

(b) *Actual equipment.* If the Bureau so desires, parts of the detectors that are used in the tests will be retained as records of the equipment submitted. If the detector is approved, the Bureau will require the manufacturer to submit one of his detectors, with the approval plate attached, as a record of his commercial product.

§ 22.9 How approvals are granted.

All approvals are granted by official letter from the Bureau of Mines. A detector will be approved under this part only when the testing engineers have judged that it has met the requirements of the schedule and the Bureau's records are complete, including drawings from the manufacturer that show the detector as it is to be commercially made. No verbal reports of the investigation will be given and no informal approvals will be granted. As soon as the manufacturer has received the formal approval, he shall be free to advertise his detector as permissible.

[Sched. 8C, Oct. 31, 1935, as amended by Supp. 1, 20 F. R. 2575, Apr. 19, 1955]

§ 22.10 Approval plate.

(a) *Attachment to be made by manufacturers.* (1) Manufacturers shall attach, stamp, or mold an approval plate on each permissible methane detector. The plate shall bear the seal of the Bureau of Mines and be inscribed as follows:

Permissible Methane Detector (or Permissible Methane Indicating Detector) Approval No. _____ issued to the _____ Company.

(2) When deemed necessary, an appropriate caution statement shall be added. The size and position of the approval plate shall be satisfactory to the Bureau.

(b) *Purpose of approval plate.* The approval plate is a label that identifies the device so that anyone can tell at a glance whether it is of the permissible type or not. By the plate, the manufacturer can point out that his detector complies with the Bureau's requirements and that it has been approved for use in gassy mines.

(c) *Use of approval plate.* Permission to place the Bureau's approval plate on his detector obligates the manufacturer to maintain the quality of his product and to see that each detector is constructed according to the drawings that

have been accepted by the Bureau and are in the Bureau's files. Detectors exhibiting changes in design that have not been approved are not permissible and must not bear the Bureau's approval plate.

(d) *Withdrawal of approval.* The Bureau reserves the right to rescind for cause at any time any approval granted under this part.

§ 22.11 Instructions on handling future changes in design.

All approvals are granted with the understanding that the manufacturer will make his detector according to the drawings that he has submitted to the Bureau and that have been considered and included in the approval. Therefore, when he desires to make any changes in the design he should first of all obtain the Bureau's approval of the change. The procedure is as follows:

(a) The manufacturer should write to the Central Experiment Station, Bureau of Mines, Pittsburgh, Pa., 15213, requesting an extension of his original approval and stating the change or changes desired. With this request, he should submit a revised drawing or drawings showing changes in detail, together with one of each of the parts affected.

(b) The Bureau will consider the application and inspect the drawings and parts to determine whether it will be necessary to make any tests.

(c) If no tests are necessary, the applicant will be advised of the approval or disapproval of the change by letter from the Bureau of Mines.

(d) If tests are judged necessary, the applicant will be advised of the material that will be required and of the necessary deposit to cover the fee for the tests.

[Sched. 8C, Oct. 31, 1935, as amended by Supp. 1, 20 F. R. 2575, Apr. 19, 1955]

PART 23—TELEPHONES AND SIGNALING DEVICES

Sec.	
23.1	Purpose.
23.2	Definitions.
23.3	Applications.
23.4	Fees.
23.5	Conditions governing investigations.
23.6	General requirements for approval.
23.7	Specific requirements for approval.
23.8	Inspection and tests.
23.9	Special requirements for complete devices.

Sec.

- 23.10 Material required for Bureau of Mines records.
- 23.11 How approvals are granted.
- 23.12 Wording, purpose, and use of approval plate.
- 23.13 Withdrawal of approval.
- 23.14 Instructions for handling future changes in design.

AUTHORITY: The provisions of this Part 23 issued under secs. 2, 3, 5, 36 Stat. 370, as amended, sec. 212, 66 Stat. 709; 30 U.S.C. 3, 5, 7, 482.

SOURCE: The provisions of this Part 23 contained in Schedule 9B, 4 F.R. 1555, Apr. 11, 1939, unless otherwise noted.

§ 23.1 Purpose.

(a) The purpose of investigations under this part is to promote the development of telephones and signaling devices that may be used safely in mines, especially in coal mines that may have gassy or dust-laden atmospheres. This schedule supersedes Schedule 9A, issued under date of December 5, 1922, and becomes effective October 18, 1938.

(b) Telephones and signaling devices approved under the requirements of this part will be termed "permissible" by the Bureau, and if actively marketed will be listed as such in publications relating to permissible equipment, for the information of State mine inspection departments, compensation bureaus, mine operators, miners, and others interested in safety equipment for mines.

§ 23.2 Definitions.

(a) "Adequate" means appropriate and sufficient, as determined by mutual agreement of the manufacturer, operators, and the Bureau of Mines.

(b) "Approval" means official notification by letter, from the Bureau of Mines to a responsible organization, stating that the device under consideration has been judged to meet the requirements of this part.

(c) "Normal operation" means the performance by each part of the device of those functions for which the part was designed.

(d) "Permissible" as used in this part means completely assembled and conforming in every respect with the design formally approved by the Bureau of Mines under this part. (Approvals under this part are given only to equipment for use in gassy and dusty mines.)

(e) "Protected" means effectively cov-

ered, enclosed, or otherwise guarded by adequate covers.

(f) "Signaling device." As used in this part, a signaling device is one that gives visual or audible signals without connection to any power or lighting circuit. (Devices operated from such circuits will not be considered for approval.)

[Sched. 9B, 4 F.R. 1555, Apr. 11, 1939, as amended by Supp. 1, 20 F.R. 2975, May 4, 1955]

§ 23.3 Applications.

Before the Bureau of Mines will undertake the active investigation leading to approval of any telephone or signaling service, the manufacturer shall make application by letter for an investigation leading to approval of his device. This application in duplicate, accompanied by a check, bank draft, or money order, payable to the United States Bureau of Mines, to cover all the necessary fees, shall be sent to the Central Experiment Station, Bureau of Mines, 4800 Forbes Avenue, Pittsburgh, Pa. 15213, together with the required drawings, one complete telephone or signaling device, and instructions for its operation.

[Supp. 1, 20 F. R. 2975, May 4, 1955]

§ 23.4 Fees.

(a) Detailed inspection.....	\$60
(b) Explosion tests (each compartment)	70
(c) Intrinsic safety.....	85
(d) Life tests of relaceable parts..	100
(e) Final examination and recording of drawings and specifications requisite to issuing an approval.	110
(f) Examining and recording drawings and specifications requisite to issuing an extension of approval	70
(g) Tests to assist an applicant in evaluating equipment intended for certification may be made at the discretion of the Bureau. Written requests for such tests shall be directed to the Chief, Branch of Electrical-Mechanical Testing. A deposit of \$200 shall be paid in advance when such tests have been authorized. The fees charged shall be in amounts proportionate to the work performed based on normal charges. Any surplus will be refunded at the completion of the work, or applied to future work, as directed by the applicant.	

[Sched. 9B, 30 F.R. 3755, Mar. 23, 1965]

§ 23.5 Conditions governing investigations.

(a) One complete device together with assembly and detail drawings that show its construction and the materials of which the parts are made, shall be submitted preferably at the time the application for test is made. These shall be sent prepaid to the Bureau of Mines Central Experiment Station, 4800 Forbes Avenue, Pittsburgh, Pa. 15213.

(b) After the device has been inspected by the Bureau's engineers, the applicant will be notified as to the amount of material that he will be required to supply for the tests and of the date on which testing will be started.

(c) *Observers at formal investigations and demonstrations.* No one shall be present during any part of the formal investigation conducted by the Bureau which leads to approval for permissibility except the necessary Government personnel, representatives of the applicant, and such other persons as may be mutually agreed upon by the applicant and the Bureau. Upon granting approval for permissibility, the Bureau will announce that such approval has been granted to the device and may thereafter conduct, from time to time in its discretion, public demonstrations of the tests conducted on the approved device. Those who attend any part of the investigation, or any public demonstration, shall be present solely as observers; the conduct of the investigation and of any public demonstration shall be controlled wholly by the Bureau's personnel. Results of chemical analyses of material and all information contained in the drawings, specifications, and instructions shall be deemed confidential and their disclosure will be appropriately safeguarded by the Bureau.

(d) Formal tests will not be made unless the device has been completely developed and is in a form that can be marketed.

(e) The results of the tests shall be regarded as confidential by all present at the tests and shall not be made public in any way prior to the formal approval of the device by the Bureau.

(f) No verbal report of approval or disapproval will be made to the applicant. After the Bureau's engineers have considered the results of the inspections and tests, a formal written report of the approval or disapproval will be made to the applicant by the Bureau of Mines.

The applicant shall not advertise his device as being permissible or approved, or as having passed the tests, prior to receipt of the formal notice of approval.

[Sched. 9B, 4 F.R. 1555, Apr. 11, 1939, as amended by Supp. 1, 20 F.R. 2975, May 4, 1955]

§ 23.6 General requirements for approval.

Telephones and signaling devices shall be durable in construction, practical in operation, and suitable for conditions of underground service. They shall offer no probable explosion hazard under normal operation if use in gassy or dusty mine atmospheres.

§ 23.7 Specific requirements for approval.

(a) The circuits external to telephones and signal devices shall be intrinsically safe; that is, the electrical design and construction of telephones and signal devices shall be such that neither contact between wires comprising the external circuits nor contact of tools or other metal objects with external terminals and circuits will result in electrical sparks capable of igniting explosive methane-air mixtures (or such mixtures with coal dust in suspension) during normal operation of the telephones or signal devices.

(b) All parts which, during normal operation, are capable of producing sparks that might ignite explosive methane-air mixtures shall be enclosed in explosion-proof compartments. All openings in the casings of such compartments shall be adequately protected. It is desirable that openings be as few as possible. All joints in the casings of an explosion-proof compartment shall be metal-to-metal so designed as to have a width of contact, measured along the shortest path from the inside to the outside of the compartment, of not less than 1 inch if the unoccupied volume (air space) in the compartment is more than 60 cubic inches. For unoccupied volume of 60 cubic inches or less, a $\frac{3}{8}$ -inch width of contact will be acceptable.

(c) All bolts and screw holes shall be "blind" or bottomed if the omission of a bolt or screw would otherwise leave an opening into the compartment. An adequate lock or seal shall be provided to prevent tampering and exposure of spark-producing parts by unauthorized persons.

(d) Battery cells shall be placed in an explosion-proof compartment or else in one that is locked or sealed, and the terminals and the connections thereto shall be so arranged and protected as to preclude meddling, tampering, or making other electrical connections with them.

(e) Manufacturers shall furnish adequate instructions for the installation and connection of telephones and signal devices in order that the safety of these devices and other circuits shall not be diminished by improper installation. The Bureau reserves the right to require the attachment of wiring diagrams to the cases of telephones and signal devices.

(f) If electric light bulbs are used in signaling devices, they shall be either equipped with effective safety devices, such as are required for permissible electric mine lamps,¹ or enclosed in explosion-proof compartments.

§ 23.8 Inspection and tests.

(a) A thorough inspection of the telephone or signaling device will be made to determine its adequacy and permissibility. Tests may be made to check the electrical characteristics and constants of the various parts, and determine the adequacy of the insulation and other parts of features of the device.

(b) In addition, compartments of explosion-proof design will be tested while filled and surrounded with explosive mixtures containing varying percentages of Pittsburgh natural gas² and air, the mixture within the compartment being ignited by a spark plug or other suitable means. For some of the tests bituminous-coal dust will be introduced into the compartment in addition to the explosive mixtures, and the effects will be noted. A sufficient number of tests will be made under the foregoing conditions to determine the ability of the compartment to retain flame without bursting. Even though the surrounding mixtures are not ignited, the compartment will not be considered as having passed the tests, if flames are discharged from any joint or opening; if excessive pressures are developed or if serious distortion of the compartment walls take place.

¹In this case, the requirements of the current schedule for mine lamps will apply.

²Investigation has shown that for test purposes Pittsburgh natural gas (containing a high percentage of methane) is a satisfactory substitute for pure methane.

§ 23.9 Special requirements for complete devices.

Telephones and signaling devices will be considered nonpermissible if used under any of the followings conditions:

(a) Without the approval plate, mentioned hereafter.

(b) With unprotected openings in any of the explosion-proof compartments. This condition refers to any openings in these compartments, but especially to those equipped with removable covers.

(c) If not complete with all of the parts considered in the approval.

(d) If installed or connected otherwise than in accordance with the instructions furnished by the manufacturer.

(e) If modified in any manner not authorized by the Bureau.

§ 23.10 Material required for Bureau of Mines records.

In order that the Bureau may know exactly what it has tested and approved, it keeps detailed records covering each investigation. These records include drawings and actual equipment as follows:

(a) *Drawings.* The original drawings submitted with the application for the tests and the final drawings which the manufacturer must submit to the Bureau before the approval is granted, to show the details of the device as approved. These drawings are used to identify the device in the approval and as a means of checking the future commercial product of the manufacturer.

(b) *Actual equipment.* If the Bureau so desires, parts of the devices that are used in the tests will be retained as records of the equipment submitted. If the device is approved, the Bureau reserves the right to require the manufacturer to submit one, with the approval plate attached and without cost to the Bureau, as a record of his commercial product.

§ 23.11 How approvals are granted.

All approvals are granted by official letter from the Bureau of Mines. A device will be approved under this part only when the testing engineers have judged that it has met the requirements of the part and the Bureau's records are complete, including drawings from the manufacturer that show the device as it is to be commercially made. Individual parts of devices will not be approved. No verbal reports of the investigation will be given and no informal approvals will be

granted. As soon as the manufacturer has received the formal approval, he shall be free to advertise his device as permissible.

[Sched. 9B, 4 F.R. 1555, Apr. 11, 1939, as amended by Supp. 1, 20 F.R. 2975, May 4, 1955]

§ 23.12 Wording, purpose, and use of approval plate.

(a) *Approval plate.* (1) Manufacturers shall attach, stamp, or mold an approval plate on each permissible device. The plate shall bear the seal of the Bureau of Mines and be inscribed as follows:

Permissible Telephone (or Permissible Signaling Device) Approval No. ----- Issued to the ----- Company.

(2) When deemed necessary, an appropriate caution statement shall be added. The size and position of the approval plate shall be satisfactory to the Bureau.

(b) *Purpose.* The approval plate is a label that identifies the device so that anyone can tell at a glance whether or not it is of the permissible type. By the plate, the manufacturer can point out that his device complies with the Bureau's requirements and that it has been approved for use in gassy or dusty mines.

(c) *Use.* Permission to place the Bureau's approval plate on his device obligates the manufacturer to maintain the quality of his product and to see that each device is constructed according to the drawings that have been accepted by the Bureau and are in the Bureau's files. Devices exhibiting changes in design that have not been authorized are not permissible and must not bear the Bureau's approval plate.

§ 23.13 Withdrawal of approval.

The Bureau reserves the right to rescind for cause at any time any approval granted under this part.

§ 23.14 Instructions for handling future changes in design.

All approvals are granted with the understanding that the manufacturer will make his device according to the drawings that he has submitted to the Bureau and that have been considered and included in the approval. Therefore, before making any changes in the design he shall obtain the Bureau's authorization of the change. The procedure is as follows:

(a) The manufacturer shall write to the Central Experiment Station, Bureau of Mines, 4800 Forbes Avenue, Pittsburgh, Pa. 15213, requesting an extension of his original approval and stating the change or changes desired. With this request, he should submit a revised drawing or drawings showing the changes in detail, together with one of each of the parts affected.

(b) The Bureau will consider the application and inspect the drawings and parts to determine whether it will be necessary to make any tests.

(c) If no tests are necessary, and the change meets the requirements, the applicant will be officially advised by the Bureau of Mines that his original approval has been extended to include the change.

(d) If tests are judged necessary, the applicant will be advised of the material that will be required and of the necessary deposit to cover the fee for the tests. In this case extension of approval will be granted upon satisfactory completion of the tests and full compliance with the requirements.

[Sched. 9B, 4 F.R. 1555, Apr. 11, 1939, as amended by Supp. 1, 20 F.R. 2975, May 4, 1955]

PART 24—SINGLE-SHOT BLASTING UNITS

Sec.	
24.0	Authorization and purpose.
24.1	Fees.
24.2	Applications.
24.3	Conditions governing investigations.
24.4	Requirements for approval.
24.5	Materials required for Bureau of Mines records.
24.6	Approvals.
24.7	Approval plate.
24.8	Withdrawal of approval.
24.9	Future changes in design.

AUTHORITY: The provisions of this Part 24 issued under secs. 2, 3, 5, 36 Stat. 370, as amended, sec. 212, 66 Stat. 709; 30 U.S.C. 3, 5, 7, 482.

SOURCE: The provisions of this Part 24 contained in Schedule 12D, 10 F.R. 14895, Dec. 11, 1945, unless otherwise noted.

§ 24.0 Authorization and purpose.

(a) Investigations conducted under this part are authorized by the act of Congress (37 Stat. 681) approved February 25, 1913. This act, as amended June 30, 1932 (47 Stat. 410), contains the following provisions in regard to fees charged for investigations by the Bureau of Mines: