

primary residence). Non-institutional accredited investors will have such knowledge and experience in financial and business matters, specifically in the field of mortgage related securities, as to be able to evaluate the risk of purchasing a REMIC Certificate and will have direct, personal and significant experience in making investments in mortgage related securities. Owners of REMIC Certificates will be limited to mortgage lenders, thrift institutions, commercial and investment banks, savings and loan associations, pension funds, employee benefit plans, insurance companies, real estate investment trusts or other institutional or non-institutional investors as described above which customarily engage in the purchase of mortgages and mortgage related securities.

(12) Each sale of a REMIC Certificate will qualify as a transaction not involving any public offering within the meaning of section 4(2) of the Securities Act.

(13) Each sale of a REMIC Certificate will prohibit the transfer of such REMIC Certificate if there would be more than 100 holders or REMIC Certificates of any series at any time.

(14) Each sale of a REMIC Certificate will require each purchaser thereof to represent that it is not purchasing for distribution and that it will hold such REMIC Certificate in its own name or for accounts as to which it exercises sole investment discretion.

(15) Each sale of a REMIC Certificate will provide that (i) no owner of such REMIC Certificate may be affiliated with the Bond Trustee and (ii) no owner of a controlling (as that term is defined in the Securities Act (17 CFR 230.405)) interest in a REMIC may be affiliated with either the custodian of the Mortgage Certificates or the agency rating the Bonds of the relevant series.

For the Commission, by the Division of Investment Management, under delegated authority.

Jonathan G. Katz,
Secretary.

[FR Doc. 88-14099 Filed 6-21-88; 8:45 am]

BILLING CODE 8010-01-M

SMALL BUSINESS ADMINISTRATION

Region V Advisory Council Meeting; Public Meeting

The U.S. Small Business Administration Region V Advisory Council, located in the geographical area of Minneapolis/St. Paul, will hold a public meeting at 1:00 p.m., on Tuesday, July 19, 1988, at the U.S. Small Business Administration District Office, 610-C Butler Square, 100 North Sixth Street, Minneapolis, to discuss such matters as may be presented by members, staff of the U.S. Small Business Administration, or others present.

For further information, write or call Edward A. Daura, District Director, U.S. Small Business Administration, 610-C Butler Square, 100 North Sixth Street, Minneapolis, Minnesota 55403, (612) 370-2306.

Jean M. Nowak,

Director, Office of Advisory Councils.

June 16, 1988.

[FR Doc. 88-14100 Filed 6-21-88; 8:45 am]

BILLING CODE 8025-01-M

DEPARTMENT OF THE TREASURY

Public Information Collected Requirements Submitted to OMB for Review

Date: June 16, 1988.

The Department of Treasury has submitted the following public information collection requirement(s) to

OMB for review and clearance under the Paperwork Reduction Act of 1980, Pub. L. 96-511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury Room 2224, 15th and Pennsylvania Avenue NW., Washington, DC 20220.

Departmental Offices

OMB Number: New.

Form Number: TD F 90-21.3.

Type of Review: New collection.

Title: Survey of Depreciation of Rental Clothing.

Description: The purpose of this study is to collect data that will allow the determination of the class life for tax depreciation purposes for rental clothing. The study will affect firms in the rental clothing industry.

Respondents: Business or other for-profit, Small business or organizations.

Estimated Number of Respondents: 150.

Estimated Burden Hours Per Response: 9 hours.

Frequency of Response: One time only.

Estimated Average Reporting Burden: 1,350 hours.

Clearance Officer: Dale A. Morgan, (202) 343-0263, Departmental Offices, Room 2224, Main Treasury Building, 15th & Pennsylvania Avenue NW., Washington, DC 20220.

OMB Reviewer: Milo Sunderhauf, (202) 395-6880, Office of Management and Budget, Room 3208, New Executive Office Building, Washington, DC 20503.

Dale A. Morgan,

Department Reports Management Officer.

[FR Doc. 88-14091 Filed 6-21-88; 8:45 am]

BILLING CODE 4910-25-M

Sunshine Act Meetings

Federal Register

Vol. 53, No. 120

Wednesday, June 22, 1988

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

FEDERAL HOME LOAN BANK BOARD

TIME AND DATE: 3:00 p.m., Thursday, June 23, 1988.

PLACE: In the Board Room, 6th Floor, 1700 G St., NW., Washington, DC.

STATUS: Open meeting.

CONTACT PERSON FOR MORE

INFORMATION: Ms. Gravlee (202) 377-6679.

MATTERS TO BE CONSIDERED:

Final regulation on conservators and receivers, priority of claims
Proposed regulations on conservators and receivers, priority of claims, depositor preference

John M. Buckley, Jr.,
Secretary.

[FR Doc. 88-14146 Filed 6-20-88; 12:21 pm]

BILLING CODE 6720-01-M

Corrections

Federal Register

Vol. 53, No. 120

Wednesday, June 22, 1988

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents and volumes of the Code of Federal Regulations. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

DEPARTMENT OF AGRICULTURE

Food and Nutrition Service

7 CFR Parts 272 and 273

[Amdt. No. 303]

Food Stamp Program; Income Exclusion of Certain Charitable Donations

Correction

In rule document 88-13430 beginning on page 22291 in the issue of Wednesday, June 15, 1988, make the following correction:

On page 22291, in the third column, in the first complete paragraph, in the 15th line, "\$30" should read "\$300".

BILLING CODE 1505-01-D

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Social Security Administration

20 CFR Part 404

[Regulations Nos. 4 and 16]

Consideration of Vocational Factors

Correction

In proposed rule document 88-12996 beginning on page 21685 in the issue of

Thursday, June 9, 1988, make the following correction:

§ 404.1560 [Corrected]

On page 21686, in the second column, in § 404.1560(a), in the fourth line, "a" should read "or".

BILLING CODE 1505-01-D

NUCLEAR REGULATORY COMMISSION

10 CFR Part 71

Transportation Regulations; Compatibility With the International Atomic Energy Agency (IAEA)

Correction

In proposed rule document 88-12639 beginning on page 21550 in the issue of Wednesday June 8, 1988, make the following corrections:

§ 71.4 [Corrected]

1. On page 21557, in the third column, in § 71.4, in the definition for "Low-Specific-Activity (LSA) material" in paragraph (2), the second line should read "concentration up to 27.0Ci/liters (1TBq/liters);".

§ 71.53 [Corrected]

2. On page 21564, in the second column, in § 71.53(b)(2), in the second line, "5 g/l" should read "5 g/l".

3. On the same page, in the third column, in § 71.53(d), in the third line, "10 l" should read "10 l".

§ 71.97 [Corrected]

4. On page 21570, in the third column, in § 71.97(b)(3)(ii), in the first line, "A₁" should read "A₂".

Appendix A [Corrected]

5. On page 21574, in the sixth column of the table, the ninth entry should read " 5.41×10^{-3} ".

6. On page 21575, in the first column of the table, the 37th entry (the second entry which reads " ^{115m}Cd ") should read " ^{115}Cd ".

7. On the same page, in the sixth column of the table, the 42nd entry should read " 8.11×10^{-2} ".

8. On page 21577, in the first column of the table, the third entry should read " ^{85}Kr ".

9. On page 21578, in the second column of the table, in the third entry from the bottom, remove "Unlimited".

10. On the same page, in the third column of the table, the fifth entry from the bottom should read "40".

11. On the same page, in the sixth column of the table, the 15th entry should read " 5.41×10^{-3} ".

12. On the same page, in the sixth column of the table, the 18th entry should read " 5.41×10^{-3} ".

13. On page 21579, in the fifth column of the table, the 28th entry (which reads "07") should read "0.7".

14. On the same page, in the second column of the table, the first, second, third, and fifth entries from the bottom, which read "Unlimited" should be removed.

15. On the same page, in the sixth column of the table, the last entry should read "Unlimited" and the existing entry should become the last entry in the seventh column of the table.

16. On page 21580, in the second column of the table, the second entry "Unlimited" should be removed.

BILLING CODE 1505-01-D

Wednesday
June 22, 1988

Part II

Department of Labor

Mine Safety and Health Administration

30 CFR Parts 7 and 18

Underground Mining Equipment; Product Testing By Applicant or Third Party; Final Rule

30 CFR Parts 7 and 25

Multiple-Shot Blasting Units; Proposed Rule

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 7 and 18

Underground Mining Equipment;
Product Testing By Applicant or Third
Party

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

ACTION: Final rule.

SUMMARY: This final rule implements new procedures and requirements for testing and approval of certain products used in underground mines. The final rule also contains new technical requirements for brattice cloth and ventilation tubing, and revised requirements for battery assemblies currently contained in 30 CFR 18.44 and 18.63. This final rule will reduce the demand on MSHA's product testing resources and allow the Agency to redirect those resources to product audit activities and the evaluation of technological advances in products for use in the underground mining environment.

EFFECTIVE DATE: August 22, 1988, except for the revision of § 18.44 listed as amendment No. 3 and § 18.63 that go into effect August 22, 1989.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, 4015 Wilson Boulevard, Room 613, Arlington, Virginia 22203, (703) 235-1910.

SUPPLEMENTARY INFORMATION:**I. Background**

Under the Federal Mine Safety and Health Act of 1977 (Pub. L. 95-173, as amended by Pub. L. 95-164) (Mine Act), the Mine Safety and Health Administration (MSHA) is required to approve certain products for use in underground mines. This approval indicates that these products have met MSHA's specifications and tests, and have been designed and manufactured to ensure that the products will not present a fire, explosion, or other specified safety hazard related to use.

On March 4, 1983, MSHA published an Advanced Notice of Proposed Rulemaking (ANPRM) in the *Federal Register* (48 FR 9475) announcing the availability of a preproposal draft of a new Part 37 of Title 30 of the Code of Federal Regulations (CFR). The draft provided for an alternate and expedited application procedure for the approval of certain products with product testing conducted by the applicant or a third party.

Public conferences were held April 5, 1983 in Pittsburgh, Pennsylvania and April 12, 1983 in San Francisco, California to present detailed information regarding the Agency's approval program. These conferences were well-attended by trade associations, representative of miners, and manufacturers. MSHA received written comments regarding its preproposal from all segments of the mining community.

After reviewing the comments received in response to the preproposal draft, MSHA published a proposed rule in the *Federal Register* (51 FR 4686), on February 6, 1986 as Part 7 of Title 30. The proposal set out in Subpart A new procedures and requirements for testing and approval of certain products used in underground mines, shifting the resources of the Agency from product testing to post-approval oversight of product quality and the evaluation of technological improvements to mining products. The proposed rule also contained new technical requirements for brattice cloth and ventilation tubing (Subpart B) and revised requirements for battery assemblies (Subpart C).

On June 30, 1986 (51 FR 23559), MSHA published a notice of public hearings which outlined the major issues raised during the comment period. Two public hearings were held in Pittsburgh, Pennsylvania and Salt Lake City, Utah in July 1986, during which further comment on the proposal was received. Transcripts of the proceedings were taken and made available for public inspection. Following the public hearings, interested persons were allowed to submit supplementary statements and data until the record closed on August 15, 1986.

MSHA reviewed all written and oral statements submitted in response to the proposed rule and public hearings. Comments were received from all segments of the mining community, including equipment manufacturers, trade associations, testing organizations, and representatives of miners. This final rule was developed after a full evaluation of the entire public record.

MSHA's existing regulations in 30 CFR Parts 15 through 36 govern the process through which manufacturers may obtain MSHA approval, certification, acceptance of evaluation of certain products for use underground. Each of these separate parts contains application procedures and technical requirements for certain types of mining products. MSHA currently conducts most of the testing and evaluation of a product for a fee paid by the applicant, although some regulations require pre-testing of the product by the

manufacturer. Upon MSHA approval, manufacturers must ensure that the product continues to conform to the specifications and design evaluated and approved by MSHA. In some instances, as part of the approval process, manufacturers are required to have a quality control plan. In addition, some parts provide for product and manufacturing site audits.

Currently, when MSHA receives an application for approval of a product for use in underground mines, every aspect of the documentation package submitted by the manufacturer is scrutinized to determine whether the technical requirements of the applicable provisions of 30 CFR Parts 15 through 36 have been met. Each drawing and specification in the package is cross-checked against these requirements, and, for some products, samples of the product or parts of the product are disassembled and examined by MSHA for conformity with the drawings and specifications. When MSHA verifies that an applicant's product complies with the design and construction requirements, MSHA then tests the product to determine whether it performs according to the appropriate approval requirements, unless the design precludes the need for testing. If the product passes the tests, MSHA issues an approval for the product.

Once MSHA has approved a product, the manufacturer is authorized to place an approval marking on the product that identifies it as approved for use in underground mines. Use of the MSHA marking obligates the manufacturer to maintain the quality of the product. The MSHA marking indicates to the mining community that the product has been manufactured according to the drawings and specifications upon which the approval was based. Any proposed change to the documentation for a product approved by MSHA must be submitted to the Agency for acceptance prior to implementation of the change. If MSHA approves the change, the manufacturer is issued an extension of approval or a notice of acceptance of the modified product.

II. Discussion and Summary of the Final Rule

This final rule establishes a revised role for MSHA in the evaluation and testing of certain products used in underground mines. Where the Agency's role has been one which emphasizes testing by MSHA, Part 7 requires testing by the applicant or a third party selected by the applicant. This will permit the Agency to refocus its resources to its product audit functions as well as the

review of technological improvements in mining products. This shift in emphasis will expedite the approval of applications. Moreover, it will enhance the safety in mines by providing the mining community a greater assurance that products used in mines have been manufactured in accordance with MSHA specifications, detecting defective products more effectively and introducing new technology in a more expeditious manner.

In requesting approval, an applicant will be required to submit an application package to MSHA. That package will include certain product information. Depending on the type of product for which approval is requested, the information will be submitted in documents such as drawings, specification sheets and in the application letter. In addition, the application must include the place and date for product testing, or if the manufacturer believes that testing is not necessary in a particular case, the reasons for not planning testing. Product testing must be performed according to test procedures specified in the appropriate subpart and MSHA can elect to observe the testing as a prerequisite of approval.

During the application process, the applicant must submit certain certifications. With its application, the manufacturer must certify that the product meets the design portion of any applicable technical requirements. After completion of any required product testing, the applicant must also certify that the product has been tested and performs as required, or, in other words, meets the performance aspect of the applicable technical requirements. In addition, a certification that the applicant will perform the specified quality assurance functions, including the inspection or testing of the product's critical characteristics, is required. These certification statements must be signed by an authorized company official. False certifications are subject to criminal sanctions under section 110(f) of the Mine Act.

Based upon an evaluation of the technical documentation, any observations of product testing, and a review of the certification statements MSHA will issue either an approval or a notice denying approval of the product. Notices denying approval will set forth the Agency's reasons for the denial.

When a product is approved under Part 7, an approval holder will be required to inspect or test critical characteristics as part of its quality assurance program, with MSHA auditing the product to ensure it is being manufactured as approved. Audits will

be performed on a periodic basis, and in response to information about a problem with a product. When tests are conducted in order for MSHA to address a problem, they will be the same as those specified in Part 7. If an audit demonstrates that a product fails to comply with the Part 7 technical requirements or otherwise creates a hazard related to use, MSHA will take immediate action to address the problem, including revocation of the approval if necessary.

Part 7 is not a self-certification program. In contrast with this type of program, Part 7 requires manufacturers to document to MSHA a product's design relative to the Part 7 technical requirements. MSHA will review this documentation to determine compliance prior to issuance of an approval. In addition, product testing will be conducted using MSHA-specified procedures and subject to Agency observance of the testing. Finally, only MSHA will have the authority to issue approvals.

Part 7 will make the approval process more efficient for those products capable of being tested by applicants or third party laboratories using Agency-developed, standardized and repeatable tests. In addition, the Part 7 approach, when fully implemented, will allow the Approval and Certification Center to reallocate resources to other areas. Two important areas to which these resources will be directed are product audit activities and the evaluation of technological improvements in mining products submitted for approval. In general, MSHA expects that implementation will result in improved quality assurance and more rapid introduction of technological improvements into the mines, thereby improving miner safety.

In addition to general approval application procedures and requirements, this final rule includes the first two product-specific subparts under the Part 7 concept. Subpart C revises the technical requirements for battery assemblies, currently approved under 30 CFR Part 18, and Subpart B establishes new technical requirements for the approval of brattice cloth and ventilation tubing. While MSHA currently tests brattice cloth and ventilation tubing for flame resistance, no approval regulations exist and only "letters of acceptance," not approvals, have been issued by the Agency. Letters of acceptance indicate that brattice cloth or ventilation tubing meets the flame resistance requirements of 30 CFR Part 75.302-3 and the standardized small-scale flammability test.

It is MSHA's intention to propose additional subparts to Part 7 which will specify the technical requirements for other products that are suitable for testing by applicants or third parties. In the Agency's view, products suitable for applicant or third party testing are those with characteristics which can be objectively tested in a routine and readily reproducible manner, and with no elements of subjective analysis. MSHA believes that basic designs of many products can be subject to the Part 7 procedure. However, products whose testing and evaluation depend upon the experience, judgment and knowledge of agency personnel to establish under what conditions the tests should be conducted will not be candidates for Part 7 subparts. An example of this is spark ignition testing of intrinsically safe circuits where it is necessary to first determine, under a worst case two fault analysis, which components or circuit points should be tested. Once the worst-case is established, the appropriate technique must be selected to increase the energy in the circuit at the point of test to achieve the required factor of safety. It is not possible to describe criteria to be applied to this thought process for every conceivable circuit configuration since the testing and evaluation process relies on the expertise and judgment of the investigator. In determining which products to propose as additional subparts, MSHA intends to solicit input from the mining community on whether particular products are appropriate subjects for the Part 7 concept.

III. Discussion of the Subparts

Subpart A—General Provisions

The following section-by-section analysis discusses Subpart A of the final rule and addresses the comments received on the proposed rule.

Section 7.1 Purpose and Scope.

The purpose of Part 7 is to establish the application procedures and requirements for MSHA approval of certain products for use in underground mines when testing is to be conducted by the applicant or a third party. The general requirements for the approval process are set out in Subpart A and the technical requirements for the design and performance of particular products are set out in subsequent subparts. The technical requirements for brattice cloth and ventilation tubing and for battery assemblies appear in Subparts B and C, respectively. As MSHA develops technical requirements for additional

products, new subparts of Part 7 will be established through rulemaking.

MSHA realizes that some applicants may need a phase-in period to prepare for Part 7 testing responsibility, while others may want to begin their own or third party testing immediately. To accommodate both situations, the technical product subparts with this rule will take effect August 22, 1988. For all subparts a phase-in period will also be set to enable manufacturers and third-party laboratories to make arrangements to conduct the necessary product testing. During the phase-in period, the existing approval provisions or acceptance programs applicable to the product will remain in effect. Thus, applicants can choose to submit applications for approval under either the existing approval regulations for the product to be tested by MSHA, or under the new Part 7 subpart where the obligation to test will be with the applicant. However, to avoid confusion during the phase-in period, applicants must submit extensions of approval under the existing approval regulations in which the original approval was granted.

After the phase-in period for a new subpart, the existing approval regulations for the class of products covered by the subpart will be revoked. If only some designs within a product class are covered by a new subpart, the existing regulations will be revised to indicate which designs will continue to be approved under the existing regulation and those which must be approved under Part 7. For those products for which technical requirements are finalized in subparts of Part 7, and existing approval regulations are revoked or revised, approvals will be granted only under Part 7. At the expiration of the subpart phase-in period, all applications for extensions of approval of the products covered by the subpart will be treated as new applications and applicants will be required to apply for an original approval under Part 7. Although existing approval requirements may be revoked or revised, the approval status of those products previously approved will remain unaffected, allowing them to be manufactured and sold as MSHA approved.

Commenters were concerned that the phase-in time for subparts of Part 7 be related to product testing capability. Commenters suggested that the phase-in periods be product specific and of sufficient duration to ensure that competent third party testing facilities are available for prompt testing of products at a reasonable cost. MSHA

agrees that phase-in periods should be product specific based on an assessment of the amount of time needed to prepare for testing. For example, a relatively short, one year phase-in period is set by the final rules for brattice cloth and ventilation tubing. The apparatus used to flame test brattice is simple and inexpensive to build. On the other hand, the time and resources necessary to acquire and install test apparatus for testing of explosion-proof enclosures would present a different situation. Therefore, the phase-in time for future subparts that address explosion-proof testing would likely be longer.

Phase-in periods will be considered for additional product subparts as they are proposed. In developing any proposed phase-in times, MSHA will seek input from the mining community, including manufacturers of the product for which the new subpart is proposed, and testing organizations with potential capability and experience in the area.

MSHA recognizes that situations may occur in the future where the phase-in period specified in a product subpart does not provide enough time for manufacturers or third-party laboratories to obtain the testing capability for that product. Should the capability for applicant or third-party product testing not be available, MSHA would, for good cause, consider extending the phase-in period through notice and comment rulemaking.

Section 7.2 Definitions.

The following definitions apply to Part 7 product approvals. They are designed to clarify the requirements of Part 7 and respond to the issues identified by commenters.

"Applicant." This term means "an individual or organization that manufactures or controls the assembly of a product and that applies to MSHA for approval of that product." During the comment period, questions were raised about what the Agency meant by the phrase "controls the assembly of a product." Commenters questioned whether MSHA intended to hold the applicant responsible for controlling the assembly of approved components purchased for use in the applicant's approved product. MSHA intends that the phrase "controls the assembly" means that the applicant control the assembly of the specific product for which the approval is requested. For example, if a motor approval is sought, then the assembly of that motor must be controlled by the applicant for approval. However, if a machine approval is being requested which uses that motor, the applicant for approval of the machine need only control the machine assembly,

not control the motor assembly purchased for use in the machine.

Commenters also sought assurance that the phrase "controls the assembly of a product" would allow an applicant to submit for approval a product built by a third party under a contract specifying the technical requirements and quality control provisions provided for in the appropriate product subpart of Part 7. Under Part 7, approval of a product obligates the applicant to maintain the continuing quality and performance of the product. An applicant can meet this obligation by either manufacturing the product itself, or by controlling the assembly of the product as built by a third party. As long as a party maintains control over the product assembly, such as through a contract with specific terms, that party meets the definition of "an applicant" for purposes of seeking a product approval under Part 7.

"Approval." This term is used to describe a written document issued by MSHA which states that a product has met the requirements of Part 7 and which authorizes the use of an MSHA approval marking. The definition is based on existing definitions of "approval" in 30 CFR Parts 15 through 30. It has been expanded to include "certification," "acceptance," and "evaluation" because these terms are also used to denote MSHA approval.

"Authorized company official." Several commenters wanted assurance that the "authorized company official" was to be designated by the applicant and not by MSHA. The Agency does not intend to designate the "official" for the applicant. This is the responsibility of the applicant. Accordingly, the definition has been revised to mean "an individual designated by the applicant who has authority to bind the applicant." The term is used in the requirements for the certification statements which are to be signed by an "authorized company official."

"Critical characteristic." Commenters asked that the term "critical characteristic" be defined as a feature of a product which could "adversely affect" product safety and, for this reason, is to be inspected or tested by the applicant. One commenter suggested that the phrase "prior to shipment" be added to the definition to reinforce that this inspection or testing be done before distribution of the product for use in underground mines. The final rule clarifies the definition of "critical characteristic" to be "a feature of a product that, if not manufactured as approved, could have a direct adverse effect on safety for which testing or inspection is required prior to shipment

to ensure conformity with the technical requirements under which the approval was issued." Critical characteristics do not include features of a product that may have an ancillary effect on its safety, but not a direct effect. Critical characteristics for products subject to approval under Part 7 are specified in subparts of the rule. As future subparts are added to Part 7, the critical characteristics of the products addressed will be subject to the same notice and comment as the subparts of this rule.

"Extension of approval". This term is used to describe a written document issued by MSHA which states that the change to a previously approved product meets the requirements of Part 7. It is based on the existing definitions of the term in 30 CFR Parts 15 through 36.

"Post-approval product audit". This term is used to describe MSHA's examination or testing, or both, of approved products to determine whether the products meet the technical requirements and have been manufactured as approved. The decision to conduct an examination or test, or both, will be made by MSHA based on the nature of the product involved.

"Technical requirements". This term is used to describe the design and performance requirements a product must meet to be approved. The technical requirements for products submitted for approval under Part 7 are specified in subparts of this Part.

"Test procedures". This term is used to describe the methods applicants will be required to follow in testing a product under Part 7. Test procedures for particular products are specified in subparts of this Part.

Section 7.3 Application Procedures and Requirements.

Section 7.3 sets out the general procedures and requirements an applicant is required to follow to request MSHA approval of a product under this Part. The technical documentation required for different products is specified in the appropriate subparts.

The application procedures set out the three kinds of approval actions an applicant may request under Part 7: (1) An original approval, (2) a subsequent approval of a similar product and (3) an extension of approval. Subpart A generally identifies the information required to request each of these actions with more specific information about the required documentation specified in the appropriate subparts.

Applications for approval of a product must contain sufficient information for MSHA to determine whether the

product complies with the technical requirements as specified in the appropriate subpart. Composite drawings can, in most situations, adequately provide the information needed for product approval, and MSHA will specify the use of composite drawings where possible in the product subparts. In addition, any component of a product such as an electrical cable, hose conduit or insulating material that has been previously tested and approved by MSHA will be accepted under Part 7 without reapproval or retesting, provided suitable documentation is submitted by the applicant to properly identify the component as MSHA approved.

In requesting an original (first time) approval for a particular product, MSHA will require the submission of all information necessary to evaluate all facets of the design and construction of the product relative to the approval requirements. If, after receipt of an original approval, the applicant requests subsequent approval of a similar product or an extension of approval for the original product, the applicant will not be required to submit documentation duplicative of previously submitted information. Only information related to changes in the previously approved product is required, avoiding unnecessary paperwork.

Under § 7.3(d)(4) and (e)(4), applicants requesting subsequent approval or extension of approval must also indicate whether, in their opinion, changes in a previously approved product require testing. If tests are not planned, the applicant will be required to explain the technical reasons for not conducting testing. One commenter suggested eliminating these provisions because, in the commenter's view, all changes to previously approved products should be subject to retesting. However, MSHA's experience is that some changes to a product are of a nature that do not require testing. For instance, a packing gland assembly, lens assembly, or shaft assembly already approved for one product may not require testing when used in another product. Likewise, a change in the value of a resistor in a product may not require retesting of the entire product. Under the final rule, MSHA will evaluate the need for retesting in each case, taking into account the applicant's explanation for not planning to test. MSHA's decision will be based on its evaluation of the effect of any proposed changes on the safe performance of the product. In those cases where the Agency decides that testing is necessary, the applicant will be notified so testing can be scheduled.

Some manufacturers, both in written comments and in statements given at the public hearing, suggested that not all original approvals issued under Part 7 would necessarily require product testing and recommended that the final rule include an option for not testing products submitted for approval for the first time under Part 7. They stated that additional testing may not be required when converting an existing Part 18 approval to one under a future Part 7 subpart, if the new technical requirements for the product did not differ significantly from those in Part 18 under which the product was already approved. An example of this would be an enclosure that was explosion tested and approved as explosion-proof under existing Part 18.

MSHA agrees that testing may not always be necessary when the technical requirements under future subparts remain relatively unchanged. Therefore, § 7.3(c)(4) and (5) have been revised in the final rule to require applications for original approvals to include a statement as to whether, in the applicant's opinion, product testing should be required, and an explanation of the reasons for that opinion. However, as is the case for testing of proposed changes for subsequent approvals and extensions of approvals, MSHA will evaluate the need for testing and will decide whether product testing is required for original approvals based on the circumstances in each application.

MSHA realizes that manufacturers holding approvals at the time of promulgation of a Part 7 product subpart may be in the process of making a modification to their already-approved product. Rather than require that these manufacturers submit the modified product for a new approval under Part 7, MSHA will allow extensions of approval to be granted under the existing approval regulations during the phase-in period for the subpart. However, at the expiration of the phase-in period all applications for extensions of approval of products covered under Part 7 will be treated as new applications and applicants will be required to apply for an original approval under this rule.

Under the existing approval program, any proposed change to an approved product must be submitted to MSHA for approval. The Agency has two special programs in place to facilitate review of such changes. These are the Stamped Notification Acceptance Program (SNAP), and the Stamped Revision Acceptance (SRA) program. SNAP is designed to review for approval one

type of change involving the addition of alternate or optional components to a product which affects the technical requirements for approval. Examples of changes under SNAP would be the addition of an optional gland assembly to an approved explosion-proof enclosure, or an alternate cover to an approved battery assembly. With these types of changes the explosion-proof enclosure could be manufactured with or without the optional gland assembly and the battery assembly could be manufactured with the originally accepted cover or the alternate cover. The SRA program addresses changes which may revise a dimension or specification that has no direct bearing on the safety of a product. An example of modifications reviewed for approval under SRA would be changes in the material, configuration or location of battery box lifting handles.

Many commenters urged that both the SNAP and SRA programs be available to manufacturers proposing changes to products approved under Part 7. The SNAP process will be available to applicants requesting approval changes under Part 7. The program has been successful as an expeditious means of handling approval applications involving certain types of proposed changes to an approved product. Under Part 7, only proposed changes that affect the technical requirements for a product must be submitted for approval. The SRA program is used for changes which do not impact any technical requirements for approval. However, if manufacturers wish to submit for approval SRA-type changes, even though not required to do so, the Agency will process such changes through the SRA program.

As part of an approval application, § 7.3(f)(1) requires the applicant to certify that the design requirements in the appropriate subpart have been met and that the quality assurance functions required by § 7.7 will be performed. Once testing has been completed, the applicant is required to certify, under § 7.3(f)(2), that the product has been tested in accordance with the specified test procedures, and that the product meets the performance requirements. To support the testing certification statement, § 7.4(a) requires the applicant to maintain records of test results for three years. In the case of subsequent approvals or extensions of approval, applicants will be required to certify that the proposed changes indicated in the application are the only changes being made.

All certification statements must be signed by an authorized company

official. False certification is subject to criminal sanctions under section 110 of the Mine Act.

Under the final rule for Part 7, the term "technical requirements" is defined to include both the design and the performance requirements for a product. Evaluation of the technical requirements for products submitted for approval under Part 7 will be a two-step process. The first step is the evaluation of the design requirements through review of the documentation submitted with the application, including drawings and specifications. This evaluation will determine if the design requirements of the applicable subpart have been met, if product testing is necessary, and if MSHA desires to observe the testing. If the design requirements have not been met, design modification will be necessary before an approval will be issued. If product testing is necessary and the product has been built prior to the design modification, the product must be modified prior to testing. The second step in the evaluation process focuses on product testing. If product testing is required, MSHA has an option under the final rule to witness the testing. In all cases when testing is required, MSHA will review the required documentation.

To clarify this two-step process, the term "design criteria" in proposed § 7.3(f)(1) is revised in the final rule to specify that the applicant certify that "the design portion of the technical requirements" are met. Correspondingly, § 7.3(f)(2) provides that the applicant certify the product has been tested and "meets the performance portion of the technical requirements."

Fees

In a separate rulemaking, MSHA published a new Part 5 (Fees for Testing, Evaluation, and Approval of Mining Products) in the *Federal Register* on May 8, 1987 (52 FR 17506). That final rule revised the Agency's existing system of charging user fees for the testing, evaluation and approval of products manufactured for use in underground mines. Fees for MSHA processing of an application under Part 7 will be subject to an hourly charge. On hourly rate actions, applicants will be billed for the fee when processing of the action is completed. The final fee will include, in addition to the hourly charge, actual travel and transportation expenses incurred when testing and evaluation requires the investigator to travel to the manufacturing or installation site. The Agency may consider converting to a flat fee schedule, payable with the application, after reviewing its hourly rate data.

MSHA will charge \$29 per hour and an application fee of \$100 for processing requests for approval or extension of approval for brattice cloth or ventilation tubing under Subpart B of Part 7. An hourly rate of \$25 plus an application fee of \$100 will be charged for approval or extension of approval requests for battery assemblies under Subpart C of Part 7. These fees are the same as those listed in the fee schedule published with the final rule for Part 5.

Section 7.4 Product Testing.

Under the final rule, all products submitted for approval under Part 7 must be tested unless MSHA determines, upon review of the documentation submitted, that testing is not required. All required testing must be conducted either by the applicant or by a third party selected by the applicant. In addition, testing must be performed with calibrated and accurate instruments according to test procedures specified in the appropriated subpart, and MSHA can elect to observe product testing as a prerequisite of approval. MSHA will monitor the currency of these procedures and will modify them if appropriate through rulemaking. Part 7 will replace the system in which MSHA conducts the testing of most products to determine whether they perform according to the Agency's technical requirements.

Many commenters favored the proposal's provisions that the applicant or a third party conduct testing as it would allow MSHA to devote more resources to reviewing and evaluating the documentation submitted as part of its approval programs, and evaluating technological advances. Other commenters, however, objected to applicant or third-party testing, stating that testing was an important function which should only be performed by MSHA. It was also suggested that allowing applicants or third parties to test products would be improper under the Mine Act because the statute provides for MSHA approval of products to be used in underground mines.

In the final rule, MSHA retains sole authority to approve or deny approval of products. Only product testing, in accordance with Part 7 requirements, will be performed outside the Agency. MSHA will continue to evaluate each application and supporting documentation to determine compliance with the technical requirements. The Agency will also observe, as necessary, any product testing conducted by the applicant or a third party.

Comments received from independent testing laboratories recommended that the final rule require that all testing laboratories, including manufacturer-owned facilities, be accredited by a testing accreditation organization. According to these commenters, accreditation requirements would provide assurance that testing performed under Part 7 was conducted by competent personnel with knowledge and experience in product testing. Other commenters disagreed and stated that accreditation was unnecessary since product testing is required to conform to the procedures specified in the subparts to Part 7 and is subject to observation by MSHA personnel.

The final rule does not require that laboratories be accredited. Under the final rule, testing laboratories must follow the test procedures established in the appropriate Part 7 subpart and calibrate all instrumentation used in testing. In addition, MSHA has the right to observe any product testing required under Part 7 to ensure that tests are conducted properly. Also, as discussed elsewhere in this preamble, MSHA intends to permit testing by others only when the product testing is objective in nature and can be routinely conducted by personnel knowledgeable in the specific discipline. Products whose testing and evaluation depend upon the knowledge and judgment of Agency personnel will continue to be tested by MSHA under other approval regulations, not Part 7.

When MSHA elects to observe product testing, commenters stated that the Agency should be obligated under the final rule to accept the applicant's date and time. For the convenience of all involved, MSHA will attempt to meet the times and dates proposed by applicants for product testing and does not anticipate that schedule changes will be routinely needed. However, because MSHA considers the opportunity to observe product testing to be an important part of the approval process, the final rule requires that applicants permit an MSHA official to be present for testing at a mutually agreeable date, time, and place.

MSHA realizes that some applicants may test their products prior to submitting their application for approval of a product. In these cases, the applicant may submit the certification of testing with the application. However, MSHA may still elect to observe product testing and, if this occurs, the applicant may be required to arrange for re-testing with an MSHA observer present. MSHA does not intend to observe tests prior to submission of an applicant for approval.

However, MSHA may consider doing so if the tests are related to technological improvements in mining products, and the Agency finds it in the best interests of miner safety to review the testing.

Some commenters urged MSHA to reconsider requiring testing by others for products identified for approval under Part 7, and recommended that applicants be afforded the option to have MSHA continue to conduct the product testing. This alternative was included in the earlier preproposal draft (then referred to as Part 37). Under the preproposal, manufacturers could choose to be responsible for the product testing themselves or could elect to have MSHA test the product. The proposal eliminated this alternative.

MSHA has carefully considered the issue of including in Part 7 an option for MSHA testing of products submitted for approval. This option is not included in the final rule because it would significantly detract from basic objectives of the Part 7 program. As expressed by MSHA throughout this rulemaking, Part 7 is intended to make the Agency's product approval process more efficient so that resources can be reallocated to auditing products after approval and evaluating technological improvements in products developed for use in the underground mine environment. Making Part 7 an optional program, which would permit applicants to elect that MSHA conduct product testing, would require that the Agency continue to direct its limited resources to performing tests that can be standardized sufficiently to be repeatable by other testing facilities. Performing these testing functions, except as necessary for product audits, is not the most effective use of MSHA's technical expertise in the area of mining equipment safety.

Section 7.4(b) has been added to the final rule to address the calibration and accuracy of instruments used in product testing. It is important that testing equipment be properly calibrated and sufficiently accurate to ensure that the test results reflect the performance of the product. This provision recognizes standard industry and MSHA practice in the calibration and use of inspection and testing instruments and is consistent with § 7.7(b) on quality assurance inspection and testing.

MSHA observation of product testing under § 7.4(c) was also the subject of commenters' attention. A number of comments raised questions about how frequently MSHA intended to observe product testing and what guidelines would be followed in implementing this aspect of the Part 7 program. To

determine whether test procedures are followed properly MSHA intends to observe all product testing required when original applications for approval are requested for a particular product. In addition, MSHA may elect to observe product testing required for subsequent requests for approval of a particular product under conditions such as the following: (1) If the application submitted indicates the manufacturer is having difficulty meeting the requirements; (2) if prior observation of testing revealed difficulties in understanding and following test procedures; (3) if a product audit has discovered discrepancies; (4) if the testing site or those responsible for directing the personnel performing the tests has changed; and (5) if the product has a new technology feature which can best be evaluated for compliance with MSHA requirements through performance testing. MSHA will also observe testing on a random basis to ensure that tests are being conducted as specified in the applicable product subpart.

Commenters were also interested in whether MSHA, when observing product testing, intended to be present for the entire time if several days were necessary to perform a test, such as the acid resistance test for battery assemblies. This was a concern to commenters because expenses incurred by MSHA in observing tests are included in the fees charged manufacturers for approval. When multiple-day tests are conducted involving procedures which do not change during the test, MSHA will observe only as necessary to ensure that the test procedures are understood by those administering them, and are being followed properly. The Agency does not intend to have observers stay for the duration of such tests.

Under the final rule, if MSHA elects to observe product testing, the applicant will be required to pre-arrange any necessary clearances. This may need particular attention from an applicant when testing is to be conducted by someone other than the applicant. At the test site, MSHA may require the applicant to disassemble the product for inspection to determine whether the product being tested is the same design and construction as defined in the documentation submitted with the application.

If MSHA elects not to observe product testing, the applicant will be so notified. The applicant can then proceed to perform the necessary testing and, upon successful completion, certify to MSHA that the product has been tested as

specified in the appropriate subpart and meets the performance requirements.

Comments received from manufacturers raised the question of whether MSHA would observe product testing in foreign countries. A related concern was whether MSHA would accept certifications of test results when testing was performed outside the United States. Paragraph (d) of § 7.4 states that "MSHA will accept product testing conducted outside the United States where such acceptance is specifically required by international agreement." One of the goals of Part 7 is to provide an expedited approval process which will permit reallocation of Agency resources to the evaluation of technological improvements used in mining products submitted for approval and to conduct product audits. Observation of testing conducted in countries outside the United States would slow down the approval process and constitute a significant commitment of MSHA personnel and financial resources. Additional difficulties in administering Part 7 could be expected to result from different languages, technical terminology, types of instrumentation, and standards.

This provision on testing conducted outside the United States applies equally to all approval applicants. Accordingly, MSHA will accept under Part 7 any product testing performed outside the United States, whether conducted by American or foreign manufacturers, only when specifically required to do so by international agreement. In this regard, MSHA is open to discussions with other nations concerning reciprocity of treatment on standards and procedures for approval of mining equipment.

For three years after completion of testing, applicants will be required to maintain records of test results and the procedures used. These records will assist MSHA in determining the possible cause of any problems which may be detected during post-approval product audits. MSHA expects that within a three year period it will be able to audit an approved product for which the tests apply.

Some commenters questioned whether different methods of analysis of test results, such as computer-aided techniques, would be permitted under the Part 7 program. Unless specifically stated in the applicable product subpart, the method of analysis is the manufacturer's responsibility and can include computer-aided technology.

During the public hearings, manufacturers asked whether applicants could consult with MSHA, at no cost, about test procedures and requirements

in the subparts. Manufacturers may consult with MSHA on these matters prior to submission of an application for approval under Part 7. However, once the application is received for action, costs will be charged pursuant to Part 5, including the time attributable to consultation.

Section 7.5 Issuance of Approval.

The final rule provides that MSHA will issue an approval, or notice denying approval, after all documentation submitted has been evaluated by MSHA. The approval or denial of approval will be in writing, and will follow a review of the applicant's documentation, product testing, if testing is required, and certification statements submitted. It was suggested by some commenters that proposed § 7.5 be revised to require that any notice denying approval specify the reasons upon which the denial was based. MSHA agrees that manufacturers should be given the reasons an application for approval is denied. Paragraph (b) of the final rule provides that a notice denying approval must specify the reasons for MSHA's action.

When issuing an approval under Part 7, MSHA will identify all documents upon which the approval is based, such as drawings, specifications and related materials covering the details of design of the product. Applicants will be required to retain these documents, and adherence to the technical requirements contained in them will be a condition of continued MSHA approval. Applicants are prohibited from representing products as approved until MSHA has issued an approval.

Section 7.6 Approval Marking and Distribution Record.

The final rule requires each approved product to have an approval marking. The marking identifies the product as approved for use in underground mines. Pertinent details on the approval markings for products will be specified in the subpart for the particular product.

The MSHA approval marking indicates to the user that the product meets the specified technical requirements. Any units of a product not in compliance with these requirements may, therefore, need to be recalled or retrofitted. For this reason, the proposed rule required applicants to maintain records on the distribution of each unit with an approval marking so that deficient units could be traced and corrective action taken. The proposal, however, did not specify a time for retention of these records. Instead, MSHA proposed that records on the distribution of approved units be

maintained for the projected service life of the product, as determined by the applicant. This approach recognized that product life varies depending on the type of product involved and, within product types, on the materials used. For example, the projected service life for a continuous mining machine would be significantly longer than for a consumable item such as hydraulic fluid. Similarly, the product life of a battery assembly with a metallic cover may be different than one with nonmetallic cover. Since units in service may need to be traced for corrective action, it is necessary to have records of the units as long as they are in use. Commenters generally agreed with this approach, but suggested refinement of the scope of the records. They pointed out that the ownership of MSHA approved products often changes without the knowledge of the manufacturer. Therefore, it was recommended that the record retention requirement apply to initial sales. MSHA agrees and has revised the final rule to require that records of the "initial sale" of approved products be maintained.

MSHA also indicated in the proposal that it was considering the need for specifying a set time for maintaining distribution records on a product-by-product basis. In this regard, the proposal solicited comments and requested information as to what the projected service life would be for brattice cloth and ventilation tubing and battery assemblies. The majority of commenters indicated this was not feasible, and recommended that the retention period be determined by manufacturers, consistent with the proposal. They also suggested, however, that "shelf life" as well as "service life" was an appropriate factor to consider because, depending on the product, both could be used in setting the record retention period. Under the final rule, § 7.6(c) has been modified to require that distribution records of approved products be retained for at least the shelf life and service life of the products.

As noted, manufacturers are required to maintain records on the distribution of each unit with an approval marking. This is necessary so that deficient units which may present a hazard to miners can be traced and withdrawn from use until appropriate corrective action is taken by the approval-holder. Manufacturers already keep records of sales. This provision in the final rule does not specify the type of record to be maintained. MSHA believes most manufacturers will use existing record systems to fulfill this requirement as it is the Agency's experience that these

records have been used in the past to trace defective products. The information needed on initial sales is the customer name and address and product identification on an individual basis except for mass produced items such as brattice cloth or hose conduit which can be identified on a batch or lot basis.

Section 7.7 Quality Assurance.

Under the final rule, § 7.7 requires applicants granted an approval or an extension of approval to perform certain quality assurance functions. These include: (1) inspecting or testing, or both, the critical characteristics of products approved under Part 7; (2) calibrating the instruments used in the inspection or testing of critical characteristics; (3) controlling production documentation to ensure that the product is manufactured as approved; and (4) immediately reporting to MSHA's Approval and Certification Center any knowledge of a product distributed with critical characteristics not complying with the approval specifications.

During the rulemaking process, some commenters suggested that instead of requiring manufacturers to have a quality assurance program, MSHA should rely solely on post-approval product audits to verify that products are being manufactured as approved. Product audits are an effective method of determining whether approved products are being manufactured as approved. However, an additional measure of protection against defective products entering the market can be achieved by preventative measures taken before distribution of products for use in underground mines. For this reason, the final rule retains requirements for a quality assurance program for approved products. These quality assurance requirements focus on the operation of the applicant's program and require the applicant to perform these functions and to certify that they will be done.

The required quality assurance program includes inspecting, testing, or both, the critical characteristics of the particular product. Critical characteristics are those which can adversely affect the safety of the product if they do not conform to specifications. Inspection or testing of these characteristics of an approved product is an essential element of any effective quality assurance program. The critical characteristics for each product which the applicant will be required to inspect or test will be set forth in the applicable subpart.

Under the final rule, some critical characteristics must be inspected or tested on each product with an MSHA

approval marking. In other cases, lot or batch sampling provides the necessary quality assurance. This is because quality assurance testing can involve both destructive and nondestructive testing. If a critical characteristic can be tested nondestructively, such as testing the output of a blasting unit with an oscilloscope, then MSHA will generally require that the characteristic be tested on each unit. However, when destructive testing is involved, as is the case in testing the flame-resistance of brattice cloth where the cloth is actually burned to monitor flame-resistance, lot or batch sampling will be specified. In each subpart, the critical characteristics to be inspected or tested will be identified. In addition, the subpart will indicate whether each unit needs to be inspected or tested, or whether lot or batch sampling will be acceptable.

Because the quality control provisions of the final rule focus on the inspection and testing of critical characteristics, the rule also requires that instruments used to inspect and test be properly calibrated and sufficiently accurate. The minimum frequency of calibration required is that recommended by the instrument manufacturer and the calibration must be traceable to standards set by the National Bureau of Standards, U.S. Department of Commerce, or other nationally recognized standards. Further, the use of instruments "accurate to at least one significant figure beyond the desired accuracy" has been added § 7.7(b) of the final rule. MSHA, in its current testing, uses instruments to that degree of accuracy as do most manufacturers.

In addition to inspecting and testing, the final rule requires that production documentation be controlled so that the product is manufactured as approved. This aspect of the final rule requires approval-holders to ensure that the product coming off the assembly line does not differ from the product as approved by MSHA.

Under the proposal, applicants for approval would have been required to control all drawings and specifications. As a result, only the accepted ones could be used during production and quality assurance inspections and tests. Several commenters objected, however, that the documentation used during manufacture was not necessarily the drawings and specifications submitted to MSHA with an approval application. These commenters recommended that applicants for approval be required to "control production documentation to ensure the product is manufactured as approved." MSHA has reworded § 7.7(c) so that the final rule does not specify which drawings must be controlled, but

instead obligates each approval-holder to implement document control procedures sufficient to ensure that the product conforms to the approval.

Adherence to the final rule requirements for quality assurance will provide substantial protection against the distribution of defective products. However, MSHA recognizes that this can occur. In such an event, § 7.7(d) requires the approval-holder to report immediately to MSHA any knowledge that a product has been distributed with critical characteristics not meeting required specifications. This knowledge could come from the results of audits conducted by the approval-holder, reports from users, or other sources. Upon receiving such a report, MSHA will work with the approval-holder to implement appropriate corrective action.

Commenters requested that MSHA provide guidance on how approval-holders would comply with the requirement to report knowledge of a product distributed with critical characteristics not in accordance with approval specifications. Since critical characteristics are features of a product which, if not built to specification, can create a hazard, immediate notification should be by expeditious means, such as by telephone. Telephone contact should then be followed up in writing. The oral and written notification should include a description of the nature and extent of the problem, the locations where the product has been distributed, and the approval-holder's plans for corrective action. Corrective action may include recalling the product or restricting use of the product pending retrofitting it to conform with the approval specifications. MSHA will review all of the information provided, including the approval-holder's program of corrective action. If the program is inadequate, MSHA will work with the manufacturer to develop a more appropriate program. If appropriate corrective action cannot be agreed upon by the approval-holder and MSHA, the Agency may seek revocation of the approval, or other action as necessary.

Section 7.8 Post-Approval Product Audit.

The final rule provides that approved products will be subject to periodic audit by MSHA for the purpose of determining conformity with the technical requirements upon which the approval was based. This aspect of the final rule complements the quality assurance provisions, providing a mechanism for independent evaluation by MSHA of approved products on a random basis.

Approved products audited by MSHA will be selected by the Agency as representative of those distributed for use in mines. When an approved product is requested by MSHA for audit from the approval-holder, the Agency will arrange to examine and evaluate it at a mutually agreed upon time and location and permit the approval-holder to observe any audit-related tests conducted. This examination and evaluation can take place at an MSHA facility, at the manufacturer's plant or distribution center, or at any other place agreed upon by MSHA and the approval-holder. The approval-holder may obtain any final report resulting from such audits.

One commenter recommended deleting the phrase "at a mutually agreed upon time and place," stating that to ensure a true picture of approved products, audits must be made randomly and at a time unknown to the manufacturer. It must be kept in mind that post-approval product audits are but one component of a comprehensive program which includes quality assurance inspection and testing, to see that only safe products are used in mines. The Part 7 audit program will allow MSHA to effectively determine whether products are, in fact, being manufactured as approved. First, the audit program is directed at evaluating approved products, not at reviewing the manufacturing site. The final rule provides that MSHA, not the manufacturer, select the product and also permits MSHA to obtain approved products from sources other than the manufacturer. This approach recognizes that an MSHA conducted audit will be more efficient if a specific product is known to be at a preselected site. This is particularly true for products that are "one of a kind" or of very limited distribution. Since these products are not readily found at mine suppliers or distributors, they would be very difficult to locate without the assistance of the approval-holder.

In determining which approved products will be subject to audit at any particular time, MSHA will consider a variety of factors such as whether the manufacturer has previously produced the approved product or similar products, whether the approved product is new or part of a new product line, or whether the approved product is intended for a unique application or limited distribution. Other considerations may include product complexity, the manufacturer's previous product audit results, product population in the mining community, and the time

since the last audit or since the product was first approved.

Under the final rule, approved products can be obtained for audit from the approval-holder or from sources other than the manufacturer such as mine suppliers or distributors. The approval-holder may, however, only be required to provide an approved product once a year, at no cost to MSHA, except for cause. MSHA can obtain products for audit from the approval-holder or other sources such as mine suppliers or distributors at any time at MSHA expense.

Based on MSHA's experience, the Agency anticipates few instances in which more than one approved product will be required "for cause" from any one manufacturer in any one year. There are circumstances, however, under which an additional audit is appropriate to ascertain compliance with the technical requirements upon which an approval was based. Examples of such circumstances include verified complaints about the safety of an approved product, evidence of product changes that have not been approved, audit test results that warrant further testing to determine compliance, and evaluation of corrective action taken by an approval-holder. Under these circumstances, the approval-holder must provide, at no cost to MSHA, additional approved products so the Agency can ensure that the approval-holder is meeting the obligation to manufacture the product as approved.

When discrepancies are found during MSHA audits of approved products, MSHA will require that the manufacturer take all necessary corrective actions. These actions could include, but are not limited to, the approval-holder recalling or retrofitting the approved product involved, and issuing user notices. Revocation of the approval by MSHA may result when discrepancies in approved products are not successfully corrected.

Section 7.9 Revocation.

Section 7.9 provides that MSHA may revoke an approval granted under Part 7 whenever a product fails to meet the applicable technical requirements specified in a subpart or creates a hazard when used in a mine. Commenters recommended that the revocation procedures require MSHA to fully describe the "cause" or reason for a revocation action, and that the procedures include an appeal process for the approval-holder to challenge the basis for such action. The Agency recognizes that an MSHA approval is important to the marketability of a product used in the mining industry. For

this reason it has been MSHA's practice to treat approval-holders as "licensees" under the Administrative Procedure Act (APA). Consistent with this practice, the final rule provides that approval-holders be accorded certain protections prior to revocation of an approval. These include being provided with: (1) A written notice of the Agency's intent to revoke a product approval, with an explanation of the reasons for the proposed revocation, (2) an opportunity to demonstrate or achieve compliance with the technical requirements for approval, and (3) an opportunity for a hearing upon request.

Also in accord with the APA is the final rule provision that permits MSHA to suspend an approval without prior notification to the approval-holder, if a product poses an imminent hazard to the safety or health of miners. Under such circumstances, an approval may be suspended immediately to protect the safety and health of any affected miners. Upon suspension of an approval, the product involved is no longer approved and MSHA will require mine operators to withdraw the product from use during the course of any suspension. MSHA will also immediately advise approval-holders of any suspension so effective corrective action can be started as soon as possible.

Subpart B—Brattice Cloth and Ventilation Tubing

Subpart B establishes the specific requirements for MSHA approval of brattice cloth and ventilation tubing and is effective August 22, 1988. After one year, it will replace the current acceptable program for brattice cloth and ventilation tubing.

Brattice cloth and ventilation tubing are used to direct or convey ventilating air in underground mines. Because of the fire hazards in underground coal mines and gassy underground metal and nonmetal mines, MSHA safety standards in 30 CFR 75.302-3 and 30 CFR 57.22222 require that brattice cloth and ventilation tubing be flame-resistant. The coal mine standard requires brattice cloth and ventilation tubing to have a flame spread index of 25 or less, as determined by the American Society for Testing and Materials (ASTM) standards E-84, Surface Burning Characteristics of Building Materials, or E-162, Surface Flammability of Materials Using a Radiant Heat Energy Source. Various studies and flammability evaluations by MSHA's Approval and Certification Center have shown that the ASTM tests are not optimum for evaluating the

flammability of brattice cloth and ventilation tubing. For example, these tests do not evaluate the materials as used in a mining environment and can yield varying test results. In some MSHA tests, certain brattice materials that yielded the required flame spread index of 25 or less based on the existing test procedures were shown to propagate flames and be consumed in large-scale tests that were more representative of the mining environment.

Development of Small-Scale Test and Procedures

The test procedures and criteria in Subpart B are the result of MSHA's efforts to develop a more appropriate standardized small-scale flammability test for these materials. MSHA's primary concerns were to develop test procedures that are objective, repeatable, and which appropriately assess the flammability of brattice cloth and ventilation tubing in the context of the mining environment in which they are used.

A large-scale flammability test, using a mine fire gallery and a manner of testing the materials that simulated their use in the mining environment, was developed for brattice and ventilation tubing by the MSHA Approval and Certification Center. Results from the large-scale test were repeatable and the test provided an appropriate method for evaluating the flame resistance of brattice and ventilation tubing. However, the large-scale test required an expensive fire gallery facility and large amounts of samples for testing. MSHA believed it would not be feasible for manufacturers or independent laboratories to construct the large-scale fire gallery and perform the test. Therefore, MSHA began development of a smaller-scale laboratory test that would correlate with the large-scale test. The small-scale test described in this final rule was found to produce repeatable, objective test results which appropriately assess the flame resistance of brattice cloth and ventilation tubing in the context of the mining environment and will permit the flame-resistance testing of these materials to be conducted in a relatively inexpensive manner.

Initially, a prototype test approximately one-fourth the size of the large-scale test was devised. However, test results were very erratic and correlation with the large-scale test was poor. Further analysis and test development work was conducted resulting in a small-scale laboratory test apparatus that produced excellent correlation with the large-scale test,

provided that certain critical factors were controlled, including gallery dimensions and certain design elements. These factors are critical for obtaining correlation and repeatable test results. For example, the requirements for construction of the small-scale test gallery described in the rule minimize thermal reflection from the walls to the test sample while maintaining uniform heat insulation characteristics and uniform air flow in the sample test area. The design of the ignitor, also specified in the rule, provides a controlled and consistent flame during the igniting process. Through numerous trials, MSHA found that this type of ignitor design produces a reliable and uniform igniting source.

Due to the fire dynamics during testing, MSHA has found these design characteristics to be essential in obtaining uniform and consistent test results. Variations in the principal parts of the apparatus, such as thickness of insulation and dimensions associated with the tapering of the duct section and fan housing, will produce different heat changes and non-uniform air flow. This will disturb the burning process and yield unreliable results. However, where variations do not affect the reliability of the test results, MSHA has not specified design characteristics, and will allow design flexibility.

The test gallery is large enough to permit evaluation of brattice cloth samples 40 inches wide and 48 inches long. This size of brattice sample allows for shrinkage of plastic brattice cloth prior to burning and permits a reliable assessment of flame propagation. The air flow requirements in the test are also reflective of the conditions of use for this material and optimal for promoting flame propagation. In MSHA's view, the small-scale test will permit the manufacturer to test the flame-resistant quality of brattice and ventilation tubing at the production site in a relatively inexpensive manner. Independent laboratories will also be able to economically construct the small-scale test and perform third party testing.

Application Requirements

Under the final rule, applications for approval of brattice cloth or ventilation tubing will be required to include product identification information such as the trade names, and style and code numbers under which the product will be marketed. Approval applications will also be required to include technical specifications related to the flame resistance of the product such as the type of film, scrim, and adhesive used. Because color additives can affect the flame resistance of brattice cloth, color

serves as both an indicator of flame resistance and a product identification feature. MSHA will use the application information to evaluate the product submitted for approval as well as to identify products bearing an MSHA approval marking as those approved by the Agency.

Technical Requirements

The technical requirements will require that brattice cloth and rigid ventilation tubing be flame resistant when tested in accordance with the test procedures in the subpart. Flexible ventilation tubing will have to be manufactured using an MSHA-approved brattice cloth, with a noncombustible supporting structure, if one is used. Use of approved brattice cloth eliminates the need to gallery test flexible ventilation tubing.

Critical Characteristics

The final rule requires each batch or lot of brattice cloth and ventilation tubing to be flame tested or each batch or lot of materials that contribute to its flame-resistance be inspected or tested so that the finished product meets the flame resistance test. The final rule clarifies MSHA's intent that the applicant has the option of performing quality control checks on either the batch or lot of brattice cloth and ventilation tubing, or the batch or lot of the materials that contributed to flame-resistance.

Flame Test Apparatus

Section 7.26 of the final rule describes the principal parts of the apparatus used to test for flame resistance of brattice cloth and ventilation tubing. Drawings and standard test procedures are available upon request, and MSHA is prepared to offer assistance to aid manufacturers in establishing testing programs.

In response to commenters, MSHA has revised the wording in § 7.26(b) to clarify its intent that the "J" hooks that support the steel rod are located approximately 2 3/16 inches from the front and back ends of the test gallery, 1 1/2 inches from the ceiling insulation and centrally located in the gallery along its length. Commenters noted that the wording of this aspect of the proposal was confusing and could be construed as giving the location of the sample.

Tests for Flame Resistance

Sections 7.27 and 7.28 of the final rule set forth the test procedures for determining the flame resistance of brattice cloth and rigid ventilation

tubing, respectively. Under both tests, six samples are conditioned. Three samples are flame-tested in still air and three are tested with an average of 125 feet-per-minute of air flowing past the sample. Performance is acceptable for brattice cloth and rigid ventilation tubing if each of the following criteria is met: (1) Flame propagation of less than 4 feet in each of the six tests, (2) an average duration of burning of less than 1 minute in both groups of three tests, and (3) a duration of burning not exceeding 2 minutes in each of the six tests.

Approval Marking

Approval markings on both brattice cloth and ventilation tubing are required to be permanently placed on the products in a manner that facilitates field identification of the product as approved by MSHA. Where approved brattice cloth does not lend itself to approval markings on the material, the final rule permits marking the edge with an MSHA-assigned color code with permanent paint or ink. Approved ventilation tubing will have to be marked on each section with an MSHA approval number.

Post-Approval Product Audit

The final rule requires approval-holders, upon request, to supply to MSHA at no cost up to fifty feet of each approved design of brattice cloth and ventilation tubing. This request can be made no more than once a year, except for cause. MSHA can, however, obtain brattice cloth and ventilation tubing from the approval-holder or other sources such as mine suppliers or distributors at any time at MSHA expense.

New Technology

The final rule includes a "new technology" provision which applies to either new technology or new applications of existing technology to brattice cloth and ventilation tubing. Several commenters indicated a desire to have a provision added to this Subpart B which would allow MSHA to approve brattice cloth and ventilation tubing that incorporate technology for which the specific requirements of the Subpart are not appropriate. Although at an earlier stage in the rulemaking MSHA believed that the specific requirements of the Subpart would be appropriate for any future technology, the Agency recognizes that technology not now envisioned may at some time in the future be applied to these products. The final rule therefore allows under § 7.52 approval of brattice cloth and ventilation tubing that incorporates

technology for which the specific requirements of Subpart B are not appropriate if MSHA determines that the brattice cloth and ventilation tubing are as safe as those which meet the requirements of the Subpart. To implement this provision, MSHA will prescribe appropriate technical requirements and test procedures when such approval is sought.

Subpart C—Battery Assemblies

Subpart C establishes the specific requirements for MSHA approval of battery assemblies intended for use in approved equipment in underground mines and is effective August 22, 1988. After one year it will replace the current battery assembly approval requirements in 30 CFR 18.44 and 18.63.

Definitions

Section 7.42 sets out the definitions which apply in Subpart C. During the comment period, battery manufacturers suggested that the definition of a battery assembly be expanded to more clearly delineate the units intended to be covered under Subpart C. In response to those comments, the definition of "battery assembly" is revised in the final rule to mean "a unit or units, consisting of cells and their electrical connections, assembled in a battery box or boxes with covers." In addition, the definition of battery box was revised to eliminate the confusing use of the word "trays" in the proposal. Battery box is now defined as "the exterior sides, bottom, and connector receptacle compartment, if any, of a battery assembly, excluding internal partitions."

Application Procedures and Requirements

Under the final rule, an application for approval must contain sufficient information to document compliance with the technical requirements and be accompanied by a composite drawing showing the design specifications for the battery assembly. For clear identification, the drawing is required to be titled, dated, numbered, and include the latest revision number.

Commenters raised several questions regarding the type of information to be submitted with the application. Section 7.43(a)(1) requires applicants to provide the "overall dimensions of the battery assembly, including the minimum distance from the underside of the cover to the top of the terminals and caps." Clarification was requested as to whether insulating caps over the terminals or vent caps were intended to be referenced. MSHA did not intend to reference one to the exclusion of the

other. The highest point on the cell, whether it is insulating caps, terminals or vent caps, defines the minimum distance to the underside of the cover. Commenters suggested that the word "materials" in § 7.43(a)(2) was unnecessary and should be deleted. MSHA agrees and has revised the language to read "composition and thicknesses of the battery box and cover" must be included with the application.

Section 7.43(a)(3) of the final rule requires specification of the "provision for securing covers," in lieu of language in the proposal which required that the method of securing covers be specified. This change was made because the responsibility of the machine manufacturer. The battery assembly manufacturer is only obligated to supply the "provision for securing covers."

Section 7.43(a)(4) requires applicants to document the flame-resistance of insulating materials and cables. Flame-resistance tests for cables and insulating material are currently performed by MSHA under 30 CFR 18.64 and 18.65. Cables and insulating material which pass these tests are "accepted" by MSHA and given an MSHA acceptance number which indicates compliance with these requirements. In response to commenters, previously tested and accepted materials will be acceptable under the final rule, provided that suitable documentation is submitted by the applicant to enable MSHA to identify the material as "MSHA accepted." This documentation could consist of an MSHA-acceptance number, acceptance letter or report.

Section 7.43(a)(5) requires applicants to provide the number, type and rating of the battery cells. This requirement for approval applications is unchanged from the proposal.

Under proposed § 7.43(a)(6), applicants would have been required to submit a "diagram of battery connections between cells and between trays." Commenters indicated that in many mining vehicles with two separate assembly units the connections between battery boxes are internal to the mine vehicle and not known to the battery manufacturer. Recognizing this, § 7.43(a)(6) provides an exception where connections between battery boxes are a part of the mine vehicle's electrical system. Consistent with the revised definition of battery boxes in § 7.42, the final rule deletes the word "trays" and replaces it with the term "battery boxes."

Section 7.43(a)(7) requires that the total weight of a unit of the battery

assembly, charged and ready for service, be provided with the application. This requirement of the final rule is unchanged from the proposal.

Commenters on § 7.43(a)(8) requested clarification on the amount of detail necessary to provide "complete specifications" of certain battery elements. MSHA did not intend by the proposal to require extensive detail on the materials, such as details of the elements used to formulate compound materials. To better convey the Agency's intention, the final rule requires that "documentation of materials and configurations" of various battery elements be supplied with approval applications.

Under the proposed rule, § 7.43(c) would have required applications to contain documentation demonstrating adequate battery assembly ventilation. This proposal was related to the technical requirement in § 7.44(f), which required that battery assemblies be sufficiently ventilated to prevent toxic fumes or gases from accumulating in the assembly. Commenters suggested that compliance with all technical requirements, not just § 7.44(f), should be documented. MSHA agrees that applications for approval of battery assemblies must demonstrate compliance with all technical requirements. Accordingly, the proposal has been so modified and in the final rule this requirement is located in paragraph 7.43(a) of the application procedures and requirements.

Technical Requirements

The technical requirements for approval of battery assemblies are based on the existing requirements in § 18.44. Section 7.44(a)(1) concerns the thickness of boxes and covers which provide physical protection for the battery. These minimum thicknesses are related to the weight of the battery and, under the proposal, were based on the performance of M1020 steel. Battery manufacturers, however, indicated in their comments that the American Iron and Steel Institute (AISI) standard material used by battery manufacturers and steel tray fabricators was AISI 1010 hot rolled steel and not M1020 steel. The final rule specifies AISI 1010 hot rolled steel since it has the lowest tensile strength and impact resistance of the materials most commonly used for construction of the boxes and covers.

The final rule adds a new weight class for battery assemblies, recognizing those weighing up to 1000 pounds, and revises the construction requirements for such battery assemblies. Currently, battery boxes and covers for assemblies

weighing less than 2000 pounds must be constructed with at least $\frac{3}{16}$ -inch steel or the equivalent. The final rule revises this requirement to $\frac{1}{4}$ -inch AISI 1010 hot rolled steel, or equivalent, for batteries weighing up to 1000 pounds. It was determined through engineering analysis that the $\frac{1}{4}$ inch AISI 1010 hot rolled steel would provide equivalent strength for the lighter weight assembly. Section 7.44(a)(2) of the final rule also allows other materials to be used for the boxes, if they have at least the same tensile strength and impact resistance of AISI 1010 hot rolled steel.

Paragraph 7.44(a)(3) is revised from the proposal to make clear that only battery covers having tensile strength and impact resistance less than that of AISI 1010 hot rolled steel or constructed of nonmetallic materials are subject to the impact test requirements in § 7.46. This test reveals whether impact to the cover would bend intercell connectors, crack cells, or otherwise damage the battery. MSHA does not intend applicants to test metal materials with strength above this standard. However, all cover designs of nonmetallic materials must be subjected to this test, regardless of their tensile strength due to the higher elasticity exhibited by these materials.

If nonmetallic materials are used for the construction of the battery box or cover, § 7.44(a)(4) requires that the materials be accepted by MSHA as flame-resistant under 30 CFR Part 18. Nonmetallic materials also have to meet the acceptable performance criteria of the temperature deflection test in § 7.47. This test defines the allowable flexibility of the material due to temperature variation to ensure rigidity throughout the possible range of operating temperatures. The rigidity of battery boxes and covers is related to the protections they provide the battery assembly from impact damage.

Section 7.44(b) addresses the electrical conductivity and flame resistance of insulating material. Commenters questioned the proposed insulation resistance (100 megohms) and voltage (500 volts d.c.) requirements of paragraph (b), relating them to the dielectric strength of the insulation. Rather than evaluating the dielectric strength of the material, criteria were adopted to verify that the assembly would meet a minimum standard. The intent of the requirement is to provide a nondestructive test of the insulated component which can be readily performed during assembly and post-approval auditing and also be independent of the battery voltage.

Under § 7.44(c) the battery box and cover insulating material are required to

be acid-resistant as determined by the test described in § 7.48. The acid resistance test determines whether the materials tested will chemically react with electrolyte from the battery. Paragraph (d) of § 7.44 requires that covers be lined with insulating material, unless they are constructed of insulating material. This insulation prevents the cover from shorting the battery terminals. Under paragraph (e), the covers must be provided with a means of securing them in a closed position to prevent loss of the cover and damage to the internal assembly.

Proposed § 7.44(f) would have required battery boxes to be "sufficiently ventilated" to prevent the accumulation of toxic fumes or gases. Battery manufacturers requested that the rule identify the criteria for ventilating a battery box and suggested the use of a formula developed by industry members. The values used in the formula include the gas constant (cubic feet of hydrogen liberated by one ampere-hour of charge), the capacity rating of the battery (in ampere-hours), the normal overcharge, and the number of cells in the battery box. The volume of hydrogen gas (H_2) liberated during the charging cycle is translated into a minimum effective cross-sectional area needed for dilution of the gas. The formula provides an effective means for ensuring sufficient battery box ventilation. Therefore, paragraph (f) of the final rule adopts the formula for determining the size of vent openings. As another revision to the proposal, the final rule requires the size and location of vent openings to be such that they prevent direct access to "other uninsulated current carrying parts" as well as cell terminals. This will reduce shock and shorting hazards.

Paragraph (g) of § 7.44 requires that battery boxes have drainage holes to prevent the accumulation of water or electrolyte which leads to deterioration of the battery box. In addition to the existing requirement that battery cells be insulated from the battery box walls, § 7.44(h) clarifies that the wall insulating material must extend to the top of the battery box to prevent electrical tracking. Tracking is a current-leakage or fault path created across the surface of an insulating material due to buildup of carbon. Paragraph (i) retains the existing requirement that cell connectors be burned on and continues to allow use of two-bolt type bolted connectors on end terminals. "Burning" is a manufacturing method by which the connectors and the battery terminal posts, both of which are lead, are heated

during assembly so that the two are fused together.

Proposed § 7.44(j) retained the existing requirement in 30 CFR 18.44 that battery connections be designed so that the total battery potential is not available between adjacent cells. This reduces the possibility of arcing and shorting across the terminals. One commenter suggested limiting the voltage potential between bordering cells to a maximum of 48 volts. The existing 240 volts DC limitation for the maximum voltage of battery powered equipment in Part 18, as well as battery designed constraints to accommodate machine designs, result in a practical inherent limitation of adjoining cell voltage differences. Therefore, the current requirement that total battery potential not be available between adjacent cells is maintained in the final rule.

Paragraph 7.44(k) requires battery cables to be accepted by MSHA as flame resistant under Part 18 and protected against abrasion. Commenters objected to that part of proposed paragraph (k) that required the cables within the battery box to be flame resistant. This requirement was included to ensure consistency of these cables with other machine cables. This is considered necessary since these cables are electrically unprotected against damage and overheating.

Paragraph 7.44(l) requires that a strain-relief device be installed on cables outside the box when the battery plug and receptacle are not located on or within the battery box. Strain on the battery terminals during charging can loosen the connections and result in arcing or sparking. Cables must be insulated from the strain-relief device with MSHA-accepted flame-resistant insulating material so that damage to the cable jacket does not allow energization of the strain-relief device. Comments on this aspect of the proposal suggested that the connector receptacle housing be specified in addition to the battery box. Since the definition of the battery box includes the connector receptacle housing, this modification is not necessary.

Section 7.44(m) is a new provision which requires that at least a ½-inch air space be between the underside of the battery cover and the top of the battery. This design provides protection against impact damage to the battery cells. Commenters objected that the proposed paragraph (m) was design restrictive and should be modified to allow insulated parts within the ½-inch air space. The ½-inch air space between the underside of the battery cover and the top of the battery is a feature found

in all currently certified battery assemblies and was used as a basis for the testing and acceptance requirements in the impact test of § 7.46. The final rule retains this requirement without change.

Critical Characteristics

Section 7.45 lists the critical characteristics that must be inspected or tested on each battery assembly before it is shipped for use. These characteristics include: (1) The thickness of covers and boxes, (2) the application and resistance of insulating materials, (3) the size and location of vent openings, (4) the method of cell terminations, (5) the installation of strain relief devices on cables and (6) the type, location and physical protection of cables.

Some commenters suggested that the final rule include, in this section, a requirement for maintenance of written records of inspection or testing of critical characteristics. Under § 7.5 of Subpart A of this Part, approval-holders are required to perform certain quality assurance functions, including inspection or testing of critical characteristics. Further, applicants are required to certify that they will in fact perform these functions. False certification by applicants is subject to criminal sanctions under the Mine Act. MSHA believes that this will serve as sufficient incentive for approval-holders to comply with the inspection or testing requirements. Therefore, the Agency has not required approval-holders to maintain records demonstrating that this function has been performed.

Impact Test

The final rule requires four preconditioned covers installed on the battery box design submitted for approval to be tested by application of a 200 foot pounds dynamic force at prescribed locations. The battery assembly is considered acceptable if the test does not result in bent intercell connectors, cracked or broken filler caps, cracks in the cell cover, cells, or filler material, cracked or bent supports, or cracked or splintered battery covers.

Commenters suggested that proposed § 7.46(a)(1) be revised allowing one cover to be preconditioned at both of the prescribed temperatures, -13°F (-25°C) and 122°F (50°C), in order to relieve the manufacturer of the redundancy and expense of conditioning four covers. The failure of covers which would be evaluated under this test procedure during field testing have demonstrated the need for conditioning covers at temperatures simulating actual temperature extremes which might be encountered during storage or non-use

periods. Two samples at each conditioning temperature were chosen as a representative number which would ensure reliability of the test results.

Commenters also requested definition of an acceptable test temperature range, the "dynamic force of 200 foot-pounds" and "filler material located between the individual cells." In response to comments received, the test parameters have been more clearly defined. The test temperature range and maximum impacting surface area of the test weight are specified by the final rule. Additionally, the support blocks for battery covers, when used, are allowed to contact partitions as well as filler material in the battery assembly.

Deflection Temperature Test

This section outlines the test procedures for determining the deflection temperature for nonmetallic material used for battery boxes and covers. In this test, two samples are preconditioned, then their deflection under a given load is recorded as the test temperature is increased at a uniform rate. The deflection of the samples resulting from heating must be less than .010 inch at a temperature of 180 °F (82 °C).

Commenters requested that MSHA use an ASTM testing procedure, if one exists, rather than creating a new test writeup. MSHA has developed the test procedure in the final rule by incorporating appropriate ASTM testing procedures. In this way, several ASTM procedures are not required to be referenced for size of sample, preconditioning, test procedures and instrumentation accuracy. The results of the deflection temperature test are important to proper evaluation of the nonmetallic material since performance of the material at the elevated temperatures could nullify the results obtained in the impact test. This test ensures that a certain level of rigidity is inherent in the material.

Commenters questioned the allowable time interval between conditioning and immersing the sample in the heat transfer medium as required in § 7.47(a)(2) and suggested that "room temperature" be further defined. The time interval between conditioning and immersion does not affect the test results and, therefore, is not defined in the final rule. However, the final rule does specify a test temperature range of 65 °F-80 °F (18.3 °C-26.7 °C) to replace "room temperature."

In response to comments received, the accuracy of the deflection measuring device has been defined. The initial holding period has been corrected to

allow compensation for creep due to loading.

Acid Resistance Test

This section sets forth the procedures for determining the acid resistant qualities of the insulated surfaces of the battery box and cover. Under § 7.48 a representative sample is to be covered with a sulfuric acid solution for 7 days to ensure the insulation does not exhibit any blistering, discoloration, cracking, swelling, tackiness, rubberiness, or loss of bond.

Commenters requested that a 1/4" thickness of material be used instead of a representative sample. Since the thickness of the battery box and cover can vary, the suggested 1/4 inch dimension is an arbitrary value. The thickness of the insulation is the critical element to be tested. With this in mind, the test procedures have been reworded in the final rule to require the insulation thickness to be representative of that used on the battery box and cover. In addition, certain editorial changes were made in § 7.48(a) (1) and (2) to clarify the intent of the provisions.

One comment received recommended that the size of the sample be specified by a square inch area dimension. The sample size was maintained as proposed to ensure a minimum size and configuration of the sample to address variations of the product due to the manufacturing process.

Approval Marking

This section requires a legible and permanent approval plate, with the assigned MSHA approval number inscribed on it, to be securely attached to each battery box. This allows identification of approved battery assemblies in the mines.

Post-Approval Product Audit

This section requires an approval holder to make an approved battery assembly available for audit at a mutually agreeable site and time. The approval holder may be required to provide, at no cost to MSHA, an approved battery assembly no more than once a year, except for cause. However, MSHA can obtain battery assemblies for audit from the approval holder or other sources such as mine suppliers or distributors at any time at MSHA expense.

Approval Checklist

This section requires the approval holder to provide, with each approved battery assembly, a description of what is necessary to maintain it in approved condition. This description can be a list of items to be checked by the user and must accompany every approved

battery bearing an MSHA approval plate.

New Technology

Section 7.52 allows approval of battery assemblies that incorporate technology for which the specific requirements of Subpart C are not appropriate, if MSHA determines that the battery assembly is as safe as those which meet the requirements of the subpart. This applies to new technology as well as to new applications of existing technology. To implement this provision, MSHA will prescribe appropriate technical requirements and test procedures when such an approval is sought.

IV. Drafting Information

The principal persons responsible for preparing this final rule are: Robert E. Marshall, Office of Technical Support, MSHA, and Linda B. Fort, Office of the Solicitor, Department of Labor.

V. Executive Order 12291 and Regulatory Flexibility Act

In accordance with E.O. 12291, MSHA has prepared an analysis to identify potential costs and benefits associated with Part 7. This analysis has formed the basis for the Regulatory Flexibility Analysis required by the Regulatory Flexibility Act. In this analysis, MSHA has determined that the final rule will not result in major cost increases nor have an incremental effect of \$100 million or more on the economy. Therefore, the rule is not within the criteria for a major rule and a Regulatory Impact Analysis is not required.

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 proposals. This final rule does not significantly alter the existing technical requirements for any of the products.

The final rule increases private-sector involvement in the approval of mining equipment. For the first time, in lieu of testing only by MSHA, the manufacturers or independent laboratories will test certain mining equipment. The Agency anticipates that this new procedure will reduce duplicate testing of products in some cases and eliminate associated costs and potential delays in equipment approvals. In addition, the procedure is expected to enhance the safety of miners through the more rapid introduction of technological advances in mining products.

An option has been introduced in battery assemblies which allows for a reduction in thickness for covers of

small batteries. This may reduce costs for some small manufacturers. Any necessary testing of products required by MSHA either is not substantially different from that currently undertaken or it does not impose significant costs compared to the sales value of the product. Furthermore, the tests are performance-oriented so that manufacturers can choose the most cost effective option. The application procedures, quality assurance program and annual audit do not impose significant costs. Part 7 greatly clarifies the standards which must be met by industry for approval of these products and makes the approval process more efficient, thereby reducing costs for large as well as small business.

The estimated total costs for Part 7 are specifically related to the subparts for which revised or new technical specifications are being finalized. Estimates, therefore, have been developed only for those subparts. Estimated costs for additional products will be analyzed as the subparts are proposed.

The total annual incremental costs for Subpart B, Brattice Cloth and Ventilation Tubing, will range from a savings of \$7,011 to \$13,291. The current annual cost for testing and acceptance is estimated to be \$63,746 based on the fee schedule under 30 CFR Part 5. The annual cost of the program under the final rule will be a range of \$50,455 to \$56,735.

The total annual incremental cost for Subpart C, Battery Assemblies, has been revised since the preliminary analysis. The initial analysis was based upon draft fee schedules that were subsequently revised in the final rule for 30 CFR Part 5. In addition, the initial analysis was based upon a maximum application fee. The revised analysis was based upon an average fee. As a result of these changes, MSHA now estimates the annual incremental costs to battery-assembly manufacturers to be \$3,000-\$4,000. The total annual cost of the current program is estimated to be \$812,375. The program under the final rule is estimated to range in cost from \$815,647 to \$816,577, also based on the fee schedule in Part 5. The revised application fee will be considerably less under Part 7 than it would be under the current regulation.

The total annual incremental costs for Part 7, Subparts B and C are estimated to range from a savings of \$2,809 to \$10,019. The aggregated annual costs for the current programs for these products is estimated to be \$876,121, whereas the total annual costs of the program under the final rule for these products is

estimated to be a range of \$866,102 to \$873,312.

VI. Paperwork Reduction Act

This final rule contains information collection requirements subject to the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

Under the final rule, §§ 7.3, 7.23 and 7.43 require applicants seeking product approval to submit an application including certification of compliance with the technical requirements. For brattice cloth and ventilation tubing, MSHA estimates there will be 77 applications a year, each requiring 30 minutes to prepare. At an estimated cost of \$31 per hour, 77 applications will require 38.5 hours and cost \$1,194. In addition, MSHA estimates an application fee for brattice cloth and ventilation tubing of \$310 each totaling \$23,870 for 77 applications. For battery assemblies, MSHA estimates 36 applications a year and 1.25 hours to prepare at an hourly cost of \$31 per hour for a total of 45 hours and \$1,395. MSHA further estimates a fee of \$44 each for 4 applications, \$262 each for 18 applications, and \$174 each for 14 applications for a total fee of \$7,328 for all battery assembly applications.

Under the final rule, §§ 7.4(a), 7.27(a)(8), 7.28(a)(7), 7.46(a)(3), 7.47(a)(6), and 7.48(a)(3) require records of test results and procedures which must be retained for three years. Standard testing protocols used by the scientific community include the keeping of records of product testing. Therefore, MSHA estimates there will be no additional cost for applicants to maintain these records.

Section 7.7(d) requires applicants to report to MSHA any knowledge of a product distributed with critical characteristics not in accordance with the approval specifications. MSHA estimates that, based on a worst-case analysis, each of 57 approval-holders of brattice cloth and ventilation tubing may need to make a report once a year, and that each report may require 15 minutes to call or write a letter, totaling about 14.25 hours. At \$31 an hour, the cost for all reports will be about \$442 a year. For battery assemblies, it is estimated that, based on a worst-case analysis, each of 15 approval-holders will make one or two reports a year for an average of 1.5 reports, and that each report would require 15 minutes, for a total of 5.6 hours. At \$31 an hour, the cost for reports on battery assemblies will be \$174 a year.

Under the final rule, § 7.6(c) requires applicants to maintain records on the distribution of each unit with an approval marking. This provision does

not specify the type of record and MSHA believes applicants will use existing sales records systems to comply. Therefore, MSHA has assigned no cost to this requirement.

Section 7.51 of the final rule requires the applicant to include an approval checklist with each battery assembly sold. MSHA estimates that it will require two hours to develop the checklist. At \$31 an hour, the onetime cost will be two hours or \$62 for each of 15 applicants or a total of 30 hours and \$930. MSHA estimates that the time required to insert a copy of the checklist in each battery sold is insignificant relative to the time involved in developing the checklist since it only takes a few seconds and there are only about 1000 battery assemblies sold annually industry-wide.

In accordance with section 3504(h) of the Paperwork Reduction Act of 1980 (Title 44 U.S.C. Chapter 35), the collection of information requirements contained in the final rule have been approved by OMB under control number 1219-0100.

List of Subjects in 30 CFR Part 7

Mine safety and health, Underground mining.

Date: June 14, 1988.

David C. O'Neal,

Deputy Assistant Secretary for Mine Safety and Health.

Title 30 is hereby amended as follows:

PART 18—[AMENDED]

1. The authority citation for Part 18 continues to read as follows:

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

2. Amend § 18.44 by adding a new paragraph (l) to read as follows:

§ 18.44 [Amended]

(l) Battery-powered equipment shall use battery assemblies accepted or certified under this part or approved under Part 7 of this chapter.

3. Revise § 18.44, effective August 22, 1989, to read as follows:

§ 18.44 Non-intrinsically safe battery-powered equipment.

(a) Battery-powered equipment shall use battery assemblies approved under Part 7 of this chapter, or battery assemblies accepted or certified under this part prior to August 22, 1989.

(b) Battery box covers shall be secured in a closed position.

(c) Each wire or cable leaving a battery box on storage battery-operated equipment shall have short-circuit protection in an explosion-proof enclosure located as close as

practicable to the battery terminals. A short-circuit protection device installed within a nearby explosion-proof enclosure will be acceptable. In no case shall the exposed portion of the cable from the battery box to the enclosure exceed 36 inches in length. Each wire or cable shall be protected from damage.

§ 18.63 [Removed and Reserved]

4. Remove § 18.63, effective August 22, 1989, and reserve § 18.63.

5. Add a new Part 7 to Subchapter B, Chapter I, Title 30 of the Code of Federal Regulations as follows:

Part 7—Testing by Applicant or Third Party

Subpart A—General Provisions

Sec.

7.1 Purpose and scope.

7.2 Definitions.

7.3 Application procedures and requirements.

7.4 Product testing.

7.5 Issuance of approval.

7.6 Approval marking and distribution record.

7.7 Quality assurance.

7.8 Post-approval product audit.

7.9 Revocation.

Subpart B—Brattice Cloth and Ventilation Tubing

7.21 Purpose and effective date.

7.22 Definitions.

7.23 Application requirements.

7.24 Technical requirements.

7.25 Critical characteristics.

7.26 Flame test apparatus.

7.27 Test for flame resistance of brattice cloth.

7.28 Test for flame resistance of rigid ventilation tubing.

7.29 Approval marking.

7.30 Post-approval product audit.

7.31 New technology.

Subpart C—Battery Assemblies

7.41 Purpose and effective date.

7.42 Definitions.

7.43 Application requirements.

7.44 Technical requirements.

7.45 Critical characteristics.

7.46 Impact test.

7.47 Deflection temperature test.

7.48 Acid resistance test.

7.49 Approval marking.

7.50 Post-approval product audit.

7.51 Approval checklist.

7.52 New technology.

Authority: 30 U.S.C. 957.

Subpart A—General

§ 7.1 Purpose and scope.

This part sets out requirements for MSHA approval of certain equipment and materials for use in underground mines whose product testing and evaluation does not involve subjective analysis. These requirements apply to

products listed in the subparts following this Subpart A. After the dates specified in the following subparts, requests for approval of products shall be made in accordance with this Subpart A and the applicable subpart.

7.2 Definitions.

The following definitions apply in this part.

Applicant. An individual or organization that manufactures or controls the assembly of a product and that applies to MSHA for approval of that product.

Approval. A document issued by MSHA which states that a product has met the requirements of this part and which authorizes an approval marking identifying the product as approved.

Authorized company official. An individual designated by applicant who has the authority to bind the company.

Critical characteristic. A feature of a product that, if not manufactured as approved, could have a direct adverse effect on safety and for which testing or inspection is required prior to shipment to ensure conformity with the technical requirements under which the approval was issued.

Extension of approval. A document issued by MSHA which states that the change to a product previously approved by MSHA under this part meets the requirements of this part and which authorizes the continued use of the approval marking after the appropriate extension number has been added.

Post-approval product audit. Examination, testing, or both, by MSHA of approved products selected by MSHA to determine whether those products meet the applicable technical requirements and have been manufactured as approved.

Technical requirements. This design and performance requirements for a product, as specified in a subpart of this part.

Test procedures. The methods specified in a subpart of this part used to determine whether a product meets the performance portion of the technical requirements.

7.3 Application procedures and requirements.

(a) **Application.** Requests for an approval or extension of approval shall be sent to: U.S. Department of Labor, Mine Safety and Health Administration, Approval and Certification Center, RR #1, Box 251, Industrial Park Road, Triadelphia, West Virginia 26059.

(b) **Fees.** Fees calculated in accordance with Part 5 of this title shall be submitted in accordance with § 5.40.

(c) **Original approval.** Each application for approval of a product shall include—

- (1) A brief description of the product;
- (2) The documentation specified in the appropriate subpart of this part;
- (3) The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application;

(4) If appropriate, a statement indicating whether, in the applicant's opinion, testing is required. If testing is not proposed, the applicant shall explain the reasons for not testing; and

(5) If appropriate, the place and date for product testing.

(d) **Subsequent approval of a similar product.** Each application for a product similar to one for which the applicant already holds an approval shall include—

(1) The approval number for the product which most closely resembles the new one;

(2) The information specified in paragraph (c) of this section for the new product, except that any document which is the same as one listed by MSHA in prior approvals need not be submitted, but shall be noted in the application;

(3) An explanation of any change from the existing approval; and

(4) A statement as to whether, in the applicant's opinion, the change requires product testing. If testing is not proposed, the applicant shall explain the reasons for not testing.

(e) **Extension of an approval.** Any change in the approved product from the documentation on file at MSHA that affects the technical requirements of this part shall be submitted to MSHA for approval prior to implementing the change. Each application for an extension of approval shall include—

(1) The MSHA-assigned approval number for the product for which the extension is sought;

(2) A brief description of the proposed change to the previously approved product;

(3) Drawings and specifications which show the change in detail;

(4) A statement as to whether, in the applicant's opinion, the change requires product testing. If testing is not proposed, the applicant shall explain the reasons for not testing;

(5) The place and date for product testing, if testing will be conducted; and

(6) The name, address, and telephone number of the applicant's representative responsible for answering any questions regarding the application.

(f) **Certification statement.** (1) Each application for original approval, subsequent approval, or extension of

approval of a product shall include a certification by the applicant that the product meets the design portion of the technical requirements, as specified in the appropriate subpart, and that the applicant will perform the quality assurance functions specified in § 7.7. For a subsequent approval or extension of approval, the applicant shall also certify that the proposed change cited in the application is the only change that affects the technical requirements.

(2) After completion of the required product testing, the applicant shall certify that the product has been tested and meets the performance portion of the technical requirements, as specified in the appropriate subpart.

(3) All certification statements shall be signed by an authorized company official.

(Approved by the Office of Management and Budget under control number 1219-0100)

§ 7.4 Product testing.

(a) All products submitted for approval under this part shall be tested using the test procedures specified in the appropriate subpart unless MSHA determines, upon review of the documentation submitted, that testing is not required. Applicants shall maintain records of test results and procedures for three years.

(b) Unless otherwise specified in the subpart, test instruments shall be calibrated at least as frequently as, and according to, the instrument manufacturer's specifications, using calibration standards traceable to those set by the National Bureau of Standards, U.S. Department of Commerce or other nationally recognized standards and accurate to at least one significant figure beyond the desired accuracy.

(c) When MSHA elects to observe product testing, the applicant shall permit an MSHA official to be present at a mutually agreeable date, time, and place.

(d) MSHA will accept product testing conducted outside the United States where such acceptance is specifically required by international agreement.

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§ 7.5 Issuance of approval.

(a) An applicant shall not advertise or otherwise represent a product as approved until MSHA has issued the applicant an approval.

(b) MSHA will issue an approval or a notice of the reasons for denying approval after reviewing the application, and the results of product testing, when applicable. An approval will identify the

documents upon which the approval is based.

§ 7.6 Approval marking and distribution record.

(a) Each approved product shall have an approval marking, as specified in the appropriate subpart of this part.

(b) For an extension of approval, the extension number shall be added to the original approval number on the approval marking.

(c) Applicants shall maintain records of the initial sale of each unit having an approval marking. The record retention period shall be at least the expected shelf life and service life of the product.

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§ 7.7 Quality assurance.

Applicants granted an approval or an extension of approval under this part shall—

(a) Inspect or test, or both, the critical characteristics in accordance with the appropriate subpart of this part;

(b) Unless otherwise specified in the subparts, calibrate instruments used for the inspection and testing of critical characteristics at least as frequently as, and according to, the instrument manufacturer's specifications, using calibration standards traceable to those set by the National Bureau of Standards, U.S. Department of Commerce or other nationally recognized standards and use instruments accurate to at least one significant figure beyond the desired accuracy.

(c) Control production documentation so that the product is manufactured as approved;

(d) Immediately report to the MSHA Approval and Certification Center, any knowledge of a product distributed with critical characteristics not in accordance with the approval specifications.

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§ 7.8 Post-approval product audit.

(a) Approved products shall be subject to periodic audits by MSHA for the purpose of determining conformity with the technical requirements upon which the approval was based. Any approved product which is to be audited shall be selected by MSHA and be representative of those distributed for use in mines. The approval-holder may obtain any final report resulting from such audit.

(b) No more than once a year except for cause, the approval-holder, at MSHA's request, shall make an approved product available at no cost to MSHA for an audit to be conducted at a mutually agreeable site and time. The

approval-holder may observe any tests conducted during this audit.

(c) An approved product shall be subject to audit for cause at any time MSHA believes that it is not in compliance with the technical requirements upon which the approval was based.

§ 7.9 Revocation.

(a) MSHA may revoke for cause an approval issued under this part if the product:

(1) Fails to meet the applicable technical requirements; or

(2) Creates a hazard when used in a mine.

(b) Prior to revoking an approval, the approval-holder shall be informed in writing of MSHA's intention to revoke approval. The notice shall:

(1) Explain the specific reasons for the proposed revocation; and

(2) Provide the approval-holder an opportunity to demonstrate or achieve compliance with the product approval requirements.

(c) Upon request, the approval-holder shall be afforded an opportunity for a hearing.

(d) If a product poses an imminent hazard to the safety or health of miners, the approval may be immediately suspended without a written notice of the agency's intention to revoke. The suspension may continue until the revocation proceedings are completed.

Subpart B—Brattice Cloth and Ventilation Tubing

§ 7.21 Purpose and effective date.

This subpart establishes the specific requirements for approval of brattice cloth and ventilation tubing. It is effective August 22, 1988. Applications for approval or extension of approval submitted after August 22, 1989, shall meet the requirements of this part.

§ 7.22 Definitions.

The following definitions apply in this subpart:

Brattice cloth. A curtain of jute, plastic, or similar material used to control or direct ventilating air.

Denier. A unit of yarn size indicating the fineness of fiber of material based on the number of grams in a length of 9,000 meters.

Film. A sheet of flexible material applied to a scrim by pressure, temperature, adhesion, or other method.

Scrim. A substrate material of plastic or fabric laminated between or coated with a film.

Ventilation tubing. Rigid or flexible tubing used to convey ventilating air.

§ 7.23 Application requirements.

(a) **Brattice cloth.** A single application may address two or more products if the products differ only in: weight of the finished product; weight or weave of the same fabric or scrim; or thickness or layers of the same film. Applications shall include the following information:

(1) Trade name.

(2) Product designations (for example, style and code number).

(3) Color.

(4) Type of brattice (for example, plastic or jute).

(5) Weight of finished product.

(6) Film: type, weight, thickness, supplier, supplier's stock number or designation, and percent of finished product by weight.

(7) Scrim: Type, denier, weight, weave, the supplier, supplier's stock number or designation, and percent of finished product by weight.

(8) Adhesive: type, supplier, supplier's stock number or designation, and percent of finished product by weight.

(b) **Flexible ventilation tubing.** Applications shall include the product description information in paragraph (a) of this section and list the type of supporting structure, if applicable; inside diameters; and configurations.

(c) **Rigid ventilation tubing.** A single application may address two or more products if the products differ only in diameters, lengths, configuration, or average wall thickness. Applications shall include the following information:

(1) Trade name.

(2) Product designations (for example, style and code numbers).

(3) Color.

(4) Type of ventilation tubing (for example, fiberglass, plastic, or polyethylene).

(5) Inside diameter, configuration, and average wall thickness.

(6) Suspension system (for example, metal hooks).

(7) Base material: type, supplier, the supplier's stock number, and percent of finished product by weight.

(8) Resin: type, supplier, the supplier's stock number, and percent of finished product by weight.

(9) Flame retardant, if added during manufacturing: type, supplier, the supplier's stock number, and percent of finished product by weight.

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§ 7.24 Technical requirements.

(a) Brattice cloth shall be flame resistant when tested in accordance with the flame resistance test in § 7.27.

(b) Flexible ventilation tubing shall be manufactured using an MSHA-approved

brattice cloth. If a supporting structure is used, it shall be metal or other noncombustible material which will not ignite, burn, support combustion or release flammable vapors when subjected to fire or heat.

(c) Rigid ventilation tubing shall be flame resistant when tested in accordance with the flame resistance test in § 7.28.

§ 7.25 Critical characteristics.

A sample of each batch or lot of brattice cloth and ventilation tubing shall be flame tested or a sample of each batch or lot of the materials that contribute to the flame-resistance characteristic shall be inspected or tested to ensure that the finished product will meet the flame-resistance test.

§ 7.26 Flame test apparatus.

The principal parts of the apparatus used to test for flame-resistance of brattice cloth and ventilation tubing shall be constructed as follows:

(a) A 16-gauge stainless steel gallery lined on the top, bottom and both sides with $\frac{1}{2}$ inch thick Marinite or equivalent insulating material yielding inside dimensions approximately 58 inches long, 41 inches high, and 30 inches wide;

(b) Two $\frac{3}{8}$ -inch diameter steel J hooks and a $\frac{1}{8}$ -inch diameter steel rod to support the sample located approximately $2\frac{1}{8}$ -inches from the front and back ends of the test gallery, $1\frac{1}{2}$ -inches from the ceiling insulation and centrally located in the gallery along its length. Samples shall be suspended to preclude folds or wrinkles;

(c) A tapered 16-gauge stainless steel duct section tapering from a cross sectional area measuring 2 feet 7 inches wide by 3 feet 6 inches high at the test gallery to a cross-sectional area 1 foot 6 inches square over a length of 3 feet. The tapered duct section must be tightly connected to the test gallery;

(d) A 16-gauge stainless steel fan housing, consisting of a 1 foot 6 inches square section 6 inches long followed by a 10 inch long section which tapers from 1 foot 16 inches square to 12 inches diameter round and concluding with a 12 inch diameter round collar 3 inches long. A variable speed fan capable of producing an air velocity of 125 ft./min. in the test gallery must be secured in the fan housing. The fan housing must be tightly connected to the tapered duct section;

(e) A methane-fueled impinged jet burner igniting source, measuring 12 inches long from the threaded ends of the first and last jets and 4 inches wide with 12 impinged jets, approximately $1\frac{1}{8}$ -inches long and spaced alternately

along the length of the burner tube. The burner jets must be canted so that they point toward each other in pairs and the flame from these pairs impinge upon each other.

§ 7.27 Test for flame resistance of brattice cloth.

(a) *Test procedures.* (1) Prepare 6 samples of brattice cloth 40 inches wide by 48 inches long.

(2) Prior to testing, condition each sample for a minimum of 24 hours at a temperature of 70 ± 10 °F (21 ± 5.5 °C) and a relative humidity of $55 \pm 10\%$.

(3) For each test, suspend the sample in the gallery by wrapping the brattice cloth around the rod and clamping each end and the center. The brattice cloth must hang 4 inches from the gallery floor.

(4) Use a front exhaust system to remove smoke escaping from the gallery. The exhaust system must remain on during all testing, but not affect the air flow in the gallery.

(5) Set the methane-fueled impinged jet burner to yield a flame height of 12 inches as measured at the outermost tip of the flame.

(6) Apply the burner to the front lower edge of the brattice cloth and keep it in contact with the material for 25 seconds or until 1 foot of material, measured horizontally, is consumed, whichever occurs first. If the material shrinks during application of the burner flame, move the burner flame to maintain contact with 1 foot of the material. If melting material might clog the burner orifices, rotate the burner slightly during application of the flame.

(7) Test 3 samples in still air and 3 samples with an average of 125 ft./min. of air flowing past the sample.

(8) Record the propagation length and duration of burning for each of the 6 samples. The duration of burning is the total burning time of the specimen during the flame test. This includes the burn time of any material that falls on the floor of the test gallery during the igniting period. However, the suspended specimen is considered burning only after the burner is removed. Should the burning time of a suspended specimen and a specimen on the floor coincide, count the coinciding burning time only once.

(9) Calculate the average duration of burning for the first 3 samples (still air) and the second 3 samples (125 ft./min. air flow).

(b) *Acceptable performance.* The brattice cloth shall meet each of the following criteria:

(1) Flame propagation of less than 4 feet in each of the six tests.

(2) An average duration of burning of less than 1 minute in both groups of three tests.

(3) A duration of burning not exceeding two minutes in each of the six tests.

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§ 7.28 Test for flame resistance of rigid ventilation tubing.

(a) *Test procedures.* (1) Prepare 6 samples of ventilation tubing 48 inches in length with all flared or thickened ends removed. Any sample with a cross-sectional dimension greater than 24 inches must be tested in a 24-inch size.

(2) For each test, suspend the sample in the center of the gallery by running a wire through the 48-inch length of tubing.

(3) Use a front exhaust system to remove smoke escaping from the gallery. The exhaust system must remain on during all testing but not affect the air flow in the gallery.

(4) Set the methane-fueled impinged jet burner to yield a flame height of 12 inches as measured at the outermost tip of the flame.

(5) Apply the burner to the front lower edge of the tubing so that two-thirds of the burner is under the tubing and the remaining third is exposed to allow the flames to curl onto the inside of the tubing. Keep the burner in contact with the material for 60 seconds. If melting material might clog the burner orifices, rotate the burner slightly during application of the flame.

(6) Test 3 samples in still air and 3 samples with an average of 125 ft./min. of air flowing past the sample.

(7) Record the propagation length and duration of burning for each of the 6 samples. The duration of burn is the total burning time of the specimen during the flame test. This includes the burning time of any material that falls on the floor of the test gallery during the igniting period. However, the suspended specimen is considered burning only after the burner is removed. Should the burning time of a suspended specimen and a specimen on the floor coincide, count the coinciding burn time only once.

(8) Calculate the average duration of burning for the first 3 samples (still air) and the second 3 samples (125 ft./min. air flow).

(b) *Acceptable performance.* The ventilation tubing shall meet each of the following criteria:

(1) Flame propagation of less than 4 feet in each of the six tests.

(2) An average duration of burning of less than 1 minute in both groups of 3 tests.

(3) A duration of burning not exceeding 2 minutes in each of the 6 tests.

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§ 7.29 Approval marking.

(a) Approved brattice cloth shall be legibly and permanently marked with the assigned MSHA approval number at intervals not exceeding ten feet. If the nature of the material or method of processing makes such marking impractical, permanent paint or ink may be used to mark the edge with an MSHA-assigned color code.

(b) Approved ventilation tubing shall be legibly and permanently marked on each section with the assigned MSHA approval number.

(c) An approved product shall be marketed only under a brand or trade name that has been furnished to MSHA.

§ 7.30 Post-approval product audit.

Upon request by MSHA but no more than once a year except for cause, the approval-holder shall supply to MSHA at no cost up to fifty feet of each approved design of brattice cloth and ventilation tubing for audit.

§ 7.31 New technology.

MSHA may approve brattice cloth and ventilation tubing that incorporates technology for which the requirements of this subpart are not applicable, if the Agency determines that the product is as safe as those which meet the requirements of this subpart.

Subpart C—Battery Assemblies

§ 7.41 Purpose and effective date.

This subpart establishes the specific requirements for MSHA approval of battery assemblies intended for incorporation in approved equipment in underground mines. It is effective August 22, 1988. Applications for approval or extensions of approval submitted after August 22, 1989, shall meet the requirements of this part.

§ 7.42 Definitions.

The following definitions apply in this subpart:

Battery assembly. A unit or units consisting of cells and their electrical connections, assembled in a battery box or boxes with covers.

Battery box. The exterior sides, bottom, and connector receptacle compartment, if any, of a battery assembly, excluding internal partitions.

§ 7.43 Application requirements.

(a) An application for approval of a battery assembly shall contain sufficient information to document compliance with the technical requirements of this subpart and include a composite drawing with the following information:

(1) Overall dimensions of the battery assembly, including the minimum distance from the underside of the cover to the top of the terminals and caps.

(2) Composition and thicknesses of the battery box and cover.

(3) Provision for securing covers.

(4) Documentation of flame-resistance of insulating materials and cables.

(5) Number, type, and rating of the battery cells.

(6) Diagram of battery connections between cells and between battery boxes, except when connections between battery boxes are a part of the machine's electrical system.

(7) Total weight of the battery, charged and ready for service.

(8) Documentation of materials and configurations for battery cells, intercell connectors, filler caps, and battery top:

(i) If nonmetallic cover designs are used with cover support blocks; or

(ii) If the cover comes into contact with any portion of the cells, caps, filler material, battery top, or intercell connectors during the impact test specified by § 7.46.

(b) All drawings shall be titled, dated, numbered, and include the latest revision number.

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§ 7.44 Technical requirements.

(a)(1) Battery boxes and covers constructed of AISI 1010 hot rolled steel shall have the following minimum thicknesses based on the total weight of a unit of the battery assembly charged and ready for service:

Weight of battery unit	Minimum required thickness
1,000 lbs. maximum	10 gauge or 3/16" nominal
1,001 to 2,000 lbs.	7 gauge or 3/8" nominal
2,001 to 4,500 lbs.	3 gauge or 1/4" nominal
Over 4,500 lbs.	0 gauge or 3/16" nominal

(2) Battery boxes not constructed of AISI 1010 hot rolled steel shall have at least the tensile strength and impact resistance of battery boxes for the same weight class, as listed in paragraph (a)(1) of this section.

(3) Battery box covers constructed of materials with less than the tensile strength and impact resistance of AISI 1010 hot rolled steel or constructed of nonmetallic materials shall meet the acceptable performance criteria for the

impact test in § 7.46. Nonmetallic covers shall be used only in the battery assembly configuration in which they pass the impact test.

(4) Nonmetallic materials for boxes and covers shall—

(i) Be accepted by MSHA as flame-resistant material under Part 18 of this chapter; and

(ii) Meet the acceptable performance criteria for the deflection temperature test in § 7.47.

(b) All insulating material shall have a minimum resistance of 100 megohms at 500 volts d.c. and be accepted by MSHA as flame resistant under Part 18 of this chapter.

(c) Battery box and cover insulating material shall meet the acceptable performance criteria for the acid resistance test in § 7.48.

(d) Covers shall be lined with insulating material permanently attached to the underside of the cover, unless the cover is constructed of insulating material.

(e) Covers, including those used over connector receptacle housings, shall be provided with a means of securing them in a closed position.

(f) Battery boxes shall be provided with vent openings to prevent the accumulation of flammable or toxic gases or vapors within the battery assembly. The size and location of openings shall prevent direct access to cell terminals and other uninsulated current carrying parts. The total minimum unobstructed cross-sectional area of the ventilation openings shall be no less than the value determined by the following formula:

$$\frac{(N)(R)}{950} = M$$

N=Number of cells in battery box.

R=Rated 6 hour battery capacity in ampere hours.

M=Total minimum ventilation area in square inches per battery box.

(g) Battery boxes shall have drainage holes to prevent accumulation of water or electrolyte.

(h) Battery cells shall be insulated from the battery box walls, partitions and bottom by insulating material, unless such part of the battery box is constructed of insulating material. Battery box wall insulating material shall extend to the top of the wall.

(i) Cell terminals shall be burned on, except that bolted connectors using two or more bolts may be used on end terminals.

(j) Battery connections shall be designed so that total battery potential is not available between adjacent cells.

(k) Cables within a battery box shall be accepted by MSHA as flame resistant under Part 18 of this chapter. The cables shall be protected against abrasion by insulation, location, clamping, or other effective means.

(l) When the battery plug and receptacle are not located on or within the battery box, strain on the battery terminals shall be prevented by a strain-relief device on the cable. Insulating material shall be placed between the strain-relief device and cable, unless the device is constructed of insulating material.

(m) At least a 1/2-inch air space shall be provided between the underside of the battery cover and the top of the battery, including the terminals and connectors.

§ 7.45 Critical characteristics

The following critical characteristics shall be inspected or tested on each battery assembly to which an approval marking is affixed:

- (a) Thickness of covers and boxes.
- (b) Application and resistance of insulating material.
- (c) Size and location of ventilation openings.
- (d) Method of cell terminations.
- (e) Strain relief devices for cables leaving boxes.
- (f) Type, location, and physical protection of cables.

§ 7.46 Impact test.

(a) *Test procedures.* (1) Prepare four covers for testing by conditioning two covers at -13°F (-25°C) and two covers at 122°F (50°C) for a period of 48 hours.

(2) Mount the covers on a battery box of the same design with which the covers are to be approved, including any support blocks, with the battery cells completely assembled. If used, support blocks must contact only the filler material or partitions between the individual cells. At the test temperature range of 65°F-80°F (18.3°C-26.7°C), apply a dynamic force of 200 ft. lbs. to the following areas using a hemispherical weight with a 6" maximum radius:

- (i) The center of the two largest unsupported areas;
- (ii) The areas above at least two support blocks, if used;
- (iii) The areas above at least two intercell connectors, one cell, and one filler cap; and
- (iv) Areas on at least two corners. If the design consists of both inside and outside corners, test one of each.

(3) Record the condition of the covers, supports, intercell connectors, filler caps, cell covers, and filler material.

(b) *Acceptable performance.* Impact tests of any of the four covers shall not result in any of the following:

- (1) Bent intercell connectors.
- (2) Cracked or broken filler caps, except plastic tabs which extend from the body of the filler caps.
- (3) Cracks in the cell cover, cells, or filler material.
- (4) Cracked or bent supports.
- (5) Cracked or splintered battery covers.

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§ 7.47 Deflection temperature test.

(a) *Test procedures.* (1) Prepare two samples for testing that measure 5 inches by 1/2 inch, by the thickness of the material as it will be used. Prior to testing, condition the samples at 73.4±3.6°F (23±2°C) and 50±5% relative humidity for at least 40 hours.

(2) Place a sample on supports which are 4 inches apart and immersed in a heat transfer medium at a test temperature range of 65°F-80°F (18.3°C-26.7°C). The heat transfer medium must be a liquid which will not chemically affect the sample. The testing apparatus must be constructed so that expansion of any components during heating of the medium does not result in deflection of the sample.

(3) Place a temperature measuring device with an accuracy of 1% into the heat transfer medium within 1/8 inch of, but not touching, the sample.

(4) Apply a total load, in pounds, numerically equivalent to 11 times the thickness of the sample, in inches, to the sample midway between the supports using a 1/8 inch radius, rounded contact. The total load includes that weight used to apply the load and any force exerted by the deflection measurement device.

(5) Use a deflection measuring device with an accuracy of ±.001 inch to measure the deflection of the sample at the point of loading as the temperature of the medium is increased at a uniform rate of 3.6±.36°F/min. (2±0.2°C/min.). Apply the load to the sample for 5 minutes prior to heating, to allow compensation for creep in the sample due to the loading.

(6) Record the deflection of the sample due to heating at 180°F (82°C).

(7) Repeat steps 2 through 6 for the other sample.

(b) *Acceptable performance.* Neither sample shall have a deflection greater than .010 inches at 180°F (82°C).

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§ 7.48 Acid resistance test.

(a) *Test procedures.* (1) Prepare one sample each of the insulated surfaces of the battery box and of the cover that measure at least 4 inches by 8 inches, by the thickness of the sample which includes the insulation plus the battery cover or box material. The insulation thickness shall be representative of that used on the battery box and cover. If the insulation material and thickness of material are identical for the battery box and cover, only one sample need be prepared and tested.

(2) Prepare a 30 percent solution of sulfuric acid (H₂SO₄) by mixing 853 ml of water with 199 ml of sulfuric acid (H₂SO₄) with a specific gravity of 1.84. Completely cover the samples with the acid solution at the test temperature range of 65°F-80°F (18.3°C-26.7°C) and maintain these conditions for 7 days.

(3) After 7 days, record the condition of the samples.

(b) *Acceptable performance.* At the end of the test, the insulation shall not exhibit any blistering, discoloration, cracking, swelling, tackiness, rubberiness, or loss of bond.

(Approved by the Office of Management and Budget under control number 1219-0100)

§ 7.49 Approval marking.

Each approved battery assembly shall be identified by a legible and permanent approval plate inscribed with the assigned MSHA approval number and securely attached to the battery box.

§ 7.50 Post-approval product audit.

Upon request by MSHA, but no more than once a year except for cause, the approval-holder shall make an approved battery assembly available for audit at no cost to MSHA.

§ 7.51 Approval checklist.

Each battery assembly bearing an MSHA approval plate shall be accompanied by a description of what is necessary to maintain the battery assembly as approved.

(Approved by the Office of Management and Budget under control number 1219-0100)

§ 7.52 New technology.

MSHA may approve a battery assembly that incorporates technology for which the requirements of this subpart are not applicable, if the Agency determines that the battery assembly is as safe as those which meet the requirements of this subpart.

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