The Air Transport Association of America concurred in this action provided the Altoona, Pa., control area extension (Airspace Docket No. 60–WA–236) is designated concurrently with this action.

The designation of the Altoona control area extension will be concurrent with the designation of Victor 501.

Interested persons have been afforded an opportunity to participate in the making of the rules herein adopted, and due consideration has been given to all relevant matter presented.

The substance of the proposed amendments having been published, therefore, pursuant to the authority delegated to me by the Administrator (25 F.R. 12582) and for the reasons stated in the notice, the following actions are taken:

1. In Part 600 (14 CFR Part 600) the following section is added:

§ 600.6501 VOR Federal airway No. 501 (Martinsburg, W. Va., to Wellsville, N.Y.).

From the Martinsburg, W. Va., VORTAC via the St. Thomas, Pa., VOR; Philipsburg, Pa., VORTAC; Slate Run, Pa., VOR; to the Wellsville, N.Y., VOR.

2. In Part 601 (14 CFR Part 601) the following section is added:

§ 601.6501 VOR Federal airway No. 501 control areas (Martinsburg, W. Va., to Wellsville, N.Y.).

All of VOR Federal airway No. 501.

These amendments shall become effective 0001 e.s.t., March 9, 1961.

(Sec. 307(a), 72 Stat. 749; 49 U.S.C. 1348)

Issued in Washington, D.C., on January 16, 1961.

D. D. THOMAS,
Director, Bureau of Air Traffic Management.

[F.R. Doc. 61–546; Filed, Jan. 23, 1961; 8:45 a.m.]

[Airspace Docket No. 60–NY–105]

PART 600—DESIGNATION OF FEDERAL AIRWAYS

PART 601—DESIGNATION OF THE CONTINENTAL CONTROL AREA, CONTROL AREAS, CONTROL ZONES, REPORTING POINTS, POSITIVE CONTROL ROUTE SEGMENTS, AND POSITIVE CONTROL AREAS

Revocation of Segment of Federal Airway, Associated Control Areas and Reporting Points

On October 8, 1960, a notice of proposed rule making was published in the FEDERAL REGISTER (25 F.R. 9686) stating that the Federal Aviation Agency proposed to revoke the segment of Green Federal airway No. 4 between Zanesville, Ohio, and Philadelphia, Pa., its associated control areas and reporting points.

No adverse comments were received regarding the proposed amendments.

Interested persons have been afforded an opportunity to participate in the making of the rules herein adopted, and due consideration has been given to all relevant matter presented.

The substance of the proposed amendments having been published, therefore, pursuant to the authority delegated to me by the Administrator (25 F.R. 12582) and for the reasons stated in the notice, the following actions are taken:

1. In § 600.14 (14 CFR 600.14; 25 F.R. 2011, 8741) the following changes are made:

(a) In the caption "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Philadelphia, Pa.)*" is deleted and "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Zanesville, Ohio)*" is substituted therefor.

(b) In the text "Zanesville, Ohio, nondirectional radio beacon; Wheeling, W. Va., nondirectional radio beacon; Pittsburgh, Pa., radio range station; New Alexandria, Pa., nondirectional radio beacon; Altoona, Pa., radio range station; Harrisburg, Pa., radio range station; the intersection of the east course of the Harrisburg, Pa., radio range and the southwest course of the Philadelphia, Pa., radio range; Philadelphia, Pa., radio range station to the Philadelphia International Airport, Philadelphia, Pa." is deleted and "to the Zanesville, Ohio, RBN." is substituted therefor.

2. In the caption of § 601.14 (14 CFR 601.14; 25 F.R. 2011) "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Philadelphia, Pa.)*" is deleted and "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Zanesville, Ohio)*" is substituted therefor.

3. In § 601.4014 (14 CFR 601.4014; 25 F.R. 2011, 7620) the following changes are made:

(a) In the caption "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Philadelphia, Pa.)*" is deleted and "*(Los Angeles, Calif., to Amarillo, Tex., and Wichita, Kans., to Zanesville, Ohio.)*" is substituted therefor.

(b) In the text "Columbus, Ohio, radio range station; Zanesville, Ohio, nondirectional radio beacon; Wheeling, W. Va., nondirectional radio beacon; Pittsburgh, Pa., radio range station; New Alexandria, Pa., nondirectional radio beacon; Altoona, Pa., radio range station; Harrisburg, Pa., radio range station; Philadelphia, Pa., radio range station." is deleted and "Columbus, Ohio, RR." is substituted therefor.

These amendments shall become effective 0001 e.s.t. March 9, 1961.

(Sec. 307(a), 72 Stat. 749; 49 U.S.C. 1348)

Issued in Washington, D.C., on January 16, 1961.

D. D. THOMAS,
Director, Bureau of Air Traffic Management.

F.R. Doc. 61–547; Filed, Jan. 23, 1961; 8:46 a.m.]

[Airspace Docket No. 60–NY–162]

PART 600—DESIGNATION OF FEDERAL AIRWAYS

PART 601—DESIGNATION OF THE CONTINENTAL CONTROL AREA, CONTROL AREAS, CONTROL ZONES, REPORTING POINTS, POSITIVE CONTROL ROUTE SEGMENTS, AND POSITIVE CONTROL AREAS

Modification of Federal Airways and Domestic VOR Reporting Points

The purpose of these amendments to §§ 600.6188, 600.6164, 600.6232, 600.6039, 601.7001, 601.6164, and 601.6188 of the regulations of the Administrator is to change the name of the Stroudsburg, Pa., VOR to the Tannersville, Pa., VORTAC.

This name change will require a modification in the descriptions of VOR Federal airways No. 188, 164, 232, and 39 and in the section pertaining to domestic VOR reporting points. Such action is taken herein.

Since the changes effected by these amendments impose no additional burden on any person, notice and public procedure thereon are unnecessary. However, since it is necessary that sufficient time be allowed to permit appropriate changes to be made on aeronautical charts, these amendments will become effective more than 30 days after publication.

In consideration of the foregoing, and pursuant to the authority delegated to me by the Administrator (25 F.R. 12582), the following actions are taken:

1. In § 600.6188 (25 F.R. 634, 860, 1940) the following changes are made:

(a) In the caption "*Stroudsburg, Pa.*" is deleted and "*Tannersville, Pa.*" is substituted therefor.

(b) In the text "Stroudsburg, Pa., VOR" is deleted and "Tannersville, Pa., VORTAC." is substituted therefor.

2. In § 600.6164 (25 F.R. 634, 1940) the following changes are made:

(a) In the caption "*Stroudsburg, Pa.*" is deleted and "*Tannersville, Pa.*" is substituted therefor.

(b) In the text "Stroudsburg, Pa., VOR" is deleted and "Tannersville, Pa., VORTAC." is substituted therefor wherever it appears.

3. In the text of § 600.6232 (14 CFR 600.6232, 25 F.R. 3154) "Stroudsburg, Pa., VOR to the INT of the Stroudsburg VOR 114°" is deleted and "Tannersville, Pa., VORTAC to the INT of the Tannersville VORTAC 114° True" is substituted therefor.

4. In the text of § 600.6039 (14 CFR 600.6039, 25 F.R. 1664, 2662, 10342) "Stroudsburg, Pa., VOR;" is deleted and "Tannersville, Pa., VORTAC;" is substituted therefor.

5. In the text of § 601.7001 (14 CFR 601.7001) "Stroudsburg, Pa., omnirange station." is deleted and "Tannersville, Pa., VORTAC." is added.

6. In the caption of § 601.6164 (25 F.R. 634, 1940) *"Stroudsburg, Pa."* is deleted and *"Tannersville, Pa."* is substituted therefor.

7. In the caption of § 601.6188 (14 CFR 601.6188, 25 F.R. 634, 860, 1940) *"Stroudsburg, Pa."* is deleted and *"Tannersville, Pa."* is substituted therefor.

These amendments shall become effective 0001 e.s.t. March 9, 1961.

(Sec. 307(a), 72 Stat. 749; 49 U.S.C. 1348)

Issued in Washington, D.C., on January 17, 1961.

D. D. THOMAS,
Director, Bureau of Air Traffic Management.

[F.R. Doc. 61-548; Filed, Jan. 23, 1961; 8:46 a.m.]

[Airspace Docket No. 60-WA-236]

PART 601—DESIGNATION OF THE CONTINENTAL CONTROL AREA, CONTROL AREAS, CONTROL ZONES, REPORTING POINTS, POSITIVE CONTROL ROUTE SEGMENTS, AND POSITIVE CONTROL AREAS

Designation of Control Area Extension

On October 20, 1960, a notice of proposed rule making was published in the FEDERAL REGISTER (25 F.R. 10034) stating that the Federal Aviation Agency proposed to designate a control area extension at Altoona, Pa.

No adverse comments were received regarding the proposed amendment.

Interested persons have been afforded an opportunity to participate in the making of the rule herein adopted, and due consideration has been given to all relevant matter presented.

The substance of the proposed amendment having been published, therefore, pursuant to the authority delegated to me by the Administrator (25 F.R. 12582) and for the reasons stated in the notice, Part 601 (14 Part CFR 601) is amended by adding the following section:

§ 601.1302 Control area extension (Altoona, Pa.).

The airspace N of the Altoona VOR bounded on the E by a line 5 miles W of and parallel to the 358° True radial of the St. Thomas, Pa., VOR, on the S by VOR Federal airway No. 12, on the NW by VOR Federal airway No. 35 and on the N by VOR Federal airway No. 276.

This amendment shall become effective 0001 e.s.t. March 9, 1961.

(Sec. 307(a), 72 Stat. 749; 49 U.S.C. 1348)

Issued in Washington, D.C., on January 16, 1961.

D. D. THOMAS,
Director, Bureau of Air Traffic Management.

[F.R. Doc. 60-543; Filed, Jan. 23, 1961; 8:45 a.m.]

Title 21—FOOD AND DRUGS

Chapter I—Food and Drug Administration, Department of Health, Education, and Welfare

SUBCHAPTER B—FOOD AND FOOD PRODUCTS

PART 121—FOOD ADDITIVES

Subpart C—Food Additives Permitted in Animal Feed or Animal Feed Supplements

Subpart D—Food Additives Permitted in Food for Human Consumption

ETHOXYQUIN IN ANIMAL FEED AND IN FOOD FOR HUMAN CONSUMPTION

I. The Commissioner of Food and Drugs, having evaluated the data submitted in a petition filed by Monsanto Chemical Company, 800 North Lindburgh Boulevard, St. Louis 66, Missouri, and other relevant material, has concluded that the following amendments to the food additive regulations should issue in conformance with section 409 of the Federal Food, Drug, and Cosmetic Act, with respect to the food additive ethoxyquin as a preservative in animal feed. Therefore, pursuant to the provisions of the act (sec. 409(c)(1), 72 Stat. 1786; 21 U.S.C. 348(c)(1)), and under the authority delegated to the Commissioner by the Secretary of Health, Education, and Welfare (25 F.R. 8625): *It is ordered,* That § 121.202 be amended to provide for the use of ethoxyquin in all animal feeds. As amended, this section reads as follows:

§ 121.202 Ethoxyquin in animal feeds.

Ethoxyquin (1,2-dihydro-6-ethoxy-2,2,4-trimethylquinoline) may be safely used in animal feeds, when incorporated therein in accordance with the following prescribed conditions:

(a) It is intended for use only: (1) As a chemical preservative for retarding oxidation of carotene, xanthophylls, and vitamins A and E in animal feed and fish food and, (2) as an aid in preventing the development of organic peroxides in canned pet food.

(b) The maximum quantity of the additive permitted to be used and to remain in or on the treated article shall not exceed 150 parts per million (0.015 percent).

(c) To assure safe use of the additive, the label and labeling of the food additive container and that of any intermediate premixes prepared therefrom shall contain, in addition to other information required by the act:

(1) The name of the additive, ethoxyquin (1,2-dihydro-6-ethoxy-2,2,4-trimethylquinoline).

(2) A statement of the concentration or strength contained therein.

(3) Adequate use directions to provide for a finished article with the proper concentration of the additive as provided in paragraph (b) of this section, whether or not intermediate premixes are to be used.

II. Based upon an evaluation of the data before him, and proceeding under the authority of the Food, Drug, and Cosmetic Act (sec. 409(c)(4), 72 Stat. 1786; 21 U.S.C. 348(c)(4)), the Commissioner of Food and Drugs has further concluded that a tolerance limitation is required in order to assure that the use of the food additive ethoxyquin (1,2-dihydro - 6-ethoxy - 2,2,4-trimethylquinoline) will not cause the edible tissues of animals to be unsafe when these animals have been fed on feed treated with the additive in accordance with § 121.202. Therefore, the following tolerances are established and Subpart D is amended by changing § 121.1001 to read as follows:

§ 121.1001 Tolerances for residues of ethoxyquin.

In order to provide for the safe use of the additive in feed prepared in accordance with §§ 121.201 and 121.202, tolerances are established for residues of ethoxyquin in or on edible products of animals as follows:

5.0 parts per million (0.0005 percent) in or on the uncooked fat of meat from animals except poultry.

3.0 parts per million (0.0003 percent) in or on the uncooked liver and fat of poultry.

0.5 part per million (0.00005 percent) in or on the uncooked muscle meat of animals.

0.5 part per million (0.00005 percent) in poultry eggs.

Zero in milk.

Any person who will be adversely affected by the foregoing order may at any time prior to the thirtieth day from the date of its publication in the FEDERAL REGISTER file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, D.C., written objections thereto. Objections shall show wherein the person filing will be adversely affected by the order and specify with particularity the provisions of the order deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought. Objections may be accompanied by a memorandum or brief in support thereof. All documents shall be filed in quintuplicate.

Effective date. This order shall be effective on the date of its publication in the FEDERAL REGISTER.

(Sec. 409(c)(1), (4), 72 Stat. 1786; 21 U.S.C. 348(c)(1), (4))

Dated: January 16, 1961.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

[F.R. Doc. 61-557; Filed, Jan. 23, 1961; 8:47 a.m.]

Title 22—FOREIGN RELATIONS

Chapter I—Department of State

[Dept Reg. 108.458]

PART 41—VISAS: DOCUMENTATION OF NONIMMIGRANTS UNDER THE IMMIGRATION AND NATIONALITY ACT, AS AMENDED

Nonimmigrant Documentary Waivers

Part 41, Chapter I, Title 22 of the Code of Federal Regulations is amended by revising the first sentence of § 41.6(e)(1) to add Cuba to the list of countries or areas named therein. The amended sentence reads as follows:

§ 41.6 **Nonimmigrants not required to present passports, visas, or border-crossing identification cards.**

* * * * *

(e) *Aliens in immediate transit*—(1) *Aliens in bonded transit.* A visa and a passport shall not be required of an alien, other than an alien who is a citizen of Albania, Bulgaria, Communist-controlled China ("Chinese People's Republic"), Cuba, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, North Korea ("Democratic People's Republic of Korea"), North Viet-Nam ("Democratic Republic of Viet-Nam"), Poland, Rumania, the Soviet Zone of Germany ("German Democratic Republic"), or the Union of Soviet Socialist Republics, and resident of one of said countries, who is being transported in immediate and continuous transit through the United States in accordance with the terms of a contract, including a bonding agreement, entered into between the transportation line and the Attorney General under the provisions of section 238(d) of the Act, to insure such immediate and continuous transit through, and departure from, the United States en route to a specifically designated foreign country.

The provisions of section 4 of the Administrative Procedure Act (60 Stat. 238; 5 U.S.C. 1003) relative to notice of proposed rule making and delayed effective date are inapplicable to this order because the regulation contained therein involves foreign affairs functions of the United States.

Dated: January 18, 1961.

JOHN W. HANES, Jr.,
Administrator, Bureau of Security and Consular Affairs, Department of State.

Dated: January 18, 1961.

J. M. SWING,
Commissioner of Immigration and Naturalization, Immigration and Naturalization Service, Department of Justice.

[F.R. Doc. 61-578; Filed, Jan. 23, 1961; 8:49 a.m.]

Title 30—MINERAL RESOURCES

Chapter I—Bureau of Mines, Department of the Interior

SUBCHAPTER E—MECHANICAL EQUIPMENT FOR MINES; TESTS FOR PERMISSIBILITY AND SUITABILITY; FEES

[Bureau of Mines Schedule 31]

PART 36—MOBILE DIESEL-POWERED TRANSPORTATION EQUIPMENT FOR GASSY NONCOAL MINES AND TUNNELS

Procedures for Testing for Permissibility

On pages 10534–40 of the FEDERAL REGISTER of November 3, 1960, there was published a notice and text of proposed regulations to be included as Part 36 of Subchapter E of Title 30, Code of Federal Regulations, prescribing procedures for testing for permissibility and approval of Mobile Diesel-Powered Transportation Equipment for Gassy Noncoal Mines and Tunnels.

Interested persons were given 30 days within which to submit written comments, suggestions, or objections, concerning the proposed regulations. Objections were received from several sources to the restriction of the use of electrical components to headlight units, as described in § 36.32. However, until an adequate safeguard is available, such as a continuous methane-monitoring system with an automatic power shutoff device to deenergize electrical components in dangerous atmospheres, electrical components will be restricted to headlight units.

Some suggestions were considered valid and reasonable for clarifying purposes. Minor editorial corrections have been made. As a result of the suggestions, clarifying language has been added to the text of the Regulations as follows:

1. In subparagraph (3) of paragraph (b) of § 36.25 after the word "off" in the eighth line the word "automatically" is inserted.

2. In subparagraph (1) of paragraph (c) of § 36.25 in the next to the last and last lines delete the phrase "which is used as a flame arrester" and also delete the commas before and after this phrase. At the end of subparagraph (1) of paragraph (c) of § 36.25 add the sentence, "When the cooling box is used as a flame arrester, one safety device may be accepted provided it controls a safe minimum water level in the cooling box and also prevents the final exhaust temperature from exceeding 185° F."

All other comments were considered fully preliminary to adopting the regulations in the present form as set forth below. The regulations shall be effective on the date of publication in the FEDERAL REGISTER.

MARLING J. ANKENY,
Director, Bureau of Mines.

Approved: January 16, 1961.

FRED A. SEATON,
Secretary of the Interior.

Part 36 of Title 30 reads as follows:

AUTHORITY: §§ 36.1 to 36.51 issued under sec. 5, 36 Stat. 370, as amended, 30 U.S.C. 7. Interpret or apply secs. 2, 3, 36 Stat. 370, as amended; 30 U.S.C. 3, 5.

Subpart A—General Provisions

§ 36.1 Purpose.

The regulations in this part set forth the requirements for mobile diesel-powered transportation equipment to procure their approval and certification as permissible for use in gassy noncoal mines and tunnels; procedures for applying for such certification; and fees.

§ 36.2 Definitions.

As used in this part:

(a) "Mobile diesel-powered transportation equipment" means equipment that is (1) used for transporting the product being mined or excavated, or for transporting materials and supplies used in mining or excavating operations; (2) mounted on wheels or crawler treads (tracks); and (3) powered by a diesel engine as the prime mover.

(b) "Permissible", as applied to mobile diesel-powered transportation equipment, means that the complete assembly conforms to the requirements of this part, and that a certificate of approval to that effect has been issued.

(c) "Bureau" means the United States Bureau of Mines.

(d) "Certificate of approval" means a formal document issued by the Bureau stating that the complete assembly has met the requirements of this part for mobile diesel-powered transportation equipment and authorizing the use and attachment of an official approval plate so indicating.

(e) "Applicant" means an individual, partnership, company, corporation, association, or other organization, that designs, manufactures, assembles, or controls the assembly and that seeks a certificate of approval or preliminary testing of mobile diesel-powered transportation equipment for use in gassy noncoal mines and tunnels.

(f) "Noncoal mine" means an underground mine or tunnel in which the product being mined or excavated is incombustible.

(g) "Gassy noncoal mine" means a noncoal mine or tunnel in which flammable gas has been ignited, or in which a concentration of 0.25 percent or more, by volume, of flammable gas has been detected in the atmosphere of any open workings.

(h) "Diesel engine" means a compression-ignition, internal-combustion engine that utilizes a low-volatile hydrocarbon (diesel) fuel.

(i) "Low-volatile hydrocarbon (diesel) fuel" means a liquid fuel which has an open-cup flash point of 140° F. or more and a sulfur content of 0.5 percent or less by weight.

(j) "Component" means a piece, part, or fixture of mobile diesel-powered transportation equipment that is essential to its operation as a permissible assembly.

(k) "Subassembly" means a group or combination of components.

(l) "Explosion proof" means that a component or subassembly is so constructed and protected by an enclosure and/or flame arrester(s) that if a flammable mixture of gas is ignited within the enclosure it will withstand the resultant pressure without damage to the enclosure and/or flame arrester(s). Also the enclosure and/or flame arrester(s) shall prevent the discharge of flame or ignition of any flammable mixture that surrounds the enclosure.

(m) "Flammable mixture" means a mixture of gas, such as methane, natural gas, or similar hydrocarbon gas with normal air, that will propagate flame or explode violently when initiated by an incendive source.

(n) "Flame arrester" means a device so constructed that flame or sparks from the diesel engine cannot propagate an explosion of a flammable mixture through it.

(o) "Normal operation" means that each component and the entire assembly of the mobile diesel-powered transportation equipment performs the functions for which they were designed.

(p) "Fuel-air ratio" means the composition of the mixture of fuel and air in the combustion chamber of the diesel engine expressed as weight—pound of fuel per pound of air.

§ 36.3 Consultation.

By appointment, applicants or their representatives may visit the Bureau of Mines, 4800 Forbes Avenue, Pittsburgh 13, Pennsylvania, to discuss with qualified Bureau personnel proposed mobile diesel-powered transportation equipment to be submitted in accordance with the regulations of this part. No charge is made for such consultation and no written report thereof will be submitted to the applicant.

§ 36.4 Mobile diesel-powered transportation equipment for which certificates of approval may be granted.

Certificates of approval will be granted for completely assembled mobile diesel-powered transportation equipment only. Subassemblies or components may be granted letters of certification in accordance with § 36.5 of this part.

§ 36.5 Letters of certification.

When a component or subassembly meets all of the applicable requirements of Subparts B and C of this part, and also its normal operation will not be affected by connection to adjacent components or subassemblies, the Bureau will issue to the applicant, upon his request, a letter of certification informing him that additional inspection or tests of the component or subassembly will not be required when it is incorporated without modification in a piece of completely assembled mobile diesel-powered transportation equipment. The applicant may cite this letter of certification to another applicant who seeks approval and certification of his completely assembled mobile diesel-powered transportation equipment and who desires to incorporate the component or subassembly in such equipment.

§ 36.6 Applications.

(a) No investigation or testing will be undertaken by the Bureau except pursuant to a written application, in duplicate, accompanied by a check, bank draft, or money order, payable to the United States Bureau of Mines, to cover the fees; and all drawings, specifications, descriptions, and related materials. The application and all related matters and correspondence concerning it shall be addressed to the Bureau of Mines, 4800 Forbes Avenue, Pittsburgh 13, Pennsylvania, Attention: Chief, Branch of Electrical-Mechanical Testing.

(b) Drawings, specifications, and descriptions shall be adequate in detail to identify fully the complete assembly, components, and subassemblies. Drawings, specifications, and descriptions shall include:

(1) Assembly drawing(s) showing the overall dimensions of the equipment, location and capacity of the fuel tank, location of flame arresters, exhaust-gas conditioner and its water-supply tank, if applicable, exhaust-gas dilution system, and other details that are essential to the functioning of the equipment.

(2) Detailed drawings showing the intake, combustion, and exhaust systems of the diesel engine, including joints and gaskets; the turbulence or precombustion chamber, if applicable; injector assembly and nozzle details; and any surfaces that form the combustion chamber or part thereof, such as the cylinder head, piston and cylinder liner; and other features that may affect permissibility, such as exhaust-gas conditioner and flame arresters.

(3) A schematic drawing of the fuel system showing piping, connections, fuel filters, fuel-injection pump, and mechanical governor assembly. All components shall be identified to permit adjustment, as necessary, and the location of seals or locks to prevent tampering shall be indicated.

(4) Drawing(s) specifying the kind of material and detailed dimensions of the components of explosion-proof enclosures, including joints and openings.

(5) Drawing(s) showing the construction of headlights, battery boxes, including seals or locks, and method of mounting.

(6) Other drawings, specifications, or descriptions identifying any feature that the Bureau considers necessary for certification of the particular mobile diesel-powered transportation equipment.

(c) Shipment of the mobile diesel-powered transportation equipment or component part or subassembly as the case may be, shall be deferred until the Bureau has notified the applicant that the application will be accepted. Shipping instructions will be issued by the Bureau and shipping charges shall be prepaid by the applicant. Upon completion of the investigation and notification thereof to the applicant by the Bureau, the applicant shall remove his equipment promptly from the test site (see § 36.40).

(d) The application shall state that the equipment is completely developed and of the design and materials that the applicant believes to be suitable for a finished marketable product or is a completely developed component or subassembly suitable for incorporation in a finished marketable complete assembly of mobile diesel-powered transportation equipment. If the final design of a component depends upon results of the Bureau's tests, this shall be so stated in the application.

(e) For a complete investigation leading to approval and certification, the applicant shall furnish a complete operable assembly for inspecting and testing. Spare parts and expendable components, subject to wear in normal operation, shall be supplied by the applicant to permit continuous operation of the equipment during test periods. If special tools are necessary to disassemble any component for inspection or test, the applicant shall furnish these with the equipment to be tested.

(f) With each application, the applicant shall submit evidence of how he proposes to inspect his completely assembled mobile diesel-powered transportation equipment at the place of manufacture or assembly before shipment to

purchasers. Ordinarily such inspection is recorded on a factory inspection form and the applicant shall furnish to the Bureau a copy of his factory inspection form or equivalent with his application. The form shall direct attention to the points that must be checked to make certain that all components of the assembly are in proper condition, complete in all respects, and in agreement with the drawings, specifications, and descriptions filed with the Bureau.

(g) With the application, the applicant shall furnish to the Bureau complete instructions for operating and servicing his equipment. After completing the Bureau's investigation, if any revision of the instructions is required, a revised copy thereof shall be submitted to the Bureau for inclusion with the drawings and specifications.

§ 36.7 Fees.

(a)

1. Preliminary review of drawings, specifications, descriptions, and related data, each complete assembly	$35.00
2. Complete tests to determine composition of exhaust gas from diesel engine under various load and speed conditions[1]	400.00
3. Tests to determine the effectiveness of air intake or exhaust flame arrester in an intake or exhaust system	120.00
4. Check tests on redesigned components or equipment in item 3 above requiring less than 20 tests	60.00
5. Complete inspection of an intake or exhaust flame arrester	35.00
6. Complete inspection of manifolds, exhaust conditioners, and other components that comprise the intake and exhaust systems	45.00
7. Complete investigation of headlight, storage-battery type[2]	270.00
8. Complete investigation of headlight, dry-cell type[2]	160.00
9. Tests to determine the cooling efficiency of an exhaust conditioner and rate of water consumption	45.00
10. Each final inspection of completely assembled equipment	80.00
11. Tests of exhaust gas dilution not made concurrently with final inspection of completely assembled equipment	55.00
12. Final examination and recording of drawings and specifications requisite to the issuance of a certificate of approval	45.00
13. Final examination and recording of drawings and specifications requisite to the issuance of a letter of certification	30.00
14. Examining and recording drawings and specifications requisite to the issuance of an extension of certification, each 4 hours or fraction thereof	15.00
15. Tests conducted in the field shall require the same fee as when conducted on the Bureau's premises. In addition the applicant shall reimburse the Bureau for such travel, subsistence, and incidental expenses as may be required by its representative(s) in accordance with the allowances stated in the standard "Government Travel Regulations."	

[1] Fee for partial tests shall be in proportion to the work done but the minimum shall be $100.00. If the applicant requests discontinuation of the investigation after preparations for engine tests have begun the minimum fee shall be $100.00 regardless of the progress of the tests.

[2] Maximum normal fee; actual fee as detailed in Part 20 of Subchapter D of this chapter (Schedule 10, revised, the latest revision of which is Schedule 10C).

(b) If an applicant is unable to determine the exact fee that should be submitted with his application, the information will be provided, upon request, addressed to the Bureau of Mines, 4800 Forbes Avenue, Pittsburgh 13, Pennsylvania, Attention: Chief, Branch of Electrical-Mechanical Testing. The surplus from any fee submitted in excess of requirements will be refunded to the applicant upon completion or termination of the investigation.

§ 36.8 Date for conducting tests.

The date of acceptance of an application will determine the order of precedence for testing when more than one application is pending, and the applicant will be notified of the date on which tests will begin. If a complete assembly, or component, or subassembly fails to meet any of the requirements, it shall lose its order of precedence. However, if the cause of failure is corrected, testing will be resumed after completing such test work as may be in progress.

§ 36.9 Conduct of investigations, tests, and demonstrations.

(a) Prior to the issuance of a certificate of approval or a letter of certification, as the case may require, only Bureau personnel, representatives of the applicant, and such other persons as may be mutually agreed upon may observe the investigations or tests. The Bureau shall hold as confidential and shall not disclose principles or patentable features prior to certification, nor shall it disclose any details of drawings, specifications, descriptions, or related materials. After the issuance of a certificate of approval, the Bureau may conduct such public demonstrations and tests of the approved mobile diesel-powered transportation equipment for gassy noncoal mines and tunnels as it deems appropriate. The conduct of all investigations, tests, and demonstrations shall be under the sole direction and control of the Bureau, and any other persons shall be present only as observers, except as noted in paragraph (b) of this section.

(b) When requested by the Bureau, the applicant shall provide assistance in disassembling parts for inspection, preparing parts for testing, and operating equipment during the tests.

§ 36.10 Certificate of approval.

(a) Upon completion of investigation of a complete assembly of mobile diesel-powered transportation equipment, the Bureau will issue to the applicant either a certificate of approval or a written notice of disapproval, as the case may require. No informal notification of approval will be issued. If a certificate of approval is issued, no test data or detailed results of tests will accompany it. If a notice of disapproval is issued, it will be accompanied by details of the defects, with a view to possible correction. The Bureau will not disclose, except to the applicant, any information on mobile diesel-powered transportation equipment upon which a notice of disapproval has been issued.

(b) A certificate of approval will be accompanied by a list of drawings, specifications, and related material covering the details of design and construction of equipment upon which the certificate of approval is based. Applicants shall keep exact duplicates of the drawings, specifications, and descriptions that relate to equipment which has received a certificate of approval, and these are to be adhered to exactly in production of the certified equipment.

(c) A certificate of approval will be accompanied by an appropriate caution statement specifying the conditions to be observed for operating and maintaining the equipment and to preserve its permissible status.

§ 36.11 Approval plates.

(a) A certificate of approval will be accompanied by a photograph of an approval plate, bearing the seal of the Bureau of Mines and spaces for the approval number, the type, the serial number, and ventilation requirement; the name of the complete assembly; and the name of the applicant.

(b) The applicant shall reproduce the design as a separate plate, which shall be attached, in a suitable place, on each complete assembly to which it relates. The size, type, and method of attaching and location of an approval plate are subject to the Bureau's approval. The method of affixing the approval plate shall not impair the permissibility (explosion-proof) features of the complete assembly of mobile diesel-powered transportation equipment.

(c) The approval plate identifies the equipment, to which it is attached, as permissible and is the applicant's guarantee that the equipment complies with the requirements of this part. Without an approval plate no equipment is considered permissible under the provisions of this part.

(d) Use of the approval plate obligates the applicant to whom the certificate of approval was granted to maintain in his plant the quality of each complete assembly bearing it and guarantees that it is manufactured and assembled according to the drawings, specifications, and descriptions upon which a certificate of approval was based.

§ 36.12 Changes after certification.

If an applicant desires to change any feature of certified equipment, he shall first obtain the Bureau's approval of the change, pursuant to the following procedure:

(a) Application shall be made as for an original certificate of approval, requesting that the existing certification be extended to cover the proposed changes and shall be accompanied by

drawings, specifications, and related data, showing the changes in detail.

(b) The application will be examined by the Bureau to determine whether inspection and testing of the modified equipment or component or subassembly will be required. Testing will be necessary if there is a possibility that the modification may affect adversely the performance of the equipment. The Bureau will inform the applicant whether such testing is required; the component, subassembly, and related material to be submitted for that purpose; and the fee.

(c) If the proposed modification meets the requirements of this part, a formal extension of certification will be issued, accompanied by a list of new and corrected drawings and specifications to be added to those already on file as the basis for the extension of certification.

§ 36.13 Withdrawal of certification.

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

Subpart B—Construction and Design Requirements

§ 36.20 Quality of material, workmanship, and design.

(a) The Bureau will test only equipment that in the opinion of its qualified representatives is constructed of suitable materials, is of good quality workmanship, based on sound engineering principles, and is safe for its intended use. Since all possible designs, arrangements, or combinations of components and materials cannot be foreseen, the Bureau reserves the right to modify the construction and design requirements of subassemblies or components and tests thereof to obtain the same degree of protection as provided by the tests described in Subpart C of this part.

(b) The quality of material, workmanship, and design shall conform to the applicable requirements of § 18.24 of Part 18 of Subchapter D of this Chapter (Schedule 2, revised, the latest revision of which is Schedule 2F), titled "Detailed requirements for Class I parts."

§ 36.21 Engine for equipment considered for certification.

Only equipment powered by a compression-ignition (diesel) engine and burning diesel fuel (see § 36.2(i)) will be considered for approval and certification. The starting mechanism shall be actuated pneumatically, hydraulically, or by other methods acceptable to the Bureau. Electric starting shall not be accepted. Engines burning other fuels or utilizing volatile fuel starting aids will not be investigated.

§ 36.22 Fuel-injection system.

This system shall be so constructed that the quantity of fuel injected can be controlled at a desired maximum value and shall be so arranged that this adjustment can be changed only after breaking a seal or unlocking a compartment. Provision shall be made for convenient adjustment of the maximum fuel-injection rate to that required for safe operation at different altitudes (elevations above sea level). The governor, controlling engine speed and fuel injection, shall not directly affect airflow to the engine and provision shall be made to seal or lock its adjustment compartment. Filters shall be provided to insure that only clean fuel will reach the injection pump or injectors.

§ 36.23 Engine intake system.

(a) *Construction.* The intake system (exclusive of the air cleaner) shall be designed to withstand an internal pressure equal to 4 times the maximum pressure observed in explosion tests, which are described in § 36.46 of Subpart C of this part, or a pressure of 125 pounds per square inch, whichever is the lesser. Joints in the intake system shall be formed by metal flanges fitted with metal or metal-clad gaskets, positively positioned by through bolts or other suitable means for secure assembly, or shall meet the requirements for flanged metal-to-metal flame-proof joints as required in paragraph (b) of § 36.20 of this subpart. Either type of joint shall withstand repeated explosions within the intake system without permanent deformation and shall prevent the propagation of flame through the joint into a surrounding flammable mixture.

(b) *Intake flame arrester.* (1) The intake system shall include a flame arrester that will prevent an explosion within the system from propagating to a surrounding flammable mixture. This flame arrester shall be between the air cleaner and the intake manifold and shall be attached so that it may be removed for inspecting, cleaning, or repairing. Its construction shall be such that it may be cleaned readily. The flame arrester shall be of rugged construction to withstand the effects of repeated explosions within the intake system, and the material of construction shall resist deterioration in service. It shall be so mounted in the equipment assembly that it is protected from accidental external damage.

(2) The parts of any flame arrester shall be positively positioned to produce a flame path that will arrest the propagation of an explosion and shall be so designed that improper assembly is impossible. In flame arresters of the spaced-plate type, the thickness of the plates shall be at least 0.125 inch; spacing between the plates shall not exceed 0.018 inch; and the plates forming the flame path shall be at least 1 inch wide. The unsupported length of the plates shall be short enough that deformation during the explosion tests shall not exceed 0.002 inch. Corrosion-resistant metal shall be used to construct flame arresters.

(c) *Air shutoff valve.* The intake system shall include a valve, operable from the operator's compartment, to shut off the air supply to the engine. This valve shall be constructed to permit its operation only after the fuel supply to the engine is shut off. In reverse operation the valve must open fully before fuel can be supplied to the engine.

(d) *Air cleaner.* An air cleaner shall be included in the engine intake system and so arranged that only clean air will enter the flame arrester. The resistance to airflow shall not increase rapidly in dusty atmospheres. Filters of the self-cleansing (oil-bath) type will be considered satisfactory for this application. Provision, satisfactory to the Bureau, shall be made to prevent overfilling the oil-bath air cleaner.

(e) *Vacuum-gage connection.* A connection shall be provided in the intake system for temporary attachment of a vacuum gage to indicate the pressure drop under flow conditions. This opening shall be closed by a plug or other suitable device that is sealed or locked in place except when a gage is attached.

§ 36.24 Engine joints.

(a) *Cylinder head.* The joint between the cylinder head and block of the engine shall be fitted with a metal or metal-clad gasket satisfactory to the Bureau held securely in position by through bolts or other suitable means to prevent a change in alignment. This joint shall provide an adequate flame barrier with the gasket in place.

(b) *Valve guides.* Valve guides shall be long enough to form an adequate flame barrier along the valve stem.

(c) *Gaskets.* All metal or metal-clad gaskets shall maintain their tightness during repeated explosions within the engine and its intake and exhaust systems to prevent the propagation of flame.

§ 36.25 Engine exhaust system.

(a) *Construction.* The exhaust system of the engine shall be designed to withstand an internal pressure equal to 4 times the maximum pressure observed in explosion tests, which are described in § 36.46 of Subpart C of this part, or a pressure of 125 pounds per square inch, whichever is the lesser. The system shall withstand repeated internal explosions without permanent deformation or deterioration.

(b) *Exhaust flame arrester.* (1) The exhaust system of the engine shall be provided with a flame arrester to prevent propagation of flame or discharge of heated particles to a surrounding flammable mixture. The flame arrester shall be so positioned that only cooled exhaust gas will discharge through it and shall be so designed and attached that it can be removed for inspecting, cleaning, or repairing. Its construction shall be such that it can be cleaned readily. The flame arrester shall be of rugged construction to withstand the effects of repeated explosions within the exhaust system, and the material of construction shall resist deterioration in service. It shall be so mounted in the equipment assembly that it is protected from accidental external damage.

(2) A spaced-plate flame arrester for the exhaust system shall meet the same requirements as flame arresters for the intake system (see § 36.23(b)(2)).

(3) In lieu of a spaced-plate flame arrester, an exhaust-gas cooling box or conditioner may be used as the exhaust flame arrester provided that explosion tests demonstrate that the cooling box will arrest flame. When used as a flame arrester the cooling box shall be equipped with a device to shut off automatically the fuel supply to the engine at a safe minimum water level. A cooling box used as a flame arrester shall withstand

repeated explosion tests without permanent deformation. It shall be constructed of material, satisfactory to the Bureau, that will resist deterioration in service.

(c) *Exhaust cooling system.* (1) A cooling system shall be provided for the engine exhaust gas. The heat-dissipation capacity shall be capable of reducing the temperature of the undiluted exhaust gas to less than 170° F. at the point of discharge from the cooling system under any condition of engine operation acceptable to the Bureau. A device shall be provided that will automatically shut off the fuel supply to the engine immediately if the temperature of the exhaust gas exceeds 185° F. at the point of discharge from the cooling system. Provision shall be made, acceptable to the Bureau, to prevent restarting the engine after the fuel supply has been shut off automatically until the water supply in the cooling box has been replenished. When the cooling box is used as a flame arrester, one safety device may be accepted provided it controls a safe minimum water level in the cooling box and also prevents the final exhaust temperature from exceeding 185° F.

(2) Cooling shall be obtained by passing the exhaust gas through water or a dilute aqueous chemical solution held in a cooling box or conditioner, or by a spray of water or a dilute aqueous chemical solution that will enter the exhaust system near the outlet of the exhaust manifold, or a combination of the two methods. When a spray is used it shall be provided with a filtering device to protect the nozzle from clogging. Provisions shall be made for draining and cleaning all parts of the exhaust cooling system. Openings for draining and cleaning shall be closed and sealed or locked by a method satisfactory to the Bureau.

(3) The cooling system shall be constructed of corrosion-resistant metal suitable for the intended application.

(4) The cooling system shall store enough water or aqueous solution to permit operation of the engine at one-third load factor for eight hours. The minimum quantity of usable water or aqueous solution available for cooling shall equal the consumption for one hour with the engine operating at maximum load and speed multiplied by 8 and this product divided by 3.

(d) *Surface temperature of engine and exhaust system.* (1) The temperature of any external surface of the engine or exhaust system shall not exceed 400° F. under any condition of engine operation prescribed by the Bureau. Water-jacketed components shall have integral jackets and provision shall be made for positive circulation of water in the jackets and to automatically shut off the engine when the temperature in the cooling jacket(s) exceeds 212° F. Insulated coverings to control surface temperature are not acceptable.

(2) When a spray is used to reduce the temperature of the exhaust gas, it shall be located as near as practicable to the outlet of the exhaust manifold.

(3) Exterior surfaces of the exhaust system shall be designed to minimize accumulation and lodgement of dust or combustible substances and to permit ready access for cleaning.

(e) *Tightness of exhaust system.* All joints in the exhaust system shall be tight to prevent the flow of exhaust gas through them under any condition of engine operation prescribed by the Bureau. A tight system shall be obtained by the use of ground joints, or thin metal or metal-clad gaskets. All such joints shall be fitted with adequate through bolts and all gaskets shall be aligned and held firmly in position by the bolts or other suitable means. Such joints shall remain tight to prevent passage of flame or propagation of repeated internal explosions to a surrounding flammable mixture.

(f) *Dilution of exhaust gas.* (1) Provision shall be made to dilute the exhaust gas with air before it is discharged into the surrounding atmosphere. The discharged exhaust gas shall be so diluted with air that the mixture shall not contain more than 0.5 percent, by volume, of carbon dioxide; 0.01 percent, by volume, of carbon monoxide; 0.0025 percent, by volume, of oxides of nitrogen (calculated as equivalent nitrogen dioxide); or 0.0010 percent, by volume, of aldehydes (calculated as equivalent formaldehyde) under any condition of engine operation prescribed by the Bureau.

(2) The final diluted exhaust mixture shall be discharged in such a manner that it is directed away from the operator's compartment and also away from the breathing zones of persons required to be alongside the equipment.

(g) *Pressure-gage connection.* A connection shall be provided in the exhaust system for convenient, temporary attachment of a pressure gage at a point suitable for measuring the total back pressure in the system. The connection also shall be suitable for temporary attachment of gas-sampling equipment to the exhaust system. This opening shall be closed by a plug or other suitable device that is sealed or locked in place except when a gage or sampling tube is attached.

§ 36.26 Composition of exhaust gas.

(a) *Preliminary engine adjustment.* The engine shall be submitted to the Bureau by the applicant in such condition that it can be tested immediately at full load and speed. The preliminary liquid-fuel-injection rate shall be such that the exhaust will not contain black smoke and the applicant shall adjust the injection rate promptly to correct any adverse conditions disclosed by preliminary tests.

(b) *Final engine adjustment.* The liquid fuel supply to the engine shall be adjusted so that the undiluted exhaust gas shall contain not more than 0.30 percent, by volume, of carbon monoxide or 0.20 percent, by volume, of oxides of nitrogen (calculated as equivalent nitrogen dioxide, NO_2) under any conditions of engine operation prescribed by the Bureau when the intake air mixture to the engine contains 1.5±0.1 percent, by volume, of Pittsburgh natural gas.[3]

(c) *Coupling or adapter.* The applicant shall provide the coupling or adapter for connecting the engine to the Bureau's dynamometer.

NOTE: Preferably this coupling or adapter should be attached to the flywheel of the engine.

Clutches, transmissions, or torque converters ordinarily are not required in the coupling train.

§ 36.27 Fuel-supply system.

(a) *Fuel tank.* (1) The fuel tank shall not leak and shall be fabricated of metal at least 1/16 inch thick, welded at all seams, except that tanks of 5 gallons or less capacity may have thinner walls which shall be preformed or reinforced to provide good resistance to deflection. A drain plug (not a valve or petcock) shall be provided and locked in position. A vent opening shall be provided in the fuel filler cap of such design that atmospheric pressure is maintained inside the tank. The size of the vent opening shall be restricted to prevent fuel from splashing through it. The filler opening shall be so arranged that fuel can be added only through a self-closing valve at least 1 foot from the exhaust manifold of the engine, preferably below it. The self-closing valve shall constitute a fuel-tight closure when fuel is not being added. Any part of the self-closing valve that might become detached during the addition of fuel shall be secured to the tank by a chain or other fastening to prevent loss.

(2) The fuel tank shall have a definite position in the equipment assembly, and no provision shall be made for attachment of separate or auxiliary fuel tanks.

(3) Capacity of the fuel tank shall not exceed the amount of fuel necessary to operate the engine continuously at full load for approximately four hours.

(b) *Fuel lines.* All fuel lines shall be installed to protect them against damage in ordinary use and they shall be designed, fabricated, and secured to resist breakage from vibration.

(c) *Valve in fuel line.* A shutoff valve shall be provided in the fuel system, installed in a manner acceptable to the Bureau.

NOTE: This shutoff valve is in addition to the normal shutoff provided in the fuel-injection system and also in addition to the air-shutoff valve.

§ 36.28 Signal or warning device.

All mobile diesel-powered transportation equipment shall be provided with a bell, horn, or other suitable warning device convenient to the operator. Warning devices shall be operated manually or pneumatically.

§ 36.29 Brakes.

All mobile diesel-powered transportation equipment shall be equipped with

[3] Investigation has shown that for practical purposes, Pittsburgh natural gas (containing a high percentage of methane) is a satisfactory substitute for pure methane in these tests.

adequate brakes acceptable to the Bureau.

§ 36.30 Rerailing device.

All mobile diesel-powered transportation equipment designed to travel on rails in haulage service shall carry a suitable rerailing device.

§ 36.31 Fire extinguisher.

Each unit of mobile diesel-powered transportation equipment shall be fitted with a fire extinguisher carried in a location easily accessible to the operator and protected by position from external damage. Liquid carbon dioxide extinguishers shall contain an active charge of not less than 4 pounds. Pressurized dry chemical extinguishers shall contain an active charge of not less than 2½ pounds.

§ 36.32 Restriction of electrical components.

Mobile diesel-powered transportation equipment for gassy noncoal mines and tunnels will not be investigated for approval and certification unless the electrical components of the equipment are restricted to headlight units, as hereinafter described in § 36.33.

§ 36.33 Headlight units.

(a) A headlight and its source of electrical energy shall be constructed as a unit. The component parts of a headlight unit shall be locked or sealed by a device, acceptable to the Bureau, so that in normal use the parts are inseparable.

(b) A headlight and its source of energy shall conform to the applicable requirements of Part 20 of Subchapter D of this chapter (Schedule 10, revised, the latest revision of which is Schedule 10C) pertaining to Class 1 lamps or is constructed with equivalent safeguards that are acceptable to the Bureau.

(c) The headlight unit shall be so mounted on mobile diesel-powered transportation equipment that it is in a fixed position and protected from external damage by recessing in the equipment frame or otherwise guarded in a manner acceptable to the Bureau.

(d) At least one headlight unit shall be provided on the front and rear of each piece of mobile diesel-powered transportation equipment.

Subpart C—Test Requirements

§ 36.40 Test site.

Tests shall be conducted at the Bureau's Diesel Testing Laboratory, Bruceton, Pennsylvania, or other appropriate place(s) determined by the Bureau.

§ 36.41 Testing methods.

Mobile diesel-powered transportation equipment submitted for certification and approval shall be tested to determine its combustion, explosion-proof, and other safety characteristics. The Bureau shall prescribe the tests and reserves the right to modify the procedure(s) to attain these objectives (see § 36.20).

§ 36.42 Inspection.

A detailed inspection shall be made of the equipment and all components and features related to safety in operation. The inspection shall include:

(a) Investigating the materials, workmanship, and design to determine their adequacy.

(b) Checking the parts and assemblies against the drawings and specifications with respect to materials, dimensions, and locations to verify their conformance.

(c) Inspecting and measuring joints, flanges, and other possible flame paths in the intake and exhaust systems to determine whether they will prevent the issuance of flame or propagation of an internal explosion.

(d) Inspecting and measuring flame arresters to determine whether they will prevent the issuance of flame or propagation of an internal explosion.

§ 36.43 Determination of exhaust-gas composition.

(a) Samples shall be taken to determine the composition of the exhaust gas while the engine is operated at loads and speeds prescribed by the Bureau to determine the volume of air (ventilation) required to dilute the exhaust gas (see § 36.45). The engine shall be at temperature equilibrium before exhaust-gas samples are collected or other test data are observed. At all test conditions the intake mixture shall contain 1.5 ± 0.1 percent, by volume, of Pittsburgh natural gas (see footnote 3) in air. Test observations shall include the rate of fuel consumption, pressures, temperatures, and other data significant in the safe operation of diesel equipment in underground gassy noncoal mines and tunnels.

(b) Exhaust-gas samples shall be analyzed for carbon dioxide, oxygen, carbon monoxide, hydrogen, methane, nitrogen, oxides of nitrogen, and aldehydes, or any other constituent prescribed by the Bureau.

(c) The intake and exhaust systems shall be complete with all component equipment such as air cleaners, flame arresters, and exhaust cooling systems. The performance of component equipment shall be observed to determine whether it functions properly.

§ 36.44 Maximum allowable fuel:air ratio.

(a) When an engine is delivered to the Bureau with the fuel-injection system adjusted by the applicant and tests of the exhaust-gas composition (see § 36.43) show not more than 0.30 percent, by volume, of carbon monoxide, the applicant's adjustment of the fuel-injection system shall be accepted. The maximum fuel:air ratio determined from the exhaust-gas composition shall be designated as the maximum allowable fuel:air ratio. The maximum liquid fuel rate (pounds per hour) that produces the maximum allowable fuel:air ratio shall be designated as the maximum allowable fuel rate for operating the equipment at elevations not exceeding 1,000 feet above sea level.

(b) When the carbon monoxide content of the exhaust exceeds 0.30 percent, by volume, only near maximum power output, the maximum fuel:air ratio at which carbon monoxide does not exceed 0.30 percent shall be calculated and designated as the maximum allowable fuel:air ratio. The corresponding calculated liquid fuel rate shall be designated as the maximum allowable fuel rate at elevations not exceeding 1,000 feet above sea level.

NOTE: The applicant may be requested to adjust the liquid fuel rate during tests to determine the maximum allowable fuel:air ratio.

(c) The maximum allowable fuel:air ratio and maximum liquid fuel rates shall be used to calculate a liquid fuel rate-altitude table that shall govern the liquid fuel rate of engines operated at elevations exceeding 1,000 feet above sea level.

§ 36.45 Quantity of ventilating air.

(a) Results of the engine tests shall be used to calculate ventilation (cubic feet of air per minute) that shall be supplied by positive air movement when the permissible mobile diesel-powered transportation equipment is used underground. This quantity shall be stamped on the approval plate. The quantity so determined shall apply when only one machine is operated.

(b) Determination of the ventilation rate shall be based upon dilution of the exhaust gas with normal air. The most undesirable and hazardous condition of engine operation prescribed by the Bureau shall be used in the calculations. The concentration of any of the following individual constituents in the diluted mixture shall not exceed:

0.25 percent, by volume, of carbon dioxide (CO_2).
0.005 percent, by volume, of carbon monoxide (CO).
0.00125 percent, by volume, of oxides of nitrogen (calculated as equivalent nitrogen dioxide, NO_2).

The oxygen (O_2) content of the diluted mixture shall be not less than 20 percent, by volume. The maximum quantity of normal air to produce the above dilution shall be designated the ventilation rate.

NOTE: This ventilation rate will provide a factor of safety for exposure of persons to air mixtures containing harmful or objectionable gases and for minor variations in engine performance.

§ 36.46 Explosion tests of intake and exhaust systems.

(a) Explosion tests to determine the strength of the intake and exhaust systems to withstand internal explosions and the adequacy of the flame arresters to prevent the propagation of an explosion shall be made with the systems connected to the engine or the systems simulated as connected to the engine. The systems shall be filled with and surrounded by an explosive natural gas-air mixture. The mixture within the intake and exhaust systems shall be ignited by suitable means and the internal pressure developed by the resultant explosion shall be determined. Tests shall be conducted with the ignition source in several different locations to determine the maximum pressure developed by an internal explosion.

(b) Explosion tests shall be made with the engine at rest and with the flammable natural gas-air mixtures in the intake and exhaust systems. In other tests with the flammable mixture in mo-

tion, the engine shall be driven (externally) at speeds prescribed by the Bureau but no liquid fuel shall be supplied to the injection valves.

(c) The temperature of the flame arresters in the intake or exhaust systems shall not exceed 212° F. when an explosion test is conducted. Any water-spray cooling for the exhaust system shall not be operated and water shall not be present in the exhaust cooling boxes except when water is the cooling agent for a cooling box designed to act as a flame arrester, in which case the Bureau will prescribe the test conditions.

(d) The explosion tests of the intake and exhaust systems shall not result in:

(1) Discharge of visible flame from any joint or opening.

(2) Ignition of surrounding flammable gas-air mixture.

(3) Development of dangerous afterburning.[4]

(4) Excessive pressures.

§ 36.47 Tests of exhaust-gas cooling system.

(a) The adequacy of the exhaust-gas cooling system and its components shall be determined with the engine operating at the maximum allowable liquid fuel rate and governed speed with 0.5±0.1 percent, by volume, of natural gas in the intake air mixture. All parts of the engine and exhaust-gas cooling system shall be at their respective equilibrium temperatures. The cooling spray, if any, shall be operated, and all compartments designed to hold cooling water shall be filled with the quantity of water recommended by the applicant. No cooling air shall be circulated over the engine or components in the cooling system during the test.

(b) Determinations shall be made during the test to establish the cooling performance of the system, the cooling water consumption, high-water level when the system sprays excess water, and low-water level when the cooling system fails.

(c) The final exhaust-gas temperature at discharge from the cooling system, and before the exhaust gas is diluted with air, shall not exceed 170° F. or the temperature of adiabatic saturation, if this temperature is lower.

(d) Water consumed in cooling the exhaust gas under the test conditions shall not exceed by more than 15 percent that required for adiabatic saturation of the exhaust gas at the final temperature. Water in excess of that required for adiabatic saturation shall be considered as entrained water. Enough water shall be available in the cooling system or in reserve supply compartments for sustained satisfactory operation for at least 2⅔ hours under the test conditions.

NOTE: This amount is enough to cool the exhaust for an 8-hour shift at one-third load factor.

(e) The adequacy of the automatic fuel shutoff actuated by the temperature of the final exhaust shall be determined with the engine operating under test conditions by withdrawing water until the cooling system fails to function. The final exhaust-gas temperature at which the liquid fuel to the engine is automatically shut off shall be noted. This temperature shall not exceed 185° F.

(f) Following the automatic fuel shutoff test in paragraph (e) of this section, the temperature of the control point shall be allowed to fall to 170° F. At this temperature and with the water replenished in the cooling system, it shall be possible to start the engine.

NOTE: If the cooling system includes a reserve supply water tank, the line or lines connecting it to the cooling compartment may require a suitable flame arrester.

(g) The effectiveness of the automatic engine shutoff, which will operate when the water in the cooling jacket(s) exceeds 212° F., shall be determined by causing the jacket temperature to exceed 212° F.

§ 36.48 Tests of surface temperature of engine and components of the cooling system.

(a) The surface temperatures of the engine, exhaust cooling system, and other components subject to heating by engine operation shall be determined with the engine operated as prescribed by the Bureau. All parts of the engine, cooling system, and other components shall have reached their respective equilibrium temperatures. The exhaust cooling system shall be operated, but air shall not be circulated over the engine or components. Surface temperatures shall be measured at various places prescribed by the Bureau to determine where maximum temperatures develop.

(b) The temperature of any surface shall not exceed 400° F.

NOTE: The engine may be operated under test conditions prescribed by the Bureau while completely surrounded by a flammable mixture. The Bureau reserves the right to apply combustible materials, likely to be found in gassy noncoal mines or tunnels, to any surface for test. Operation under such conditions shall not ignite the flammable mixture.

§ 36.49 Tests of exhaust-gas dilution system.

The performance and adequacy of the exhaust-gas dilution system shall be determined in tests of the complete equipment. The engine, at temperature equilibrium, shall be operated in normal air as prescribed by the Bureau. Samples of the undiluted exhaust gas and of the diluted exhaust gas, at location(s) prescribed by the Bureau, shall be considered with the data obtained from the engine test (see § 36.43) to determine that the concentrations of carbon dioxide, carbon monoxide, oxides of nitrogen, and aldehydes in the diluted exhaust shall be below the required concentrations specified in subparagraph (1) of paragraph (f) of § 36.25.

§ 36.50 Tests of fuel tank.

The fuel tank shall be inspected and tested to determine whether: (a) It is fuel-tight, (b) the vent maintains atmospheric pressure within the tank, and (c) the vent and closure restrict the outflow of liquid fuel.

§ 36.51 Inspection and tests of headlight units.

Headlight units shall be inspected and tested according to the applicable requirements of Part 20 of Subchapter D of this Chapter (Schedule 10, revised, the latest revision of which is Schedule 10C).

[F.R. Doc. 61-559; Filed, Jan. 23, 1961; 8:48 a.m.]

[4] The term "afterburning" as used in this part is applied to combustion of a flammable gas-air mixture drawn into the system under test by the cooling of the products from an explosion in the system.

Title 32A—NATIONAL DEFENSE, APPENDIX

Chapter I—Office of Civil and Defense Mobilization

[Emergency Preparedness Order No. 1]

EPO 1—ASSIGNING CERTAIN CIVIL DEFENSE AND DEFENSE MOBILIZATION FUNCTIONS TO THE SECRETARY OF AGRICULTURE

By virtue of the authority vested in me pursuant to Reorganization Plan No. 1 of 1958 (72 Stat. 1799), Executive Order 10773 of July 1, 1958, as amended, and Executive Order 10902 of January 9, 1961, it is hereby ordered as follows:

Section 1. Scope.

The Secretary of Agriculture (hereinafter referred to as the Secretary) shall, consistent with the National Plan for Civil Defense and Defense Mobilization and subject to policy direction and central program control by the Office of Civil and Defense Mobilization (hereinafter referred to as OCDM) prepare national emergency plans and develop preparedness programs covering (1) food resources, farm equipment, fertilizer, and food resource facilities, as defined below; (2) rural fire control; (3) defense against biological warfare, chemical warfare, and radiological fallout as specified in Section 5 of this order; and (4) farm community advisory service. These plans and programs shall be designed to develop a state of readiness in these areas with respect to all conditions of national emergency, including an attack upon the United States.

Sec. 2. Definitions.

As used in this order:

(a) "Food resources" means all commodities and products, simple, mixed, or compound, or complements to such commodities or products, that are capable of being eaten or drunk, by either human beings or animals, irrespective of other uses to which such commodities or products may be put, at all stages of processing from the raw commodity to the products thereof in vendible form for human or animal consumption. For the purposes of this order the term "food resources" also includes all starches, sugars, vegetable and animal fats and oils, cotton, tobacco, wool, mohair, hemp, flax fiber, and naval stores, but does not include any such material after it loses its identity as an agricultural commodity or agricultural product.