

New section	Old section
75.371(s)	75.371(s).
75.371(z)	75.371(z).
75.371(bb)	75.371(bb).
75.372(b)(3)	75.372(b)(3).
75.380(d)(3)	75.380(d)(3).
75.380(d)(4)(ii)	75.380(d)(4)(ii).
75.380(d)(5)	75.380(d)(5).
75.380(f)	75.380(f).
75.380(i)(2)	75.380(i)(2).
75.388(c)	75.388(c).
75.389(c)(1)	75.389(1).

V. Executive Order 12866 and Regulatory Flexibility Act

In accordance with Executive Order 12866 MSHA prepared a preliminary impact analysis (PRIA) to estimate the potential costs and benefits associated with the proposed revisions to the ventilation rule. Based upon the available data, MSHA has determined in its PRIA that this rule would neither result in major cost increases nor have an effect of \$100 million or more on the economy. A copy of the PRIA is available from the MSHA docket office and is summarized as follows.

Benefits

In assessing costs and benefits of the ventilation rule, it is important to note that ventilation of underground coal mines is the primary method of preventing the accumulation of explosive methane gas, controlling harmful respirable dust, and assuring the quality of air miners breathe. Because of the potential for a large number of fatalities resulting from ventilation problems, MSHA has found it prudent to establish multiple safety factors and safety work practices to better assure adequate protection for miners. It is extremely difficult to specifically quantify safety benefits related to each safety factor. However, due to the close, confined nature of the workplace in an underground coal mine, failure of any safety factors or protective actions related to ventilation can have disastrous effects. In 1984, a fire starting from an over heated compressor at the Wilberg Mine resulted in 27 deaths. More recently, an explosion at the William Station Mine in 1989 resulted in 10 deaths and exposed other miners to high concentrations of carbon monoxide and smoke. In the restricted work environment of an underground coal mine, failure of a single safety factor or noncompliance with a safe work practice could jeopardize the well-being of all miners underground. The total effect of the provisions in this proposed rule in conjunction with MSHA's existing ventilation standards

should decrease the occurrence of fatalities, injuries, accidents, and illnesses in underground coal mines.

With respect to this proposed rule, the Agency has identified nine fatalities and seven injuries which potentially could have been prevented by compliance with these proposed provisions. In addition, the proposal contains provisions to better assure compliance with the respirable dust control parameters specified in the mine ventilation plan. Adherence to these parameters helps to maintain a work environment free of excessive levels of respirable dust, thereby improving long-term health protection for miners and potentially reducing the number of miners afflicted with coal workers' pneumoconiosis.

Some proposed provisions clarify the intent of the current rule. Such clarifications should increase the likelihood of compliance and thereby would help to increase the probability of preventing a fatality, injury, or non-injury accident. For the proposed provisions which would offer an alternative compliance option, the miners would be provided at least the same level of safety provided by an existing requirement. These provisions would facilitate compliance by the operator, thereby increasing the potential for the rule to reduce the probability of a ventilation-related explosion or accident.

In conclusion, the Agency determined that these proposed provisions would increase the probability that compliance with the ventilation rule would prevent future ventilation-related accidents and generate a safer mining environment.

Compliance Costs

MSHA has compared the costs associated with the existing requirements with the costs of the proposed requirements. For the purpose of estimating the incremental compliance cost increases or decreases, these proposed provisions have been divided into three categories, each category requiring a slightly different

approach in estimating the costs of compliance.

The first category includes those proposed provisions which retain or clarify requirements specified in the existing rule. For this category, there would be no additional costs of compliance if these were estimated in the RIA to the May 1992 rule.

The second category includes those proposed provisions that would provide a mine operator with an alternative compliance option to an existing requirement (for example, allowing a miner to continuously attend an operating compressor instead of requiring the compressor to be located in a noncombustible structure). For this category, the availability of an alternative compliance option can affect the level of compliance, depending on the alternative selected. Thus, the availability of an alternative compliance option could reduce the costs of compliance for some mine operators. However, the potential compliance cost savings depend upon whether the operator selects the alternative compliance option. MSHA believes that the operator's decision would depend on factors that may vary widely among mines, therefore, MSHA estimated a percentage of mines likely to use a specific option and based its projected cost savings on these estimates.

The third category includes those proposed provisions that would impose new requirements (for example, requiring an automatic shut down feature on a mobile compressor when the fire suppression system is activated). For this category, the potential incremental compliance costs were estimated by using full compliance with the existing rule or existing industry practices as the baseline.

Based on the available data, MSHA estimated that compliance with the proposed rule would cost the mining industry \$3.8 million in first-year costs, or about \$826,500 in annualized costs. Net annual compliance costs would be about \$7.6 million. The total of annualized plus annual costs is

projected to be about \$8.4 million. In addition to these incremental costs, during the first year of compliance with the new air quality requirements under § 75.321, it is possible that two large mines may lose a block of coal, resulting in approximately \$6 million in lost production to these mines.

Executive Order 12866 requires that regulatory agencies assess the impact to the government for any regulation determined to be a significant regulatory action. MSHA does not believe that the proposed rule will create any significant cost impacts to the government. The proposed regulation can be implemented under existing government practices without any substantial equipment or facility expenditures by the government.

The incremental compliance costs for all underground coal mines are listed by provision in Table I.

TABLE I.—COMPLIANCE COSTS TO COMPLY WITH THE PROPOSED VENTILATION RULE FOR ALL UNDERGROUND COAL MINES

[In thousands of dollars]

Standard	First year costs	Annualized costs	Annual costs
75.310	74	12	15
75.311 .....	.....	.....	.....
75.312 .....	.....	.....	(874)
75.313 .....	.....	.....	296
75.320 .....	.....	.....	.....
75.321	11	.5	200
75.323 .....	.....	.....	.....
75.330 .....	.....	.....	.....
75.333 .....	.....	.....	.....
75.334 .....	.....	.....	.....
75.340	33	6	.....
75.342	48	8	48
75.344	75	15	(1)
75.360	142	23	2,794

TABLE I.—COMPLIANCE COSTS TO COMPLY WITH THE PROPOSED VENTILATION RULE FOR ALL UNDERGROUND COAL MINES—Continued

[In thousands of dollars]

Standard	First year costs	Annualized costs	Annual costs
75.362 .....	.....	.....	4,078
75.363 .....	.....	.....	119
75.364 .....	.....	.....	480
75.370	13	2	2
75.371 .....	.....	.....	.....
75.372 .....	.....	.....	.....
75.380	3,417	760	299
75.382 .....	.....	.....	113
75.388 .....	.....	.....	.....
75.389 .....	.....	.....	.....
Total Costs	3,803	826.5	7,569

¹ In addition, to first year costs, two large mines could possibly lose a block of coal for a total loss of \$6 million (or \$3 million per mine), or the mines may be able to forego such costs by sinking an additional shaft costing a total of \$2 million (\$1 million per mine).

Economic Impacts

The proposed ventilation rule would have a minimal impact upon labor productivity, profits, prices, mining output, and mining employment in underground coal mines. However, there is the potential that some individual mines may incur significant compliance costs associated with several provisions. First, some mines may be affected by the provision that would establish the minimum oxygen level and maximum carbon dioxide level for the air in bleeder entries and worked-out areas where persons work or travel. In order to obtain a complete and accurate cost of this proposed requirement, MSHA is requesting data on the number of mines that would

encounter an air quality problem where a miner would be required to work or travel, the types of actions needed for compliance, and the expected incremental costs of these actions. Second, mines with deep cut sections would likely have difficulty conducting methane measurements at the face. Therefore, MSHA is requesting data on alternative compliance measures for deep cut mining operations. Finally, mines may experience some difficulty reconfiguring operations to address requirements concerning equipment in primary escapeways.

Regulatory Flexibility Certification

The Regulatory Flexibility Act requires that agencies evaluate and include, wherever possible, compliance alternatives that minimize any adverse impact on small businesses when developing regulatory standards. MSHA has not exempted small mines from any provision of the proposed rule and small mines would benefit from some of the proposed provisions and the proposed alternative compliance methods.

MSHA determined that these proposed revisions would not generate a substantial cost increase for small mines. The lack of a substantial cost increase for small mines, in conjunction with the fact that similar hazards exist in both large and small mining operations, indicates that regulatory relief is not warranted for small mining operations. Therefore, MSHA has determined that these proposed provisions would not have a significantly adverse impact upon a substantial number of small entities.

The incremental costs for small and large mines are listed by provision in Table II.

TABLE II.—COMPLIANCE COSTS TO COMPLY WITH THE PROPOSED VENTILATION RULE FOR SMALL AND LARGE UNDERGROUND COAL MINES

[in thousands of dollars]

Standard	First year costs		Annualized costs		Annual costs	
	Small	Large	Small	Large	Small	Large
75.310	24	50	4	8	5	10
75.311 .....	.....	.....	.....	.....	.....	.....
75.312 .....	.....	.....	.....	.....	316	(1,190)
75.313 .....	.....	.....	.....	.....	.....	296
75.320 .....	.....	.....	.....	.....	.....	.....
75.321 .....	.....	11	.....	.5	.....	200
75.323 .....	.....	.....	.....	.....	.....	.....
75.330 .....	.....	.....	.....	.....	.....	.....
75.333 .....	.....	.....	.....	.....	.....	.....
75.334 .....	.....	.....	.....	.....	.....	.....
75.340	16	17	3	3	.....	.....
75.342	24	24	4	4	24	24
75.344 .....	.....	75	.....	15	.....	(1)
75.360	47	95	8	15	317	2,777
75.362 .....	.....	.....	.....	.....	1,095	2,983

TABLE II.—COMPLIANCE COSTS TO COMPLY WITH THE PROPOSED VENTILATION RULE FOR SMALL AND LARGE UNDERGROUND COAL MINES—Continued

[in thousands of dollars]

Standard	First year costs		Annualized costs		Annual costs	
	Small	Large	Small	Large	Small	Large
75.363					17	102
75.364					145	335
75.370	4	9	1	1	1	1
75.371						
75.372						
75.380	888	2,529	199	561	78	221
75.382					2	111
75.388						
75.389						
Total	1,003	2,800	219	607.5	2,000	5,569

¹ In addition to first year costs, two large mines could possibly lose a block of coal for a total loss of \$6 million (or \$3 million per mine), or the mines might be able to forego such costs by sinking an additional shaft costing a total of \$2 million (\$1 million per mine).

Request for Data

MSHA requests specific information and data concerning any of the assumptions and estimates made in its PRIA. In particular, MSHA requests information on four proposed provisions. First, with respect to § 75.312, "Main mine fan examinations and records," MSHA requests data concerning any potential cost impacts to the mining industry that may occur as a result of using an alternative test that does not require stopping the fan. Second, with respect to § 75.321, "Air quality," MSHA requests data on the

number of mines that would encounter an air quality problem (either at an evaluation point or going to and from an evaluation point), the current air quality level at these mines, the types of actions needed for compliance, and the expected incremental costs of these actions. Third, with respect to § 75.362, "On-shift examination," MSHA requests data on alternative compliance measures that deep cut mining operations, in particular, would be able to use to conduct methane tests at the face. Fourth, with respect to § 75.380, MSHA requests information on the cost

of compliance associated with prohibiting certain equipment in the primary escapeway, and costs related to alternative compliance measures.

VI. Metric Measurements

The proposed rule has been prepared using the inch-pound system of measurement (English system) instead of the SI (metric) system. However, the Agency remains committed to accomplishing an orderly transition to the SI system. The following table is intended to aid in the conversion to metric units.

Quantity	From	To	Multiply by
Length	Inches	Centimeters	2.54
	Feet	Meters	0.304
Area	Square feet	Square meters	0.093
Velocity	Feet/minute	Meters/second	0.005
Pressure	Lbs/sq.in	Kilopascals	6.895
	Lbs/sq.ft	Kilopascals	0.049
Air quantity	Cu.ft./min	Cu.meters/sec	0.00047
Power	Horsepower	Kilowatts	0.746
Temperature	Degrees F	Degrees C	$T_C = (T_F - 32)/1.8$

List of Subjects in 30 CFR Part 75

Escapeways, Mine safety and health, Underground coal mines, Ventilation.

Dated: May 12, 1994.

J. Davitt McAteer,

Assistant Secretary for Mine Safety and Health.

It is proposed to amend part 75, subchapter O, chapter I of title 30 of the Code of Federal Regulations as follows:

PART 75—MANDATORY SAFETY STANDARDS—UNDERGROUND COAL MINES

1. The authority citation for part 75 continues to read as follows:

Authority: 30 U.S.C. 811, 957, and 961.

2. Section 75.301 is amended by revising the definition of "Return Air" to read as follows:

§ 75.301 Definitions.

* * * * *

Return air. Air that has ventilated the last working place on any split of any working section or any worked-out area whether pillared or nonpillared. If air mixes with air that has ventilated the last working place on any split of any working section or any worked-out area, whether pillared or nonpillared, it is considered return air. For the purposes of existing § 75.507-1, air that has been

used to ventilate any working place in a coal producing section or pillared area, or air that has been used to ventilate any working face if such air is directed away from the immediate return is return air. Notwithstanding the definition of intake air, for the purpose of ventilation of structures, areas or installations that are required by this subpart D to be ventilated to return air courses, and for ventilation of seals, other air courses may be designated as return air courses by the operator only when the air in these air courses will not be used to ventilate working places or other locations, structures,

installations or areas required to be ventilated with intake air.

* * *

3. Section 75.310 is amended by revising paragraphs (a)(3), (a)(4) and (c), to read as follows:

§ 75.310 Installation of main mine fans:

(a) * * *

(3) Equipped with an automatic device that gives a signal at the mine when the fan either slows or stops. A responsible person designated by the operator shall always be at a surface location at the mine where the signal can be seen or heard while anyone is underground. This person shall be provided with two-way communication with the working sections and other established locations where persons are normally assigned to work;

(4) Equipped with a pressure recording device or system. If a device or system other than a circular pressure recorder is used to monitor main mine fan pressure, the monitoring device or system shall provide a continuous graph or continuous chart of the pressure as a function of time. At not more than 7-day intervals, a hard copy of the continuous graph or chart shall be generated. Records of the fan pressure shall be retained at a surface location at the mine for at least 1 year and be made available for inspection by authorized representatives of the Secretary and the representative of miners. Mines that are permitted to shut down main mine fans under § 75.311 may use an alternative device for monitoring main mine fan pressure that does not provide a continuous record, provided it is approved in the ventilation plan;

* * *

(c) If a main mine fan monitoring system is used under § 75.312, the system shall—

(1) Record, as described in paragraph (a)(4) the mine ventilating pressure;

(2) Monitor bearing temperature, revolutions per minute, vibration, electric voltage, and amperage;

(3) Provide, on demand, a printout of the monitored parameters, including the mine ventilating pressure; and

(4) Be equipped with an automatic device that signals when—

(i) An electrical or mechanical deficiency exists in the monitoring system; or

(ii) A sudden increase or loss in mine ventilating pressure occurs.

(5) Provide monitoring, records, printouts, and signals required by paragraphs (c)(1) through (c)(4) at a surface location at the mine where a responsible person designated by the operator is always on duty and where

signals from the monitoring system can be seen or heard while anyone is underground. This person shall be provided with two-way communication with the working sections and other established locations where persons are normally assigned to work.

* * *

4. Section 75.311 is amended by revising paragraph (d) to read as follows:

§ 75.311 Main mine fan operation.

* * *

(d) If an unusual variance in the mine ventilation pressure is observed, or if an electrical or mechanical deficiency of a main mine fan is detected, the mine superintendent, assistant mine superintendent, or mine foreman shall be notified immediately, and appropriate action or repairs shall be instituted promptly.

* * *

5. Section 75.312 is amended by revising paragraphs (a), (b)(1), (c), (d), (g)(1), and (h); by redesignating paragraph (f) as (f)(1) and revising it; by redesignating paragraphs (g)(2) and (g)(3) as paragraphs (g)(3) and (g)(4) and revising them, and by adding new paragraphs (f)(2), (g)(2) and (g)(5) to read as follows:

§ 75.312 Main mine fan examinations and records.

(a) To assure electrical and mechanical reliability of main mine fans, each main mine fan and its associated components, including devices for measuring or recording mine ventilation pressure, shall be examined for proper operation by a trained person designated by the operator. Examinations of main mine fans shall be made at least once each day that the fan operates, unless a functioning fan monitoring system is used in accordance with § 75.310. No examination is required on any day when no one, including certified persons, goes underground, but an examination shall be conducted prior to anyone entering the mine.

(b) (1) If a main mine fan monitoring system is used, a trained person designated by the operator shall—

(i) At least once each day obtain and review the data provided by the fan monitoring system to assure that the fan and the fan monitoring system are operating properly. No review is required on any day when no one, including certified persons, goes underground, but a review of the data shall be performed prior to anyone entering the mine. Data reviewed should include the fan pressure, bearing temperature, revolutions per minute,

vibration, electric voltage, and amperage; and

(ii) At least every 7 days—

(A) Test the monitoring system for proper operation; and

(B) Examine each main mine fan and its associated components to assure electrical and mechanical reliability of main mine fans.

* * *

(c) At least every 31 days, the automatic fan signal device for each main mine fan shall be tested by stopping the fan. Notwithstanding the provisions of § 75.311, underground power may remain energized during this test. If the fan is not restarted within 15 minutes, underground power shall be deenergized and no one shall enter any underground area of the mine, except as provided in this paragraph below, until the fan is restarted and an examination of the mine is conducted as described in § 75.360 (b) through (e) and the mine has been determined to be safe. Only persons necessary to evaluate the effect of the fan stoppage or restart, or to perform maintenance or repair work that cannot otherwise be made while the fan is operating, shall be permitted underground. An alternative test that does not require stopping the fan may be used provided it provides the same level of assurance that the fan signal will function as intended during fan stoppages and the alternative method is approved in the ventilation plan.

(d) At least every 31 days, the automatic closing doors in multiple main mine fan systems shall be tested by stopping the fan. Notwithstanding the provisions of § 75.311, underground power may remain energized during this test. If the fan is not restarted within 15 minutes, underground power shall be deenergized and no one shall enter any underground area of the mine, except as provided in this section, until the fan is restarted and an examination of the mine is conducted as described in § 75.360 (b) through (e) and the mine has been determined to be safe. Only persons necessary to evaluate the effect of the fan stoppage or restart, or to perform maintenance or repair work that cannot otherwise be made while the fan is operating, shall be permitted underground. An alternative test that does not require stopping the fan may be used, provided it provides the same level of assurance that the automatic closing doors will function as intended during fan stoppages and the alternative method is approved in the ventilation plan.

* * *

(f) (1) *Certification.* Persons making main mine fan examinations shall

certify by initials and date at the fan or another location specified by the operator that the examinations were made. Each certification shall identify the main mine fan examined.

(2) Persons reviewing data produced by a main mine fan monitoring system shall certify by initials and date on a printed copy of the data from the system that the review was completed.

(g) (1) *Recordkeeping.* By the end of the shift on which the examination is made, persons making main mine fan examinations shall record all defects found during the examination that may affect the operation of the fan. Records shall be maintained in a state-approved book or in a bound book with sequential machine-numbered pages.

(2) When a fan monitoring system is used in lieu of the daily fan examination—

(i) The certified copies of data produced by fan monitoring systems shall be maintained separate from other computer-generated reports or data; and

(ii) A record shall be made of any fan monitoring system malfunctions, electrical or mechanical deficiencies in the monitoring system and any sudden increase or loss in mine ventilating pressure. The record shall be made by the end of the shift on which the review of the data is completed and shall be maintained in a state-approved book or in a bound book with sequential machine-numbered pages.

(3) At mines permitted to shut down main mine fans under § 75.311, if a pressure recording device is not used, a record shall be made of the time and fan pressure immediately before the fan is stopped, and after the fan is restarted and the fan pressure stabilizes. Records shall be maintained in a state-approved book or in a bound book with sequential machine-numbered pages.

(4) By the end of the shift on which the monthly test of the automatic fan signal device or the automatic closing doors is completed, persons making these tests shall record the results of the tests. Records shall be maintained in a state-approved book or in a bound book with sequential machine-numbered pages.

(5) The records required by paragraphs (g) (1) through (4) of this section shall be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. Within 2 scheduled production days thereafter, the record shall also be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable.

(h) *Retention period.* Records, including records of mine fan pressure

and the certified copies of data produced by fan monitoring systems, shall be retained at a surface location at the mine for at least 1 year from the date of the last entry and shall be made available for inspection by authorized representatives of the Secretary and the representative of miners.

6. Section 75.313 is amended by revising paragraphs (c)(2) and (c)(3), (d)(1) (i) and (ii), and (d)(2) of the stayed standard to read as follows:

§ 75.313 Main mine fan stoppage with persons underground.

(c) * * *

(2) Underground electric power circuits shall be deenergized. However, circuits necessary to withdraw persons from the mine need not be deenergized if located in areas or haulageways where methane is not likely to migrate to or accumulate. These circuits shall be deenergized as persons are withdrawn; and

(3) Mechanized equipment not located on working sections shall be shut off. However, mechanized equipment necessary to withdraw persons from the mine need not be shut off if located in areas where methane is not likely to migrate to or accumulate.

(d)(1) * * *

(i) No one other than designated certified examiners shall enter any underground area of the mine until an examination of the mine is conducted as described in § 75.360(b) through (e) and the area has been determined to be safe.

(ii) Underground power circuits shall not be energized and nonpermissible mechanized equipment shall not be started or operated in an area until an examination of the mine is conducted as described in § 75.360(b) through (e) and the area has been determined to be safe.

(2) If ventilation is restored to the mine before miners reach the surface, all miners except designated certified examiners shall continue to the surface. No one other than certified persons conducting examinations required by this subpart shall enter the mine until an examination of the mine is conducted as described in § 75.360(b) through (e) and the mine has been determined to be safe. A record of all hazardous conditions found during this examination shall be made in accordance with § 75.363.

7. The Agency is asking for comments on paragraph (a)(3) of § 75.313, which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20916). This paragraph is being repropounded and republished for the

convenience of the readers to read as follows:

§ 75.313 Main mine fan stoppage with persons underground.

(a)(3) Everyone shall be withdrawn from the working sections and areas where mechanized mining equipment is being installed or removed.

8. Section 75.320 is amended by adding paragraph (e) to read as follows:

§ 75.320 Air quality detectors and measurement devices.

(e) Maintenance of instruments required by paragraphs (a) through (d) of this section shall be done by persons trained in such maintenance. Before each shift, care shall be taken to assure that any instrument to be used on that shift is in permissible condition.

9. Section 75.321 is amended by revising suspended paragraph (a) to read as follows:

§ 75.321 Air quality.

(a) (1) The air in areas where persons work or travel, except as specified in paragraph (a) (2) of this section, shall contain at least 19.5 percent oxygen and not more than 0.5 percent carbon dioxide, and the volume and velocity of the air current in these areas shall be sufficient to dilute, render harmless, and carry away flammable, explosive, noxious, and harmful gases, dusts, smoke, and fumes.

(2) The air in areas of bleeder entries and worked-out areas where persons work or travel shall contain at least 19.5 percent oxygen, and carbon dioxide levels shall not exceed 0.5 percent time weighted average and 3.0 percent short term exposure limit.

10. Section 75.323 is amended by revising paragraphs (b)(1)(ii), (c)(1), and (d)(2)(i) to read as follows:

§ 75.323 Actions for excessive methane.

(b) (1) * * *

(ii) Changes or adjustments shall be made at once to the ventilation system to reduce the concentration of methane to less than 1.0 percent; and

(c) * * *

(1) When 1.0 percent or more methane is present in a return air split between the last working place on a working section and where that split of air meets another split of air, or the location at which the split is used to ventilate seals or worked-out areas changes or adjustments shall be made at once to the

ventilation system to reduce the concentration of methane in the return air to less than 1.0 percent.

* * *

(d) * * *

(2) * * *

(i) Changes or adjustments shall be made at once to the ventilation system to reduce the concentration of methane in the return air below 1.5 percent;

* * *

11. The Agency is asking for comments on the following provisions of paragraphs (b) (1) introductory text, (b)(1)(i), (b)(1)(iii) and (b)(2) of § 75.323 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20917). These provisions are being repropounded and republished for the convenience of the readers to read as follows:

§ 75.323 Actions for excessive methane.

* * *

(b) Working places and intake air courses. (1) When 1.0 percent or more methane is present in a working place or an intake air course, including an air course in which a belt conveyor is located, or in an area where mechanized mining equipment is being installed or removed—

(i) Except intrinsically safe atmospheric monitoring systems (AMS), electrically powered equipment in the affected area shall be deenergized, and other mechanized equipment shall be shut off;

* * *

(iii) No other work shall be permitted in the affected area until the methane concentration is less than 1.0 percent.

(2) When 1.5 percent or more methane is present in a working place or an intake air course, including an air course in which a belt conveyor is located, or in an area where mechanized mining equipment is being installed or removed—

(i) Everyone except those persons referred to in § 104(c) of the Act shall be withdrawn from the affected area; and

(ii) Except for intrinsically safe AMS, electrically powered equipment in the affected area shall be disconnected at the power source.

* * *

12. The Agency is asking for comments on paragraph (d) of § 75.325 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20917). This paragraph is being repropounded and republished for the convenience of the readers to read as follows:

§ 75.325 Air quantity.

* * *

(d) Ventilation shall be maintained during installation and removal of mechanized mining equipment. The approved ventilation plan shall specify the quantity of air, the locations where this quantity will be provided and the ventilation controls required.

* * *

13. Section 75.330 is amended by adding paragraph (c) to read as follows:

§ 75.330 Face ventilation control devices.

* * *

(c) When the line brattice or any other face ventilation control device is damaged to an extent that ventilation of the working face is inadequate, production activities in the working place shall cease until necessary repairs are made and adequate ventilation is restored.

14. The Agency is asking for comments on paragraph (a)(1) of § 75.332 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20918). This paragraph is being repropounded and republished for the convenience of the readers to read as follows:

§ 75.332 Working sections and working places.

(a)(1) Each working section and each area where mechanized mining equipment is being installed or removed, shall be ventilated by a separate split of intake air directed by overcasts, undercasts or other permanent ventilation controls.

* * *

15. Section 75.333 is amended by revising paragraphs (a), (b)(1), (b)(3), (b)(4), and (e)(1) and adding a new paragraph (h) to read as follows:

§ 75.333 Ventilation controls.

(a) For purposes of this section, "doors" includes any doorframes.

(b) * * *

(1) Between intake and return air courses, except temporary controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the room was developed including where continuous face haulage systems are used in such rooms. Unless otherwise approved in the ventilation plan, these stoppings or controls shall be maintained to and including the third connecting crosscut outby the working face;

* * *

(3) To separate belt conveyor haulageways from intake air courses when the air in the intake air course is used to provide air to active working places. When continuous face haulage systems are used, permanent stoppings or other permanent ventilation control

devices shall be built and maintained to the outby travel point of the dolly to separate the haulage entry in which the low profile belt structure is located from intake entries. Temporary ventilation controls may be used in rooms that are 600 feet or less from the centerline of the entry from which the rooms were developed;

(4) To separate the primary escapeway from belt and trolley haulage entries, as required by § 75.380(g). For purposes of § 75.380(g), the loading point for a continuous haulage system shall be the inby most point of travel of the dolly; and

* * *

(e)(1)(i) Except as provided in paragraphs (e)(2), (e)(3) and (e)(4) all overcasts, undercasts, shaft partitions, permanent stoppings, and regulators, installed after [Insert the effective date of this rule], shall be constructed in a manner and of materials that results in a construction that has been tested and shown to have a minimum strength of 39 pounds per square foot as tested under ASTM E72-80 Section 12—Transverse Load-Specimen Vertical, load only.

(ii) All overcasts, undercasts, shaft partitions, permanent stoppings, and regulators, installed after November 15, 1992, shall be constructed of noncombustible material. Materials that are suitable for the construction of overcasts, undercasts, shaft partitions, permanent stoppings, and regulators include concrete, concrete block, brick, cinder block, tile, or steel. No ventilation controls installed after November 15, 1992, shall be constructed of aluminum.

* * *

(h) All permanent ventilation controls, including seals, shall be maintained to serve the purpose for which they were built.

16. Section 75.334 is amended by revising paragraph (e) to read as follows:

§ 75.334 Worked-out areas and areas where pillars are being recovered.

* * *

(e) Each mining system shall be designed so that each worked-out area can be sealed. The approved ventilation plan shall specify the location and the sequence of construction of proposed seals.

* * *

17. The Agency is asking for comments on paragraph (f) of § 75.334 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20919). This paragraph is being repropounded and republished for the convenience of the readers to read as follows:

§ 75.334 Worked-out areas and areas where pillars are being recovered.

(f) In place of the requirements of paragraphs (a) and (b) of this section, for mines with a demonstrated history of spontaneous combustion, or that are located in a coal seam determined to be susceptible to spontaneous combustion, the approved ventilation plan shall specify the following:

(1) Measures to detect methane, carbon monoxide, and oxygen concentrations during and after pillar recovery, and in worked-out areas where no pillars have been recovered, to determine if the areas must be ventilated or sealed.

(2) Actions that will be taken to protect miners from the hazards of spontaneous combustion.

(3) If a bleeder system will not be used, the methods that will be used to control spontaneous combustion, accumulations of methane-air mixtures, and other gases, dusts, and fumes in the worked-out area.

18. Section 75.340 is amended by revising paragraph (a) to read as follows:

§ 75.340 Underground electrical installations.

(a) Underground transformer stations, battery charging stations, substations, rectifiers, and water pumps shall be located in noncombustible structures or areas or be equipped with a fire suppression system meeting the requirements of § 75.1107-3 through § 75.1107-16.

(1) When a noncombustible structure or area is used, these installations shall be—

(i) Ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places;

(ii) Ventilated with intake air that is monitored for carbon monoxide or smoke by an AMS installed and operated according to § 75.351. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen; or

(iii) Ventilated with intake air and equipped with sensors to monitor for heat and for carbon monoxide or smoke. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen. The sensors shall deenergize power to the installation, activate a visual and audible alarm located outside of the enclosure on the intake side of the installation, and activate doors that will automatically close when either of the following occurs:

(A) The temperature in the noncombustible structure reaches 165 °F.

(B) The carbon monoxide concentration reaches 10 parts per million above the ambient level for the area, or the optical density of smoke reaches 0.05 per meter. At least every 31 days, sensors installed to monitor for carbon monoxide shall be calibrated with a known concentration of carbon monoxide and air sufficient to activate the closing door, or each smoke sensor shall be tested to determine that it functions correctly.

(2) When a fire suppression system is used, these installations shall be—

(i) Ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places; or

(ii) Ventilated with intake air that is monitored for carbon monoxide or smoke by an AMS installed and operated according to § 75.351. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen.

19. Section 75.342 is amended by revising paragraph (a)(4) to read as follows:

§ 75.342 Methane monitors.

(a) (4) Methane monitors shall be maintained in permissible and proper operating condition and shall be calibrated with a known air-methane mixture at least once every 31 days. To assure that methane monitors are properly maintained and calibrated, the operator shall:

(i) Use persons properly trained in the maintenance, calibration, and permissibility of methane monitors to calibrate and maintain the devices.

(ii) Develop and adopt a written maintenance program that shall be made available for inspection by authorized representatives of the Secretary and the representative of miners.

(iii) Maintain a record of all calibration tests of methane monitors. Records shall be maintained in a state-approved book or in a bound book with sequential machine-numbered pages.

(iv) Retain the record of calibration tests for 1 year from the date of the test. Records shall be retained at a surface location at the mine and made available for inspection by authorized representatives of the Secretary and the representative of miners.

20. Section 75.344 is amended by revising stayed paragraph (a)(1), redesignating paragraph (b)(2) as (b)(3)

and adding new paragraphs (b)(2) and (e) to read as follows:

§ 75.344 Compressors.

(a) (1) Located in a noncombustible structure or area unless a person designated by the operator continuously attends and can see the compressor at all times during its operation. Any designated person attending the compressor shall be capable of activating the fire suppression system and deenergizing or shutting off the compressor in the event of a fire; and

(b) (2) While located immediately adjacent to a return air course between two permanent ventilation controls and ventilated through an intake control opening with a current of air that is then coursed directly into the return air course. In lieu of the intake side ventilation control, a door may be constructed in accordance with § 75.333 (d)(1) and (d)(2). The velocity of the air maintained through the intake control opening shall be sufficient to prevent smoke rollback or airflow reversal through this opening during a fire on a compressor. The air quantity shall be sufficient to adequately cool the compressor. Sensors for heat or carbon monoxide or smoke shall be installed between the two permanent ventilation controls and shall activate a visual and audible alarm located outside of the enclosure on the intake side when either condition specified in paragraph (b)(3)(i) or (ii) occurs; or

(e) Notwithstanding the requirements of § 75.1107-4, upon activation of any fire suppression system used under paragraph (a)(2) of this section or activation of any system used under paragraph (b)(3) of this section, the compressor shall be automatically deenergized or automatically shut off.

21. Section 75.360 is amended by removing paragraph (e), redesignating paragraphs (f) through (h) as (e) through (g), revising paragraphs (a), introductory text to (b), (b)(1), (b)(3), (b)(4), and (b)(6), introductory text to (c), (c)(1), introductory text to (c)(3), and newly redesignated paragraph (f), and by adding paragraphs (b)(8) through (b)(10) to read as follows:

§ 75.360 Preshift examination.

(a)(1) Except as provided in paragraph (a)(2) of this section, a certified person designated by the operator shall make a preshift examination within 3 hours preceding the beginning of any shift and

before anyone on the oncoming shift, other than certified persons conducting examinations required by this subpart, enters any underground area of the mine.

(2) Preshift examinations of areas where pumpers are scheduled to work or travel shall not be required prior to the pumper entering the areas if the pumper is a certified person and the pumper conducts an examination for hazardous conditions and for noncompliance with mandatory safety or health standards that could result in a hazardous condition, tests for methane and oxygen deficiency and determines if the air is moving in its proper direction in the area where the pumper works or travels. The examination of the area must be completed before the pumper performs any other work. A record of all hazardous conditions found by the pumper shall be made and retained in accordance with § 75.363 by or at the end of the shift on which the condition was found.

(b) The person conducting the preshift examination shall examine for hazardous conditions and noncompliance with mandatory safety or health standards that could result in a hazardous condition, test for methane and oxygen deficiency, and determine if the air is moving in its proper direction at the following locations:

(1) Roadways, travelways and track haulageways where persons are to work or travel during the oncoming shift and are scheduled prior to the beginning of the preshift examination.

(3) Working sections and areas where mechanized mining equipment is being installed or removed, if anyone is scheduled to work on the section or in the area during the oncoming shift. Also sections that are not scheduled to operate but are capable of producing coal by simply energizing the equipment on the section. The examination shall include working places, approaches to worked-out areas and ventilation controls on these sections or in these areas. The examination shall also include a test of the roof, face and rib conditions on these sections or in these areas.

(4) Approaches to worked-out areas along intake air courses and at the entries used to carry air into worked-out areas. The examination of the approaches to the worked-out areas shall be made in the intake air course immediately inby and outby each entry used to carry air into the worked-out area. The examination of the entries used to carry air into the worked-out areas shall be at a point immediately

inby the intersection of each entry with the intake air course when the air in the intake air course passes by the worked-out area prior to being used to ventilate working sections where anyone is scheduled to work during the oncoming shift.

* * * * *

(6) (i) Entries and rooms developed after November 15, 1992, and developed more than 2 crosscuts off an intake air course without permanent ventilation controls where intake air passes through or by these entries or rooms to reach a working section where anyone is scheduled to work during the oncoming shift; and,

(ii) Entries and rooms developed after November 15, 1992, and driven more than 20 feet off an intake air course without a crosscut and without permanent ventilation controls where intake air passes through or by these entries or rooms to reach a working section where anyone is scheduled to work during the oncoming shift.

* * * * *

(8) High spots along intake air courses where methane is likely to accumulate, if equipment may be operated in the area during the shift.

(9) Underground electrical installations referred to in § 75.340(a), except water pumps, and areas where compressors subject to § 75.344 are installed if the installation or compressor is or will be energized during the shift.

(10) Other areas where work or travel during the oncoming shift is scheduled prior to the beginning of the preshift examination.

* * * * *

(c) The person conducting the preshift examination shall determine the volume of air entering each of the following areas:

(1) In the last open crosscut of each set of entries or rooms on each working section and areas where mechanized mining equipment is being installed or removed if persons are scheduled to work or travel in the section or area or other areas where coal can be produced by simply energizing equipment. The last open crosscut is the crosscut in the line of pillars containing the permanent stoppings that separate the intake air courses and the return air courses.

* * * * *

(3) At the intake end of any pillar line where persons are scheduled to work or travel, mechanized mining equipment is being installed or removed, or coal can be produced simply by energizing the equipment—

* * * * *

(f) *Recordkeeping.* A record of the results of each preshift examination including a record of hazardous conditions and their locations found by the examiner during each examination and of the results and locations of air and methane measurements shall be made in a book provided for that purpose on the surface before any persons other than certified persons conducting examinations required by this subpart enter any underground area of the mine. The results of methane tests shall be recorded as the percentage of methane measured by the examiner. The record shall be made by the certified person who made the examination or by a person designated by the operator. If the record is made by someone other than the examiner, the examiner shall verify the record by initials and date by or at the end of the shift for which the examination was made. A record shall also be made by a certified person of the action taken to correct hazardous conditions found during the preshift examination. Records shall be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. Within 2 scheduled production days thereafter, the record shall also be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record shall be made in a state-approved book or in a bound book with sequential machine-numbered pages.

* * * * *

22. Section 75.362 is amended by removing paragraph (h); redesignating paragraphs (d)(1)(i) and (d)(1)(ii) as (d)(1)(ii) and (d)(1)(iii); revising paragraphs (a)(1), (a)(2), (c)(1), newly redesignated (d)(1)(iii), (d)(2) and (g); and by adding new paragraph (d)(1)(i) to read as follows:

§ 75.362 On-shift examination.

(a)(1) At least once during each shift, or more often if necessary for safety, a certified person designated by the operator shall conduct an on-shift examination of each section where anyone is assigned to work during the shift and any area where mechanized mining equipment is being installed or removed during the shift. The certified person shall check for hazardous conditions, test for methane and oxygen deficiency, and determine if the air is moving in its proper direction.

(2) At or near the beginning of any coal-producing shift, before production begins on a section, a certified person designated by the operator shall conduct an examination to assure compliance with the respirable dust control

parameters specified in the mine ventilation plan. Deficiencies shall be corrected immediately. The examination shall include air quantities and velocities, water pressures and flow rates, water spray numbers and orientations, section ventilation and control device placement, and any other dust suppression measures required by the ventilation plan. Physical measurements of the air velocity and quantity, water pressure and flow rates shall not be required if continuous monitoring of these parameters is used and indicates that the dust control parameters are functioning properly.

(c) ***

(1) The volume of air in the last open crosscut of each set of entries or rooms on each section and areas where mechanized mining equipment is being installed or removed. The last open crosscut is the crosscut in the line of pillars containing the permanent stoppings that separate the intake air courses and the return air courses.

(d)(1) ***

(i) At the start of each shift at each working place before electrically operated equipment is energized; and

(iii) At 20-minute intervals, or more often if required in the approved ventilation plan at specific locations, during the operation of equipment in the working place.

(2) These methane tests shall be made at the face from under permanent roof support, using extendable probes or other acceptable means. When longwall or shortwall mining systems are used, these methane tests shall be made at the shearer, the plow, or the cutting head. When mining has been stopped for more than 20 minutes, methane tests shall be conducted prior to the start up of equipment.

(g) *Certification.* The person making the on-shift examination in belt haulage entries shall certify by initials, date, and time that the examination was made. The certified person shall certify by initials, date, and the time at enough locations to show that the entire area has been examined.

23. The Agency is asking for comments on paragraph (c)(2) of § 75.362 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20923). This paragraph is being repropounded and republished for the convenience of the readers to read as follows:

§ 75.362 On-shift examination.

(c)(2) The volume of air on a longwall or shortwall, including areas where longwall or shortwall equipment is being installed or removed, in the intake entry or entries at the intake end of the longwall or shortwall.

24. Section 75.363 is added to read as follows:

§ 75.363 Hazardous conditions; posting, correcting and recording.

(a) Any hazardous condition found by or reported to the mine foreman, assistants to the mine foreman, or other certified persons designated by the operator for the purposes of conducting examinations under this subpart D, shall be posted with a conspicuous danger sign where anyone entering the areas would pass. Hazardous conditions shall be corrected immediately and the area shall remain posted until the hazardous conditions are corrected. If these conditions create an imminent danger, everyone except those persons referred to in section 104(c) of the Act shall be withdrawn from the area affected to a safe area until the hazardous condition is corrected. Only persons designated by the operator to correct or evaluate the conditions may enter the posted area.

(b) A record shall be made of these hazardous conditions. This record shall be kept in a book maintained for this purpose on the surface at the mine. The record shall be made by the completion of the shift on which the hazardous condition is found and shall include the nature and location of the hazardous condition and the corrective action taken. This record shall not be required for shifts when no hazardous conditions are found or for hazardous conditions found during the pre-shift or weekly examinations inasmuch as these examinations have separate recordkeeping requirements.

(c) The record shall be made by the certified person or a person designated by the operator. If made by a person other than the certified person, the certified person shall verify the record by initials and date by or at the end of the shift for which the examination was made. The record shall be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. Within 2 scheduled production days thereafter, the record shall also be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record shall be made in a state-approved book or in a bound

book with sequential machine-numbered pages.

(d) *Retention period.* Records shall be retained for at least 1 year at a surface location at the mine and made available for inspection by an authorized representative of the Secretary and representative of miners.

25. Section 75.364 is amended by revising paragraphs (a), the introductory text of paragraph (b) and paragraph (h) to read as follows:

§ 75.364 Weekly examination.

(a) *Worked-out areas.* (1) At least every 7 days, a certified person shall examine unsealed worked-out areas where no pillars have been recovered by traveling to the area of deepest penetration; measuring methane and oxygen concentrations and air quantities and making tests to determine if the air is moving in its proper direction in the area. Air quantity measurements shall be made where the air enters and leaves the worked-out area. Sufficient methane and oxygen measurements shall be made so as to assure the air quality in the worked-out area. An alternative method of evaluating the ventilation of the area may be approved in the ventilation plan.

(2) At least every 7 days, a certified person shall evaluate the effectiveness of bleeder systems used under § 75.334(b) and (c) as follows:

(i) Measurements of methane and oxygen concentrations and air quantity and a test to determine if the air is moving in its proper direction shall be made where air enters the worked-out area.

(ii) Measurements of methane and oxygen concentrations and air quantity and a test to determine if the air is moving in its proper direction shall be made immediately before the air enters a return split of air.

(iii) Bleeder entries used as part of a bleeder system under § 75.334 shall be traveled in their entirety. Measurements of methane and oxygen concentrations and air quantities and a test to determine if the air is moving in its proper direction shall be made at locations specified in the mine ventilation plan to determine the effectiveness of the bleeder system.

(iv) In lieu of the requirements of paragraphs (a)(2)(i) and (iii), alternative methods of evaluation may be specified in the ventilation plan provided the alternative method results in proper evaluation of the effectiveness of the bleeder system.

(b) *Hazardous conditions.* At least every 7 days, an examination for hazardous conditions and

noncompliance with mandatory safety or health standards that could result in a hazardous condition shall be made at the following locations by a certified person designated by the operator—

(h) *Recordkeeping.* At the completion of any shift during which a portion of a weekly examination is conducted, a record of the results of each weekly examination, including a record of hazardous conditions found during each examination and their locations, the corrective action taken, and the results and location of air and methane measurements, shall be made. The results of methane tests shall be recorded as the percentage of methane measured by the examiner. The record shall be made by the person making the examination or a person designated by the operator. If made by a person other than the examiner, the examiner shall verify the record by initials and date by or at the end of the shift for which the examination was made. The record shall be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. Within 2 scheduled production days thereafter, the record shall also be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record shall be made in a state-approved book or in a bound book with sequential machine-numbered pages.

26. Section 75.370 is amended by redesignating paragraphs (b) through (f) as (c) through (g); by revising paragraph (a)(3), newly redesignated paragraphs (c)(1) and (f); and by adding a new paragraph (b) to read as follows:

§ 75.370 Mine ventilation plan; submission and approval.

(a) * * *

(3) A copy of the proposed ventilation plan, and a copy of any proposed revision, submitted for approval shall be—

(i) Provided to the representative of miners by the operator no later than the time of submittal;

(ii) Made available for inspection by the representative of miners; and

(iii) Posted on the mine bulletin board at the time of submittal. The proposed plan or proposed revision shall remain posted until it is approved, withdrawn or denied.

(b) Following receipt of the proposed plan or proposed revision, the representative of miners may submit timely comments to the district manager, in writing, for consideration during the review process.

(c) (1) The district manager will notify the operator in writing of the approval or denial of approval of a proposed ventilation plan or proposed revision. A copy of this notification will be sent to the representative of miners by the district manager.

(f) The approved ventilation plan and any revisions shall be—

(1) Provided to the representative of miners by the operator following notification of approval;

(2) Made available for inspection by the representative of miners; and

(3) Posted on the mine bulletin board within 1 working day following notification of approval. The approved plan and revisions shall remain posted on the bulletin board for the entire period that they are in effect.

27. Section 75.371 is amended by revising paragraphs (b), (s), (z) and (bb) to read as follows:

§ 75.371 Mine ventilation plan; contents.

(b) Planned main mine fan stoppages, other than those scheduled for testing, maintenance or adjustment, including procedures to be followed during these stoppages and subsequent restarts (see § 75.311(a)) and the type of device to be used for monitoring main mine fan pressure, if other than a pressure recording device (see 75.310(a)(4)). Alternative methods for testing fan signals and automatic closing doors in lieu of stopping the main mine fan. (see § 75.312(c) and (d)).

(s) The locations and frequency of the methane tests if required more often by § 75.362(d)(1)(iii) (see § 75.362(d)(1)(iii)).

(z) The locations where measurements of methane and oxygen concentrations and air quantities and tests to determine whether the air is moving in the proper direction will be made to evaluate the ventilation of nonpillared worked-out areas (see § 75.364 (a)(1)) and the effectiveness of bleeder systems (see § 75.364 (a)(2)(iii)). Alternative methods of evaluation of the effectiveness of bleeder systems (§ 75.364 (a)(2)(iv)).

(bb) The location of ventilation devices such as regulators, stoppings and bleeder connectors used to control air movement through worked-out areas (see § 75.334(c)(4)). The location and sequence of construction of proposed seals for each worked-out area. (see § 75.334(e))

28. The Agency is asking for comments on paragraph (r) of § 75.371 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20925). This paragraph is being repropose and republished for the convenience of the readers to read as follows:

§ 75.371 Mine ventilation plan; contents.

(r) The quantity of air and ventilation controls that will be provided during the installation and removal of mechanized mining equipment (see § 75.325(d)).

29. Section 75.372 is amended by revising paragraph (b)(3) and adding paragraphs (b)(19) and (b)(20) to read as follows:

§ 75.372 Mine ventilation map.

(b) * * *

(3) All known mine workings that are located in the same coalbed within 1,000 feet of existing or projected workings. These workings may be shown on a mine map with a scale other than that required by paragraph (a) of this section, if the scale does not exceed 2,000 feet to the inch and is specified on the map.

(19) The entry height, velocity and direction of the air current at or near the midpoint of each belt flight where the height and width of the entry are representative of the belt haulage entry.

(20) The location and designation of air courses that have been redesignated from intake to return for the purpose of ventilation of structures, areas or installations that are required by this subpart D to be ventilated to return air courses, and for ventilation of seals.

30. Section 75.380 is amended by revising paragraphs (d)(3), (d)(4)(ii), (d)(5), (f) and (i)(2); and by adding paragraph (d)(4)(iii) to read as follows:

§ 75.380 Escapeways; bituminous and lignite mines.

(d) * * *

(3) Maintained to at least a height of 5 feet from the mine floor to the mine roof, excluding the thickness of any roof support, except that the escapeways shall be maintained to at least the height of the coalbed, excluding the thickness of any roof support, where the coalbed is less than 5 feet. In areas of mines where escapeways pass through doors, the height may be less than 5 feet, provided that sufficient height is

maintained to enable miners, including disabled persons, to escape quickly in an emergency. In areas of mines developed before November 16, 1992, where escapeways pass over or under overcasts, or undercasts the height may be less than 5 feet provided that sufficient height is maintained to enable miners, including disabled persons, to escape quickly in an emergency;

(4) ***

(ii) Where the route of travel passes through doors or other permanent ventilation controls, the escapeway shall be at least 4-feet wide to enable miners to escape quickly in an emergency, or

(iii) Where the alternate escapeway passes through doors or other permanent ventilation controls or where supplemental roof support is required, and it can be demonstrated that sufficient width is maintained to enable miners, including disabled persons, to escape quickly in an emergency.

(5) Located to follow the most direct, safe and practical route to the nearest mine opening suitable for the safe evacuation of miners; and

(f) **Primary escapeway.** (1) One escapeway that is ventilated with intake air shall be designated as the primary escapeway.

(2) Paragraphs (f)(3) through (f)(6) of this section do not apply to areas of a primary escapeway where separation of the belt and trolley haulage entries from the primary escapeway did not exist before November 16, 1992.

(3) The following equipment is not permitted in the primary escapeway:

(i) Unattended diesel equipment.

(ii) Mobile equipment hauling coal.

(iii) Compressors, except—

(A) Compressors necessary to maintain the escapeway in safe, travelable condition;

(B) Compressors that are components of equipment such as locomotives and rock dusting machines; and

(C) Compressors of less than five horsepower.

(iv) Underground transformer stations, battery charging stations, substations, and rectifiers except—

(A) Where necessary to maintain the escapeway in safe, travelable condition; and

(B) Rectifiers and power centers with transformers that are either dry-type or contain nonflammable liquid, provided they are located on or near a working section and are moved as the section advances or retreats.

(v) Water pumps, except—

(A) Water pumps necessary to maintain the escapeway in safe, travelable condition;

(B) Submersible pumps;

(C) Permissible pumps and associated permissible switchgear;

(D) Pumps located on or near a working section that are moved as the section advances or retreats;

(E) Pumps installed in anthracite mines; and

(F) Small portable pumps.

(4) Mobile equipment in the primary escapeway, except for continuous miners and as provided in paragraphs (f)(5) and (f)(6) below, shall be equipped with a fire suppression system installed according to §§ 75.1107-3 through 75.1107-16 that is—

(i) Manually operated and attended continuously by a person trained in the systems function and use, or

(ii) A multipurpose dry chemical type capable of both automatic and manual activation.

(5) Personnel carriers and small mobile equipment designed and used only for carrying people and small hand tools may be operated in primary escapeways if—

(i) The equipment is provided with a multipurpose dry chemical type fire suppression system capable of both automatic and manual activation, and

(ii) The suppression system is suitable for the intended application and approved by a nationally recognized independent testing laboratory.

(6) Mobile equipment not provided with a fire suppression system may operate in the primary escapeway if no one is in by except those persons directly engaged in using or moving the equipment.

(i) ***

(2) Each slope that is part of a designated escapeway and is inclined more than 9 degrees from the horizontal.

31. The Agency is asking for comments on paragraph (b) of § 75.380 which is identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20926). This paragraph is being repropounded and republished for the convenience of the readers to read as follows:

§ 75.380 Escapeways; bituminous and lignite mines.

(b) (1) Escapeways shall be provided from each working section, and each area where mechanized mining equipment is being installed or removed, continuous to the surface escape drift opening or continuous to

the escape shaft or slope facilities to the surface.

(2) During equipment installation, these escapeways shall begin at the projected location for the section loading point. During equipment removal, they shall begin at the location of the last loading point.

32. Section 75.382 is amended by adding paragraphs (g), (h), and (i) to read as follows:

§ 75.382 Mechanical escape facilities.

(g) **Certification.** The person making the examination as required by paragraph (c) of this section shall certify by initials, date, and the time that the examination was made. Certifications shall be made at or near the facility examined.

(h) **Recordkeeping.** At or by the completion of any shift during which the weekly examination is made as required by paragraph (c) of this section, a record of the results of the examination, including any deficiency found and the corrective action taken, shall be made. The record shall be made by the person making the examination. The record shall be countersigned by the mine foreman by the end of the mine foreman's next regularly scheduled working shift. Within 2 scheduled production days thereafter, the record shall also be countersigned by the mine superintendent, mine manager, or other mine official to whom the mine foreman is directly accountable. The record shall be made in a state-approved book or in a bound book with sequential machine-numbered pages.

(i) **Retention period.** Records shall be retained for at least 1 year at a surface location at the mine and made available for inspection by authorized representatives of the Secretary and representative of miners.

33. The Agency is asking for comments on paragraphs (a) and (b)(1) of § 75.383 which are identical to the text published in the *Federal Register* on May 15, 1992 (57 FR 20927). These paragraphs are being repropounded and republished for the convenience of the readers to read as follows:

§ 75.383 Escapeway maps and drills.

(a) A map shall be posted in each working section, and in each area where mechanized mining equipment is being installed or removed, and shall show the designated escapeways from the working section to the location where miners must travel to satisfy the escapeway drill specified in paragraph (b)(1) of this section. A map showing the

main escapeways shall be posted at a surface location of the mine where miners congregate, such as at the mine bulletin board, bathhouse, or waiting room. All maps shall be kept up to date, and any changes in route of travel, locations of doors, or directions of airflow shall be shown on the maps by the end of the shift on which the changes are made, and affected miners shall be informed of the changes before entering the underground areas of the mine.

(b)(1) At least once every 90 days, each miner, including miners with working stations located between working sections and main escapeways, shall participate in a practice escapeway drill. During this drill, each miner shall travel the primary or alternate escapeway from the miner's working section or area where mechanized mining equipment is being installed or removed, to the area where the split of

air ventilating the working section intersects a main air course, or 2,000 feet outby the section loading point, whichever distance is greater. Other miners shall participate in the escapeway drill by traveling in the primary or alternate escapeway for a distance of 2,000 feet from their working station toward the nearest escape facility or drift opening. An escapeway drill shall not be conducted in the same escapeway as the immediately preceding drill.

34. Section 75.388 is amended by revising the introductory text to paragraph (c) to read as follows:

§ 75.388 Boreholes in advance of mining.

(c) Boreholes shall be drilled in one or both ribs of advancing working places described in paragraph (a) of this section as may be necessary for adequate protection of miners in such

working places. These boreholes shall be drilled—

* * * * *

35. Section 75.389 is amended by adding introductory text to paragraph (c), and the text of paragraph (c)(1) is republished without charge to read as follows:

§ 75.389 Mining into inaccessible areas.

* * * * *

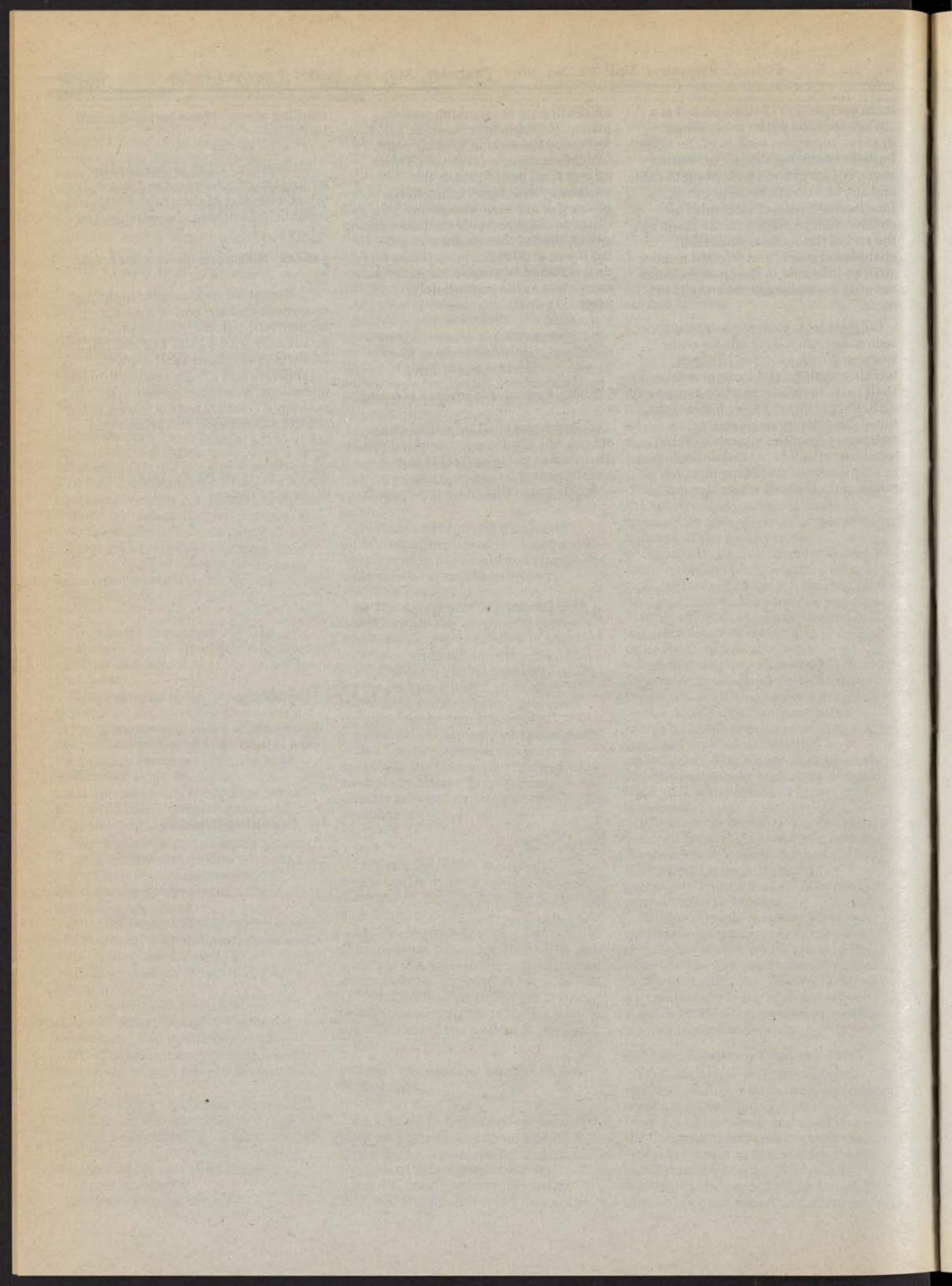
(c) Except for routine mining-through operations that are part of a retreat section ventilation system approved in accordance with § 75.371 (f) and (x), the following provisions shall apply:

(1) Before and during mining-through operations, a certified person shall perform air quality tests at intervals and at locations necessary to protect the safety of the miners.

* * * * *

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Part VI

Department of Health and Human Services

Food and Drug Administration

21 CFR Part 1020

Federal Performance Standard for
Diagnostic X-Ray Systems and Their
Major Components; Final Rule

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 1020

[Docket No. 92N-0108]

Federal Performance Standard for Diagnostic X-Ray Systems and Their Major Components

AGENCY: Food and Drug Administration, HHS.

ACTION: Final rule.

SUMMARY: The Food and Drug Administration (FDA) is issuing a final rule to amend the Federal performance standard for diagnostic x-ray systems and their major components (the performance standard). The amendments revise the limits established for maximum patient entrance exposure rates for fluoroscopic x-ray systems during high-level control and other modes of operation. The revisions are being made due to concerns regarding excessively large radiation exposure rates on some fluoroscopic x-ray systems. In addition, an inadvertent error is being corrected to improve the accuracy of the regulations.

EFFECTIVE DATE: May 19, 1995.

FOR FURTHER INFORMATION CONTACT: Patricia M. Dubill, Center for Devices and Radiological Health (HFZ-84), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301-594-4765.

SUPPLEMENTARY INFORMATION:

I. Background

Under the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321 *et seq.*) as amended, FDA is amending the performance standard for diagnostic x-ray systems and their major components in § 1020.32 (21 CFR 1020.32) by revising the limits established for maximum patient entrance exposure rates for fluoroscopic x-ray systems during high-level control and other modes of operation. In the *Federal Register* of August 15, 1972 (37 FR 16461), the performance standard was published as a final rule which became effective on August 1, 1974. Since that time, there have been several amendments to the performance standard. These amendments take into account new technology, clarify misinterpreted provisions, or incorporate additional requirements determined to be necessary to provide for adequate radiation safety of diagnostic x-ray systems.

FDA determined that further changes to the standard were necessary, in view of concerns regarding the potential for unnecessary radiation exposures to patients from some current fluoroscopic x-ray system designs. Therefore, FDA developed proposed draft amendments to the performance standard, which were discussed during a public meeting of the Technical Electronic Product Radiation Safety Standards Committee (TEPRSSC) on November 14, 1990. The proposed amendments that were discussed included the following:

(1) Replacement of the current two-tier system of entrance exposure rate limits applicable during normal fluoroscopy on systems with automatic exposure rate control (AERC) with a single upper limit of 2.58×10^{-3} coulomb per kilogram (C/kg) per minute (10 roentgens per minute (R/min)), regardless of mode of operation;

(2) Establishment of an upper limit of 5.16×10^{-3} C/kg per minute (20 R/min) on entrance exposure rate during high-level control mode of fluoroscopy;

(3) Establishment of a requirement for an AERC mode of operation for any fluoroscopic x-ray system capable of operating at an entrance exposure rate greater than 1.29×10^{-3} C/kg per minute (5 R/min); and

(4) Application of the entrance exposure rate limits discussed in paragraphs (1) and (2) above during continuous recording of dynamic fluoroscopic images with a videotape recorder or similar device. The application of the entrance exposure rate limit during continuous recording requires a distinction between the continuous mode of operation and various modes of operation in which the x-ray exposure is pulsed. Therefore, a definition of pulsed mode of operation is being added. This is necessary because a consensus as to appropriate limits for the various pulsed recording modes does not exist and further study is needed before such a limit is imposed.

TEPRSSC approved the content of the proposed amendments and concurred with publication of them for public comment. FDA proposed the amendments to the performance standard in the *Federal Register* of May 3, 1993 (58 FR 26407). Interested persons were given until August 2, 1993, to comment on the proposal. FDA received and considered one comment each from a radiological physicist and a professional organization representing radiologists and physicists. Both comments supported the proposed changes and suggested several additional amendments to the standard. These comments also addressed

fluoroscopy-related issues on which FDA specifically solicited comments in the preamble to the proposed rule. FDA appreciates having received these comments and will consider them in the context of possible future rulemaking activities related to fluoroscopic x-ray systems. A summary of the comments pertaining to the proposal of May 3, 1993, and FDA's responses are discussed below.

In addition, in the final rule that published in the *Federal Register* of May 3, 1993 (58 FR 26386 at 26398), in § 1020.30(b) (21 CFR 1020.30(b)), the acronym "SID" for source-image receptor distance was inadvertently omitted. This document is also correcting that error.

II. Summary and Analysis of Comments

1. Both of the comments received concurred with all of the proposed amendments to the performance standard, except that one of the comments suggested changing the proposed upper limit on entrance exposure rate during the high-level control mode of operation. That comment advocated a limit of 3.87×10^{-3} C/kg per minute (15 R/min), rather than the proposed limit of 5.16×10^{-3} C/kg per minute (20 R/min), but noted a lack of objective data to support the recommendation. The other comment concurred with the proposed limit of 5.16×10^{-3} C/kg per minute (20 R/min) and noted that a number of manufacturers provide equipment which does not exceed 2.58×10^{-3} C/kg per minute (10 R/min) during fluoroscopy.

The comment advocating a lower limit did not submit specific data supporting that position. The second comment on the appropriate upper limit to be imposed on entrance exposure rate during high-level control mode of operation noted that a lower limit was consistent with certain existing equipment, but nonetheless supported the limit proposed by FDA. After reviewing these comments, FDA concludes that its choice of an upper limit is a reasonable one. The objective in establishing such a limit is to provide a mode of operation that will reasonably accommodate unusual imaging requirements, but also will prevent unnecessarily high exposure rates. The limit proposed was based on the observation that the majority of fluoroscopic x-ray systems equipped with high-level control, which were evaluated in conjunction with FDA testing for compliance with the performance standard, are limited to maximum entrance exposure rates of less than 5.16×10^{-3} C/kg per minute (20

R/min). The proposed limit was also based on discussions with medical physicists regarding their experience in limiting entrance exposure rates, which indicated that a limit of 5.16×10^{-3} C/kg per minute (20 R/min) eliminates unnecessarily high exposure rates without compromising the use of the equipment. FDA interprets the lack of significant adverse comment on this proposal as an indication of general agreement with the proposed limit. Therefore, FDA rejects the suggestion that a limit of 3.87×10^{-3} C/kg per minute (15 R/min) be established for the maximum entrance exposure rate, and is establishing the upper limit of 5.16×10^{-3} C/kg per minute (20 R/min) as proposed.

FDA notes that recommendations related to limits on entrance exposure rate resulted from a workshop on fluoroscopy cosponsored by FDA and the American College of Radiology (ACR) in October of 1992 (Ref. 2). These recommendations generally favored limiting exposure rates from fluoroscopic x-ray systems in some manner and included suggestions for limiting the maximum exposure rate to the input surface of the image intensifier tube. FDA has chosen not to include these suggestions in this final rule because they were beyond the scope of the proposal. FDA will carefully consider the recommendations from the workshop related to limiting exposure rates in conjunction with future amendments.

2. One of the comments suggested that the requirement for a continuous audible signal during the high-level control mode of operation be modified to specify that the signal be emitted at the fluoroscopic imaging assembly (at an FDA-specified volume level), to ensure that the signal is audible to the fluoroscopist.

The current requirement for a continuous audible signal is that the signal must be audible to the fluoroscopist, which would seem to meet the intent of the comment. As with any medical device alarm or signal, the volume level of the signal should be designed to be sufficiently loud to alert the operator to the status of the device, taking into account any background noise likely to be present during use. In addition, the effect of an overly loud signal on the patient should be considered in the signal design. FDA disagrees that the agency should specify an emission location or a particular volume level for the signal, but encourages manufacturers, in the design of their systems, to consult available human factors guidelines for audio (and visual) characteristics of medical device

alarms and signals (e.g., Ref. 1), and to test and evaluate their systems under representative operational conditions.

3. One of the comments referred to the workshop on fluoroscopy discussed in comment 1 above, and noted a number of additional suggestions for changes to fluoroscopic x-ray system performance that were advocated by attendees at that workshop (Ref. 2).

Those additional suggestions for changes are beyond the scope of the current proposal and would require a separate proposal and opportunity for comment. FDA agrees that the recommendations from the workshop should be considered as the basis for possible future amendments to the standard.

III. Environmental Impact

The agency has determined under 21 CFR 25.24(e)(3) that this action is of a type that does not individually or cumulatively have a significant effect on the human environment. Therefore, neither an environmental assessment nor an environmental impact statement is required.

IV. Analysis of Impacts

An analysis of the costs and benefits of this regulation, conducted under Executive Order 12291, was discussed in the proposed rule and the substance of that analysis has not changed. Executive Order 12291 has been superseded by Executive Order 12866. FDA has examined the impacts of this final rule under Executive Order 12866 and the Regulatory Flexibility Act (Pub. L. 96-354). Executive Order 12866 directs agencies to assess all costs and benefits of available regulatory alternatives and, when regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity). The agency believes that this rule is consistent with the regulatory philosophy and principles identified in the Executive Order. In addition, the rule is not a significant regulatory action as defined by the Executive Order and so is not subject to review under the Executive Order.

The Regulatory Flexibility Act requires agencies to analyze regulatory options that would minimize any significant impact of a rule on small entities. This amendment to the performance standard will affect the small fraction of fluoroscopic systems which are currently provided with high-level controls or which do not provide AERC, and have radiation outputs

exceeding 1.29×10^{-3} C/kg per minute (5 R/min). Further, the additional testing performed by x-ray manufacturers and government regulatory programs to ensure compliance with the performance standard, and the quality assurance testing performed by facilities can easily be included in current testing programs with minimal additional costs. The agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Therefore, under the Regulatory Flexibility Act, no further analysis is required.

A copy of the threshold assessment supporting this determination is on file with the Dockets Management Branch (address above) and may be seen in that office between 9 a.m. and 4 p.m., Monday through Friday.

V. References

The following references have been placed on display in the Dockets Management Branch (address above) and may be seen by interested persons from 9 a.m. to 4 p.m., Monday through Friday.

1. "Human Factors Engineering Guidelines and Preferred Practices for the Design of Medical Devices," AAMI HE48-R-93, 2d ed., Association for the Advancement of Medical Instrumentation, 3330 Washington Blvd., suite 400, Arlington, VA 22201-4598, 1993.
2. "Proceedings of the ACR/FDA Workshop on Fluoroscopy," ACR, October 1992.

List of Subjects in 21 CFR Part 1020

Electronic products, Medical devices, Radiation protection, Reporting and recordkeeping requirements, Television, X-rays.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs, 21 CFR part 1020 is amended as follows:

PART 1020—PERFORMANCE STANDARDS FOR IONIZING RADIATION EMITTING PRODUCTS

1. The authority citation for 21 CFR part 1020 continues to read as follows:

Authority: Secs. 501, 502, 515–520, 530–542, 701, 801 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 351, 352, 360e–360j, 360gg–360ss, 371, 381).

2. Section 1020.30 is amended in paragraph (b) by alphabetically adding a new definition for "Pulsed mode" and by revising the definition for "Source-image receptor distance" to read as follows:

§ 1020.30 Diagnostic x-ray systems and their major components.

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(b) *Definitions.* * * *

Pulsed mode means operation of the x-ray system such that the x-ray tube current is pulsed by the x-ray control to produce one or more exposure intervals of duration less than one-half second.

Source-image receptor distance (SID) means the distance from the source to the center of the input surface of the image receptor.

3. Section 1020.32 is amended by revising paragraph (d), by redesignating paragraphs (e) through (h) as paragraphs (f) through (i), respectively, and by adding new paragraph (e) to read as follows:

§ 1020.32 Fluoroscopic equipment.

(d) *Entrance exposure rates.* For fluoroscopic equipment manufactured before May 19, 1995, the following requirements apply:

(1) *Equipment with automatic exposure rate control (AERC).* Fluoroscopic equipment that is provided with AERC shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 2.58×10^{-3} coulomb per kilogram (C/kg) per minute (10 roentgens per minute (10 R/min)) at the point where the center of the useful beam enters the patient, except:

(i) During recording of fluoroscopic images, or
(ii) When an optional high-level control is provided. When so provided, the equipment shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 1.29×10^{-3} C/kg per minute (5 R/min) at the point where the center of the useful beam enters the patient, unless the high-level control is activated. Special means of activation of high-level controls shall be required. The high-level control shall be operable only when continuous manual activation is provided by the operator. A continuous signal audible to the fluoroscopist shall indicate that the high-level control is being employed.

(2) *Equipment without AERC (manual mode).* Fluoroscopic equipment that is not provided with AERC shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 1.29×10^{-3} C/kg per minute (5 R/min) at the point where the center of the useful beam enters the patient, except:

(i) During recording of fluoroscopic images, or
(ii) When an optional high-level control is activated. Special means of

activation of high-level controls shall be required. The high-level control shall be operable only when continuous manual activation is provided by the operator. A continuous signal audible to the fluoroscopist shall indicate that the high-level control is being employed.

(3) *Equipment with both an AERC mode and a manual mode.* Fluoroscopic equipment that is provided with both an AERC mode and a manual mode shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 2.58×10^{-3} C/kg per minute (10 R/min) in either mode at the point where the center of the useful beam enters the patient except:

(i) During recording of fluoroscopic images, or

(ii) When the mode or modes have an optional high-level control, in which case that mode or modes shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 1.29×10^{-3} C/kg per minute (5 R/min) at the point where the center of the useful beam enters the patient, unless the high-level control is activated. Special means of activation of high-level controls shall be required. The high-level control shall be operable only when continuous manual activation is provided by the operator. A continuous signal audible to the fluoroscopist shall indicate that the high-level is being employed.

(4) *Measuring compliance.* Compliance with paragraph (d) of this section shall be determined as follows:

(i) If the source is below the x-ray table, the exposure rate shall be measured at 1 centimeter above the tabletop or cradle.

(ii) If the source is above the x-ray table, the exposure rate shall be measured at 30 centimeters above the tabletop with the end of the beam-limiting device or spacer positioned as closely as possible to the point of measurement.

(iii) In a C-arm type of fluoroscope, the exposure rate shall be measured at 30 centimeters from the input surface of the fluoroscopic imaging assembly, with the source positioned at any available SID, provided that the end of the beam-limiting device or spacer is no closer than 30 centimeters from the input surface of the imaging assembly.

(iv) In a lateral type of fluoroscope, the exposure rate shall be measured at a point 15 centimeters from the centerline of the x-ray table and in the direction of the x-ray source with the end of the beam-limiting device or spacer positioned as closely as possible to the point of measurement. If the tabletop is movable, it shall be

positioned as closely as possible to the lateral x-ray source, with the end of the beam-limiting device or spacer no closer than 15 centimeters to the centerline of the x-ray table.

(5) *Exemptions.* Fluoroscopic radiation therapy simulation systems are exempt from the requirements set forth in paragraph (d) of this section.

(e) *Entrance exposure rate limits.* For fluoroscopic equipment manufactured on and after May 19, 1995, the following requirements apply:

(1) Fluoroscopic equipment operable at any combination of tube potential and current that results in an exposure rate greater than 1.29×10^{-3} C/kg per minute (5 R/min) at the point where the center of the useful beam enters the patient shall be equipped with AERC. Provision for manual selection of technique factors may be provided.

(2) Fluoroscopic equipment shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 2.58×10^{-3} C/kg per minute (10 R/min) at the point where the center of the useful beam enters the patient except:

(i) During the recording of images from an x-ray image-intensifier tube using photographic film or a video camera when the x-ray source is operated in a pulsed mode.

(ii) When an optional high-level control is activated. When the high-level control is activated, the equipment shall not be operable at any combination of tube potential and current that will result in an exposure rate in excess of 5.16×10^{-3} C/kg per minute (20 R/min) at the point where the center of the useful beam enters the patient. Special means of activation of high-level controls shall be required. The high-level control shall only be operable when continuous manual activation is provided by the operator. A continuous signal audible to the fluoroscopist shall indicate that the high-level control is being employed.

(3) *Measuring compliance.* Compliance with paragraph (e) of this section shall be determined as follows:

(i) If the source is below the x-ray table, the exposure rate shall be measured at 1 centimeter above the tabletop or cradle.

(ii) If the source is above the x-ray table, the exposure rate shall be measured at 30 centimeters above the tabletop with the end of the beam-limiting device or spacer positioned as closely as possible to the point of measurement.

(iii) In a C-arm type of fluoroscope, the exposure rate shall be measured at 30 centimeters from the input surface of the fluoroscopic imaging assembly, with the source positioned at any available

SID, provided that the end of the beam-limiting device or spacer is no closer than 30 centimeters from the input surface of the fluoroscopic imaging assembly.

(iv) In a lateral type of fluoroscope, the exposure rate shall be measured at a point 15 centimeters from the centerline of the x-ray table and in the direction of the x-ray source with the end of the beam-limiting device or

spacer positioned as closely as possible to the point of measurement. If the tabletop is movable, it shall be positioned as closely as possible to the lateral x-ray source, with the end of the beam-limiting device or spacer no closer than 15 centimeters to the centerline of the x-ray table.

(4) *Exemptions.* Fluoroscopic radiation therapy simulation systems

are exempt from the requirements set forth in paragraph (e) of this section.

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Dated: May 12, 1994.

Michael R. Taylor,

Deputy Commissioner for Policy.

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