DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. OSHA–2007–0032 (formerly Docket No. OSHA–S031–2006–0665]

RIN 1218–AC09

Explosives

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Proposed rule.

SUMMARY: OSHA proposes to revise the explosives and blasting agents standard in subpart H of part 1910. This revision of § 1910.109 is intended to enhance the protections provided to employees engaged in the manufacture, storage, sale, transportation, handling, and use of explosives. The proposal updates and clarifies the regulatory language, addresses regulatory inconsistencies between OSHA and other Federal agencies, incorporates updated consensus standards, and provides the regulated community with greater compliance flexibility.

DATES: Written comments and hearing requests must be submitted by the following dates:

Hard copy: Comments and hearing requests must be submitted (postmarked or sent) by July 12, 2007.

Facsimile and electronic transmissions: Comments and hearing requests must be sent by July 12, 2007.

ADDRESSES: You may submit comments, identified by Docket No. OSHA–2007–0032, by any of the following methods:

Electronically: You may submit comments and attachments electronically at *http://www.regulations.gov*, which is the Federal eRulemaking Portal. Follow the instructions on-line for making electronic submissions.

Fax: If your comments, including attachments, do not exceed 10 pages, you may fax them to the OSHA Docket Office at (202) 693–1648.

Mail, hand delivery, express mail, messenger or courier service: You must submit three copies of your comments and attachments to the OSHA Docket Office, Docket No. OSHA–2007–0032, U.S. Department of Labor, Room N–2625, 200 Constitution Avenue, NW., Washington, DC 20210. Deliveries (hand, express mail, messenger and courier service) are accepted during the Department of Labor's and Docket Office's normal business hours, 8:15 a.m.–4:45 p.m., e.t.

Instructions: All submissions must include the Agency name and the docket number for this rulemaking (Docket No. OSHA–2007–0032). All comments, including any personal information you provide, are placed in the public docket without change and may be made available online at *http://www.regulations.gov.* Therefore, OSHA cautions you about submitting personal information such as social security numbers and birthdates. For further information on submitting comments, plus additional information on the rulemaking process, see the ''Public Participation'' heading in the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: To read or download comments and materials submitted in response to this **Federal Register** notice, go to Docket No. OSHA–2007–0032 at *http://www.regulations.gov* or at the OSHA Docket Office at the address above. All comments and submissions are listed in the *http://www.regulations.gov* index, however, some information (e.g., copyrighted material) is not publicly available to read or download through that Web page. All comments and submissions, including copyrighted material, are available for inspection and copying at the OSHA Docket Office.

For information on accessing exhibits referenced in this **Federal Register** notice, see the ''References and Exhibits'' and ''Public Participation'' headings in the **SUPPLEMENTARY INFORMATION** section of this document.

Electronic copies of this **Federal Register** document are available at *http://regulations.gov.* Copies also are available from the OSHA Office of Publications, Room N–3101, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington DC 20210; telephone (202) 693–1888. This document, as well as news releases and other relevant information, also are available at OSHA's Web page at *http://www.osha.gov.*

FOR FURTHER INFORMATION CONTACT: For general information and press inquiries, contact Mr. Kevin Ropp, Office of Communications, Room N–3647, OSHA, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–1999. For technical inquiries, contact Donald Pittenger, Directorate of Standards and Guidance, Room N–3609, OSHA, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–2255 or fax (202) 693–1663.

SUPPLEMENTARY INFORMATION:

References and Exhibits

In this **Federal Register** notice, OSHA references a number of supporting materials. References to these materials are given as ''Ex.'' followed by the number of the document. The referenced materials are posted in both Docket No. OSHA-S031–2006–0665 (which is available at *http://www.regulations.osha.gov*) and OSHA Docket No. S–031 (which is available at *http://dockets.osha.gov*). The documents are also available at the OSHA Docket Office (see **ADDRESSES** section). For further information about accessing exhibits referenced in this **Federal Register** notice, see the ''Public Participation'' heading in the **SUPPLEMENTARY INFORMATION** section of this document.

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I. Background

History of the Standard

In 1970, Congress enacted the Occupational Safety and Health Act (29 U.S.C. 651 *et seq.*) (the Act or the OSH Act) directing OSHA to promulgate safety and health standards to assure, as far as possible, safe and healthful working conditions for every employee in the Nation. To expedite OSHA's mission, Congress directed the Secretary of Labor through section 6(a) of the Act (29 U.S.C. 655(a)) to promulgate safety and health standards within the first two years of the Act's enactment by summarily adopting existing national consensus and established Federal standards, without requiring the Agency to go through the rulemaking procedures detailed in section 6 of the Act.

On May 29, 1971, pursuant to section 6(a) of the Act, OSHA promulgated its explosives and blasting agents standard at 29 CFR 1910.109 (36 FR 10553–10562). The standard was based on two national consensus standards—the National Fire Protection Association (NFPA) 495–1970 *Code for the Manufacture, Transportation, Storage, and Use of Explosives and Blasting*

Agents, and NFPA 490–1970 *Code for the Storage of Ammonium Nitrate*.

The explosives and blasting agents standard promulgated in 1971 was similar to the current standard found at § 1910.109 and included provisions on the storage of explosives, blasting agents, and ammonium nitrate; the transportation of explosives; and the use of explosives and blasting agents. Few significant changes have been made to the standard since its promulgation. On March 31, 1972, OSHA amended the standard by adding paragraph (j) ''Small arms ammunition, small arms primers, and small arms propellants'' (37 FR 6577). It also added paragraph (k) ''Scope,'' which stated in part that: ''This section applies to the manufacture, keeping, having, storage, sale, transportation, and use of explosives, blasting agents, and pyrotechnics'' 37 FR 6577.

On February 24, 1992, OSHA issued a new standard at § 1910.119 ''Process Safety Management'' (PSM) covering working conditions during the manufacture of highly hazardous chemicals (57 FR 6356). Both the manufacture of explosives (excluding blasting agents) and the manufacture of pyrotechnics must meet the requirements contained in the PSM standard. 57 FR 6356. The PSM final rule revised the scope provision in the explosives and blasting agents standard by adding § 1910.109(k)(2) which states that the manufacture of explosives must meet the requirements contained in § 1910.119 and by adding § 1910.109(k)(3) which states that the manufacture of pyrotechnics must meet the requirements in § 1910.119. 57 FR 6356.

The most recent revisions made to § 1910.109 were on June 18, 1998 (63 FR 33450) in which OSHA amended two provisions to make them consistent with Department of Transportation (DOT) regulations. The revisions now allow blasting caps to be transported on the same vehicle with other explosives (§ 1910.109(d)(1)(iv)) and allow the re-use of containers and packaging materials that have previously contained explosives provided that such re-use is performed in accordance with DOT regulations at 49 CFR 173.28 (§ 1910.109(e)(2)(i)).

The Petition

On July 29, 2002, OSHA received a petition (the Petition) from the Institute of Makers of Explosives (IME) and the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) to revise the standard. A copy of the Petition can be found at Docket No. OSHA–S031–2006–0665 (Ex. 2–1). IME is an association of manufacturers of high explosives and other companies that distribute explosives or provide other related services and the SAAMI is an association of manufacturers of sporting firearms, ammunition, and related components. The Petition claimed that § 1910.109 does not reflect significant technological and safety advances made by the explosives industry since the standard was promulgated. It further contended that the standard contains outdated references, classifications, and jurisdiction-related provisions that do not accurately represent the current regulatory environment.

The Petition requested OSHA to make a number of changes to the standard, including the following, and provided draft regulatory language:

- Exclude the manufacture of explosives from the PSM requirements of § 1910.119 and incorporate revised PSM requirements for the manufacture of explosives into § 1910.109;
- Replace references to outdated DOT explosives classifications with the current DOT classification system;
- Eliminate the provisions in § 1910.109 covering the storage of explosives and the construction of magazines because they are regulated by the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF);
- Eliminate provisions in § 1910.109 applicable to the transportation of explosives on public highways because such transportation is regulated by DOT;
- Update provisions for guarding against accidental initiation by sources of extraneous electricity;
- Include provisions governing the intra-plant transportation of explosives;
- Include provisions for the use of nonelectric detonation systems;
- Revise provisions regarding the crimping of detonators to safety fuse;
- Update provisions for clearing the blasting area of unauthorized personnel; and
- Update the provisions for the design of bulk delivery and mixing vehicles and of mixing equipment.

In response to the Petition, OSHA carefully reviewed the requirements of the current standard and other related OSHA standards. It analyzed the recommendations as well as the draft regulatory language provided in the Petition. OSHA also examined the regulations of other federal agencies relating to explosives and consulted with interested parties about the need to revise the standard. Apart from IME and SAAMI, these interested parties included the International Society of Explosives Engineers (ISEE), the American Pyrotechnics Association (APA), the United Steel Workers of America (USWA), and the Paper, Allied-Industrial, Chemical and Energy Workers International (PACE). In addition, OSHA consulted with other Federal agencies about their explosives regulations and procedures. These Federal agencies included the DOT, ATF, the Interagency Committee on Explosives (ICE), the Department of Defense Explosives Safety Board (DDESB), the Consumer Product Safety Commission (CPSC), and the Mine Safety and Health Administration.

Based upon its review of the Petition and the standard, OSHA has concluded that the following actions are appropriate. These actions are discussed in greater detail in the summary and explanation section of the proposed rule (see section III).

A. Update the Standard

Workplace hazards associated with explosives activities pose significant risks to employees. OSHA has determined that the existing standard needs to be updated to adequately protect employees from these risks. Each year, over 5 billion pounds of explosives are manufactured or imported into the U.S.A. These explosives are used on a daily basis in many different ways. The manufacture, storage, transportation, sale, and use of explosives present significant risks not only to the employees who work directly with them but to the many other employees who may work in the immediate vicinity of the explosives.

Explosives are, by their nature and design, inherently dangerous and their safe handling, storage, and use are critical to the safety of those working with or near them. There have been many incidents in the past of injuries and deaths resulting from the accidental detonation of explosives. One of the most famous examples, the Texas City Disaster, did not actually involve explosives but ammonium nitrate, one of the ingredients used to make a type of explosive called blasting agents. On April 16, 1947, a ship named the SS Grandcamp was docked at the port of Texas City, Texas. Its cargo hold was full of ammonium nitrate. Shortly after a small fire was detected in the hold, the ammonium nitrate detonated. The explosion killed at least 581 people, injured over 5,000 others, destroyed the port, and severely damaged the town. The shockwave from the explosion shattered windows in Houston, over 40 miles away. Only three years earlier, another ship docked at Port Chicago, California, exploded when its cargo of explosives detonated. The explosion

killed 320 sailors and civilians and injured over 400 others.

A review of accidents involving explosives indicates that such incidents are most often caused by unsafe work practices or faulty equipment. These factors are frequently exacerbated by the failure to properly train not only the employees handling and using the explosives but also the employees in the vicinity of the explosives in question. In many cases, the initial incident, while serious, triggers even greater loss of life and property by spreading to nearby facilities or causing serious injury to employees trying to fight the resulting fire.

The existing standard has undergone few significant revisions since it was promulgated over 35 years ago and many of its requirements do not accurately reflect current working conditions in the explosives industry. Over the last 35 years, the explosives industry has changed significantly. New forms of explosives have been developed (e.g., emulsions), new kinds of detonators have been introduced (e.g., electronic detonators), and substantial changes have been made in the processes and equipment employed to create, handle and use explosives (e.g., new kinds of bulk delivery vehicles). OSHA has concluded that the existing standard must be updated to reflect these changes and to adequately protect employees from the significant risks involved in working with or near explosives. To update the standard, OSHA has consulted with other federal agencies and with interested parties about new technologies, products, and procedures used by the explosives industry and has incorporated these developments into the proposed rule. It has also updated all references in the standard to current national consensus standards.

B. Increase the Clarity and Focus of the Standard

Many of the existing requirements in § 1910.109 are difficult to understand, repetitive, and internally inconsistent. In addition, some of these existing requirements address issues, such as general public safety, that go beyond OSHA's authority to regulate. When the standard was promulgated in 1971 through section 6(a) of the Act, OSHA adopted much of the language contained in the national consensus standards upon which it was based (i.e., NFPA 495 and NFPA 490). These national consensus standards were not written in language well suited for a Federal regulation and had broader coverage (e.g., public safety) than needed by OSHA to cover working conditions in the explosives industry.

To make the standard more ''user-friendly,'' the proposal has been rewritten in plain language. Internal inconsistencies and duplicative requirements have been eliminated. In addition, it has been rewritten to eliminate references to public safety that are beyond OSHA's authority to regulate.

C. Increase the Regulatory Consistency of the Standard

There are inconsistencies between the explosives regulations of different Federal agencies. For example, OSHA classifies explosives in its current standard as Class A, Class B, and Class C explosives. ATF classifies explosives in terms of high explosives, low explosives, and blasting agents (27 CFR 555.202). DOT has adopted the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (Ex. 2–2). The GHS is intended to harmonize existing communication systems on chemicals in order to develop a single, worldwide harmonized system to address classification of chemicals according to their hazards, and communicate the related information through labels and safety data sheets. Based on the GHS, DOT classifies all explosives as Class 1 chemicals and further subdivides them into Division 1.1 through 1.6 explosives (49 CFR 173.50).

Magazines (structures used for the storage of explosives) are also classified differently by different Federal agencies. For example, OSHA classifies magazines as Class I and Class II (§ 1910.109(c)(1)) but ATF classifies them as Type 1 through Type 5 (27 CFR 555.203).

One of OSHA's major goals in this proposed rulemaking is to increase regulatory consistency with other Federal agencies involved in regulating the explosives industry and to eliminate confusion within the regulated community. To achieve this goal, OSHA proposes to adopt the GHS definitional classification system for ''explosives.'' This will make OSHA's classification system consistent with the one used by DOT, which is also based on the GHS.

D. Increase the Regulatory Flexibility of the Standard

To provide the regulated community with greater regulatory flexibility, OSHA has endeavored to use general performance-oriented language in the proposed standard. This allows OSHA to draft a requirement in terms of a goal and it allows the employer greater choice on how to achieve that goal.

E. Resolve Authority Issues in the Standard

There is some confusion in the regulated community over the boundaries of OSHA's authority to regulate working conditions in the explosives industry. One of OSHA's goals in this rulemaking is to clarify the extent of its authority to regulate working conditions in the explosives industry. In particular, OSHA discusses the boundaries of its authority to regulate working conditions during the storage of explosives and during the transportation of explosives.

II. Legal Considerations

The purpose of the OSH Act is ''to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.'' 29 U.S.C. 651(b). To achieve this goal, Congress authorized the Secretary of Labor to promulgate and enforce occupational safety and health standards (see 29 U.S.C. 655(a) authorizing summary adoption of existing consensus and federal standards within two years of Act's enactment, 655(b) authorizing promulgation of standards pursuant to notice and comment, and 654(b) requiring employers to comply with OSHA standards).

A safety or health standard is a standard ''which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment'' (29 U.S.C. 652(8)).

A standard is reasonably necessary or appropriate within the meaning of Section 652(8) if it substantially reduces or eliminates significant risk, and is economically feasible, technologically feasible, and cost effective, and is consistent with prior Agency action or is a justified departure, is supported by substantial evidence, and is better able to effectuate the Act's purposes than any national consensus standard it supersedes. See 58 FR 16612–16616 (March 30, 1993).

A standard is technologically feasible if the protective measures it requires already exist, can be brought into existence with available technology, or can be created with technology that can reasonably be expected to be developed. *American Textile Mfrs. Institute* v. *OSHA*, 452 U.S. 490, 513 (1981) (*ATMI*); *American Iron and Steel Institute* v. *OSHA*, 939 F.2d 975, 980 (D.C. Cir. 1991) (*AISI*).

A standard is economically feasible if industry can absorb or pass on the costs

of compliance without threatening its long-term profitability or competitive structure. See *ATMI*, 452 U.S. at 530 n. 55; *AISI*, 939 F.2d at 980. A standard is cost effective if the protective measures it requires are the least costly of the available alternatives that achieve the same level of protection. *ATMI*, 452 U.S. at 514 n. 32; *International Union, UAW* v. *OSHA*, 37 F.3d 665, 668 (D.C. Cir. 1994) (*LOTO II*).

Section 6(b)(7) authorizes OSHA to include among a standard's requirements labeling, monitoring, medical testing and other information gathering and transmittal provisions. 29 U.S.C. 655(b)(7).

All standards must be highly protective. See 58 FR at 16614–16615; *LOTO II*, 37 F.3d at 668–669. Finally, whenever practical, standards shall ''be expressed in terms of objective criteria and of the performance desired.'' 29 U.S.C. 655(b)(5).

III. Summary and Explanation of the Proposed Rule

OSHA's Authority To Regulate

The purpose of the following discussion is to clarify the degree to which OSHA has authority to regulate working conditions relating to explosives. A number of Federal agencies have authority to regulate explosives. For example, the OSH Act grants OSHA authority to create and enforce standards covering workplace safety and health. As part of its mission, OSHA currently regulates working conditions in the storage, sale, transportation, manufacture, and use of explosives (29 CFR 1910.109 and 1910.119 and part 1926 subpart U). The Mine Safety and Health Administration is responsible for regulating the transportation, storage, and use of explosives at mining facilities subject to the Federal Mine Safety and Health Act of 1977. Its relevant regulations can be found at 30 CFR 56.6000 to 56.6905, 57.6000 to 57.6960, 75.1300 to 75.1328, and 77.1300 to 77.1304. The United States Department of Transportation (DOT), under the Hazardous Materials Transportation Act (49 U.S.C. 5101 *et seq.*), is responsible for regulating the safe transportation of explosives in intrastate, interstate, and foreign commerce. Its regulations cover not only the movement of explosives in commerce but also the loading, unloading, and storage of explosives incidental to that movement (49 CFR parts 171 to 180 and 397).

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) regulations cover the import, manufacture, distribution, and storage of explosives (27 CFR part 555). Its regulations require all manufacturers, importers, and dealers in explosives to obtain a Federal license from ATF and require certain users of explosives to obtain a Federal permit from ATF. The Agency also regulates the safe and secure storage of explosives at approved facilities. The United States Coast Guard has regulations covering the loading, transportation, unloading, and stowage of explosives on vessels and at related land-side facilities (33 CFR part 126, 46 CFR part 194, 49 CFR parts 171 to 173 and 176).

The Consumer Product Safety Commission regulates consumer fireworks as part of its mission to protect the public from unreasonable risks of serious injury or death from consumer products (16 CFR parts 1500 and 1507). Its regulations contain construction, performance, and labeling requirements for consumer fireworks. The Environmental Protection Agency, under such statutes as the Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*), the Clean Water Act (33 U.S.C. 1251 *et seq.*), and the Clean Air Act (42 U.S.C. 7401 *et seq.*), regulates releases and wastes involved in the manufacture, use, and disposal of explosives. The United States Department of the Interior's Office of Surface Mining is responsible for regulating blast effects, such as flyrock and ground vibration, near surface mines (30 CFR 816, 817, and 850).

Given that there are multiple federal agencies that have authority to regulate explosives and that there are several different aspects to the regulation of explosives, areas can develop where federal agency authorities overlap. OSHA recognizes that there is the potential for overlap between provisions of this NPRM and a recent Department of Homeland Security (DHS) proposed regulation. Pursuant to the DHS Appropriations Act of 2007, Public Law 109–295 (October 4, 2006), DHS has authority to regulate the security of chemical facilities. DHS published an Advance Notice of Rulemaking titled Chemical Facility Anti-terrorism Standards (71 FR 78276) (December 28, 2006) and will publish an implementing interim final rule on the matter. The DHS Advance Notice proposes to require high-risk chemical facilities to develop and implement ''Site Security Plans'' with measures that address their security vulnerabilities (as determined through a ''Vulnerability Assessment'') and that address the DHS risk-based performance standards for security at chemical facilities. To the extent that any overlapping issues develop, OSHA and DHS will work to resolve those issues.

The above description is not a complete listing of all the Federal agencies that regulate explosives. With so many agencies involved, confusion has occurred in the regulated community over the regulatory boundaries between some agencies. One issue that has arisen concerns the degree of overlap in OSHA and ATF regulations covering the storage of explosives. Another issue involves whether OSHA has the authority to regulate working conditions during the transportation of explosives when DOT and the United States Coast Guard also regulates such transportation. The following is a discussion of these two issues.

OSHA's Authority to Regulate the Storage of Explosives. The OSH Act gives OSHA broad authority to promulgate and enforce standards to promote workplace safety and health. 29 U.S.C. 651. The courts have supported this broad interpretation of OSHA's authority. *Southern Railway Co.* v. *OSHRC*, 539 F.2d 335, 338 (4th Cir. 1976) *cert. denied*, 429 U.S. 999 (1976) (''OSHA was enacted in response to an appalling record of death and disability in our industrial environment, and it was the clear intent of Congress to meet the problem with broad and, hopefully, effective legislation.''). However, OSHA's authority to regulate working conditions is restricted by section 4(b)(1) of the OSH Act (29 U.S.C. 653(b)(1)), which states that:

> Nothing in this Act shall apply to working conditions of employees with respect to which other Federal agencies * * * exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.

Congress enacted this provision, called the ''preemption provision,'' to avoid duplicative regulatory coverage between OSHA and other Federal agencies in the area of workplace safety and health. *Organized Migrants in Community Action* v. *Brennan*, 520 F.2d 1161, 1161 (D.C. Cir. 1975). The preemption provision prevents OSHA from regulating working conditions when another Federal agency exercises its statutory authority to prescribe or enforce standards or regulations covering those working conditions. *Chao* v. *Mallard Bay Drilling, Inc.*, 524 U.S. 235, 241 (2002). OSHA is not preempted if another Federal agency has statutory authority but has not exercised that authority. 524 U.S. at 241.

Is OSHA preempted by ATF under the preemption provision of the OSH Act from regulating working conditions

relating to the storage of explosives? To answer this question, the following questions must be answered. Does ATF have statutory authority to regulate the storage of explosives? If so, is ATF exercising that authority? If so, to what extent do ATF's requirements cover the same working conditions as OSHA's requirements?

Title XI of the Organized Crime Control Act of 1970, Pub.L. No. 91–452, 84 Stat. 922, gives ATF, through the Secretary of the Treasury, the statutory authority to regulate the storage of explosives. Section 1101 of Title XI states that ''[t]he Congress hereby declares that the purpose of this title is to protect interstate and foreign commerce against interference and interruption by reducing the hazard to persons and property arising from misuse and unsafe or insecure storage of explosive materials.'' 84 Stat. 952. Thus, Congress gave ATF the statutory authority to issue and enforce regulations to protect persons (including employees) from the unsafe storage of explosives. ATF has exercised this authority by promulgating and enforcing regulations covering the storage of explosives (see 27 CFR part 555).

ATF's explosive storage regulations are very similar to OSHA's requirements for working conditions involved in the storage of explosives. Many of ATF's requirements affect the same types of working conditions as OSHA's requirements. The following table shows the overlap between ATF's regulations and OSHA's requirements for the storage of explosives.

ATF's requirements	OSHA's requirements
27 CFR 555.203 Types of magazines.	29 CFR 1910.109(c)(1)(iv) and (v).
27 CFR 555.206 Location of magazines.	29 CFR 1910.109(c)(1)(vi), (vii) and (viii).
27 CFR 555.207 to .211 Construction of magazines.	29 CFR 1910.109(c)(2), (3) and (4).
27 CFR 555.212 Smoking and open flames.	29 CFR 1910.109(c)(5)(vii).
27 CFR 555.213 Quantity and storage restrictions.	29 CFR 1910.109(c)(1)(ii).
27 CFR 555.214 Storage within magazines.	29 CFR 1910.109(c)(5).
27 CFR 555.215 Housekeeping.	29 CFR 1910.109(c)(5)(iv) and (v).
27 CFR 555.216 Repair of magazines.	29 CFR 1910.109(c)(5)(vi).
27 CFR 555.217 Lighting.	29 CFR 1910.109(c)(2)(vi).
27 CFR 555.218 to .220 Tables of distances for storage of explosive materials.	29 CFR 1910.109(c)(1) Table H–21. 29 CFR 1910.109(g)(4) Table H–22.

ATF's regulations for the storage of explosives apply to the same kinds of working conditions as OSHA's requirements for the storage of explosives. Although ATF's regulations do not always contain the same or similar requirements as OSHA's requirements, they cover the same general working conditions. In some cases, ATF's regulations include working conditions not covered as extensively by OSHA's requirements. For example, unlike OSHA's requirements, ATF's regulations contain separate requirements for the storage of display fireworks, pyrotechnic compositions, and explosive materials used in assembling fireworks (see 27 CFR 555.221 to .224).

In summary, ATF has statutory authority to regulate the storage of explosives and it exercises this statutory authority through its promulgation and enforcement of regulations covering explosives storage. Its storage regulations affect the same kinds of working conditions as those covered by OSHA's requirements in § 1910.109. Therefore, OSHA has concluded that its storage requirements for explosives in § 1910.109(c) are preempted under section 4(b)(1) of the OSH Act by ATF's regulations at 27 CFR part 555 subpart K. As a consequence, OSHA is proposing in this rulemaking to eliminate the provisions in § 1910.109 that deal with the storage of explosives.

OSHA is proposing to retain the provisions in § 1910.109(i) that cover the storage of ammonium nitrate. These provisions are not pre-empted by ATF's explosive storage regulations in 27 CFR part 555 subpart K because, although ammonium nitrate is a component of certain explosives such as ANFO, by itself, it is not an explosive. Therefore, it is not regulated by these ATF regulations. In addition, OSHA is also proposing to retain the provisions in § 1910.109(j) that cover the storage of small arms ammunition and components of small arms ammunition. Although small arms ammunition and components of small arms ammunition, such as small arms primers and smokeless propellants, are explosives, ATF's explosives storage regulations do not apply to the storage of ammunition as defined in 27 CFR 555.11 (see 27 CFR 555.141(a)(4)). Thus, OSHA's existing § 1910.109(j) covering the storage of small arms ammunition and components of small arms ammunition are not preempted by ATF's regulations.

Furthermore, ATF's explosives regulations (see 27 CFR 555.141(a)(7)) do not apply to consumer fireworks as defined in 27 CFR 555.11. These items are generally classified as UN0336, UN0337, UN0431, and UN0432 by DOT at 49 CFR 172.101, and generally known as consumer fireworks or articles pyrotechnic. These fireworks are classified as Class 1 Division 1.4 explosives by DOT at 40 CFR 172.101. Because ATF does not regulate the storage of these types of fireworks, OSHA retains authority to regulate their storage. At this time, however, OSHA is not proposing to regulate the storage of these types of fireworks in the proposed standard but plans to deal with them in a future rulemaking on pyrotechnics.

Issue #1: As discussed above, OSHA is proposing to withdraw its requirements in § 1910.109 covering the storage of explosives. OSHA is seeking comments on the following issue. Apart from small arms ammunition and related components, are there any explosives that are currently covered by the storage requirements in § 1910.109 that are not covered by ATF's storage regulations?

OSHA's Authority to Regulate the Transportation of Explosives. Do DOT and the United States Coast Guard preempt OSHA from regulating working conditions during the transportation of explosives? DOT regulates the transportation of hazardous materials, including explosives, by statutory authority granted to it by the Hazardous Materials Transportation Act (the Hazmat Act) enacted in 1975 (49 U.S.C. 1801 *et seq.*). DOT has exercised this statutory authority by promulgating and enforcing regulations covering the transportation of hazardous materials (49 CFR parts 171 to 180). The United States Coast Guard is called to enforce these authorities during the transportation of hazardous materials on vessels upon the navigable waters of the United States. In addition, the United States Coast Guard is authorized to regulate the handling of dangerous cargo, including explosives, at waterfront facilities under 33 CFR part 126.

In 1990, Congress amended the Hazmat Act (Pub. L. 101–615, § 2936, Nov. 16, 1990, 104 Stat. 3244) and added the following reverse preemption language in § 1805(b)(3):

> For purposes of section 4(b)(1) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653(b)(1)), no action taken by the [DOT] Secretary pursuant to this section shall

be deemed to be an exercise of statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.

The section in the Hazmat Act referred to in the reverse preemption language was § 1805 ''Handling of hazardous materials.'' Section 1805(a) covered the number, training, and qualifications of personnel involved in handling hazardous materials; the type and frequency of inspections; the equipment used to detect, warn, and control the risks posed by hazardous materials; the use of equipment and facilities employed in the handling and transportation of hazardous materials; and systems for monitoring the safety assurance procedures for transporting hazardous materials. Section 1805(b) included training criteria for the safe handling and transportation of hazardous materials. The remaining provisions in § 1805 covered the registration, filing, and permit requirements for transporters of hazardous materials.

The reverse preemption language in § 1805(b)(3) of the Hazmat Act nullified any effect of the OSH Act's 4(b)(1) preemption provision over matters covered by § 1805 of the Hazmat Act. Because § 1805 covered such things as the training, equipment and facilities used during the handling and transportation of hazardous materials, OSHA could regulate working conditions associated with these aspects of the handling and transportation of hazardous materials.

In 1994, Congress amended and recodified the Hazmat Act to its current form as 49 U.S.C. chapter 51—Transportation of Hazardous Material, § 5101 *et seq.* (Pub. L. 103–272, July 5, 1994, 108 Stat. 745). Although the reverse preemption language was altered and recodified at § 5107(f)(2), its meaning and coverage remained the same. Section 5107(f)(2) states:

§ 5107 Hazmat employee training requirements and grants

* * * * *

(f) Relationship to other laws.

* * * * *

(2) An action of the Secretary of Transportation under subsections (a)–(d) of this section and sections 5106, 5108(a)–(g)(1) and (h), and 5109 of this title is not an exercise, under section 4(b)(1) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653(b)(1)), of statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health.

Section 5106 involves criteria for the handling of hazardous materials and includes the following:

The Secretary of Transportation may prescribe criteria for handling hazardous material, including:

(1) a minimum number of personnel;

(2) minimum levels of training and qualifications for personnel;

(3) the kind and frequency of inspections;

(4) equipment for detecting, warning of, and controlling risks posed by the hazardous material;

(5) specifications for the use of equipment and facilities used in handling and transporting the hazardous material; and

(6) a system of monitoring safety procedures for transporting the hazardous material.

Section 5107(a) to (d) covers training requirements for employees working with hazardous materials. Section 5108(a) to (g)(1) and (h) involves registration requirements for transporting hazardous materials and § 5109 covers safety permits for motor carriers transporting hazardous materials.

Similar to the reverse preemption language in the 1990 amendments to the Hazmat Act, § 5107(f)(2) of the 1994 amendments to the Hazmat Act nullifies any effect of the OSH Act's 4(b)(1) preemption provision over matters covered by §§ 5106, 5107(a) to (d), 5108(a) to (g)(1) and (h), and 5109. This allows OSHA to regulate working conditions relating to these matters, which include ''the use of equipment and facilities used in handling and transporting the hazardous material'' (49 U.S.C. 5106(5)). Accordingly, OSHA has the authority to not only regulate working conditions at facilities involved in the transportation of hazardous materials but also when equipment is used during the transportation of hazardous materials. It is noteworthy that the reverse preemption language in the 1994 amendments to the Hazmat Act does not exclude DOT from also regulating the areas covered by §§ 5106, 5107(a) to (d), 5108(a) to (g)(1) and (h), and 5109.

The Occupational Safety and Health Review Commission examined the reverse preemption language in *Yellow Freight Systems, Inc.*, 17 BNA OSHC 1699, 1995–97 CCH OSHD ¶ 31,105 (No. 93–3292, 1996). In that case, the operator of a freight terminal argued that OSHA's citations against it were invalid because OSHA was preempted from regulating working conditions at the terminal by DOT under the 4(b)(1) preemption provision of the OSH Act. The Commission disagreed with the operator and concluded that when Congress amended § 1805(b)(3) in the 1990 amendments to the Hazmat Act, it ''intended to nullify the preemptive effect of DOT actions taken under section 1805.'' *Id.* at 1701. It also made the equivalent finding about the reverse preemption language in the 1994 amendments to the Hazmat Act. *Id.* At the invitation of the Commission, DOT submitted its interpretation of § 1805(b)(3) in the *Yellow Freight* case. DOT stated that the reverse preemption language ''found in § 1805(b)(3) * * * referred to the entirety of § 1805.'' *Id.* Thus, DOT agreed that OSHA was not preempted from regulating working conditions in those aspects of the transportation of hazardous materials covered by § 1805.

On October 30, 2003, DOT issued a final rule clarifying the application of its hazardous materials regulations to the loading, unloading, and storage of hazardous materials incidental to movement in commerce (68 FR 61906). DOT's hazardous materials regulations cover pre-transportation functions involving the preparation of hazardous materials for transportation in commerce. *Id.* at 61906, 61908. They also cover transportation functions involving the actual movement of hazardous materials in commerce, including the loading, unloading, and storage of hazardous materials that is incidental to that movement. *Id.* at 61906, 61914.

In the preamble to the final rule, DOT noted the reverse preemption language at § 5107(f)(2) in the 1994 amendments to the Hazmat Act and stated that: ''Such 'reverse preemption language' functions to nullify any effect the OSH Act's 4(b)(1) provision might otherwise have and thus ensures that OSHA's standards remain applicable (68 FR 61926).'' DOT further stated that it ''neither affirmatively regulate[s] the working conditions at facilities where pre-transportation and transportation functions are performed, nor assert[s] comprehensive regulatory jurisdiction over the working conditions at these facilities. * * * This final rule makes clear that [DOT does] not intend to exercise [its] statutory authority in a manner that precludes OSHA from regulating at facilities where pre-transportation and transportation functions are performed.'' *Id.* Thus, DOT recognizes that, through the reverse preemption language of the Hazmat Law, OSHA has the statutory authority to regulate working conditions at facilities where pre-transportation and transportation functions are performed.

In its final rule, DOT did not directly address whether OSHA has statutory authority to regulate working conditions during the actual movement of hazardous materials in commerce. However, it stated that DOT ''has developed a special expertise that

makes the Department uniquely qualified to play the primary Federal regulatory role in the protection of employees who operate motor vehicles, trains, aircraft, and vessels used to transport hazardous materials.'' *Id.* at 61927.

OSHA agrees that DOT has the unique expertise to play a lead role in the protection of employees during the transportation of hazardous materials. However, OSHA also recognizes that, through the reverse preemption language of § 5107(f)(2) in the 1994 amendments to the Hazmat Act, Congress has granted OSHA statutory authority to regulate working conditions during the handling and transportation of hazardous materials. The Agency views this statutory authority to include working conditions during the actual movement of hazardous material in commerce, as well as during the preparation of hazardous materials prior to movement, and the loading, unloading, and temporary storage of hazardous material incidental to movement.

Although OSHA has the statutory authority to regulate working conditions at each stage in the transportation of hazardous materials, the Agency is not required to exercise that authority. OSHA recognizes DOT and the United States Coast Guard's extensive regulatory expertise and coverage in the area of the safe transportation of hazardous materials. The Agency also believes it is important to avoid duplicative or conflicting regulatory requirements between federal agencies. As a result, OSHA has no current plans to expand its regulation of working conditions during the transportation of hazardous materials.

The following preamble discussion explains significant changes made in the proposal to the existing standard. The proposed standard changes the title of 29 CFR 1910.109 from ''Explosives and Blasting Agents'' to ''Explosives.'' Since the proposal includes blasting agents in the definition of explosives (discussed below), it is no longer appropriate for the title of the section to include both terms.

This proposed rule contains a complete revision and re-organization of existing § 1910.109. In addition to requesting comments on any of the requirements in the proposed standard, OSHA has identified issues throughout the preamble and has requested comments on these issues.

OSHA's development of the proposed rule was based in part on the 2001 edition of NFPA 495—Explosive Materials Code. NFPA has recently issued a 2006 edition of this code. OSHA has compared the differences between the 2001 and 2006 editions. Any significant changes relevant to the proposed rule in the 2006 edition compared to the 2001 edition are discussed at the appropriate location in the preamble. OSHA is interested in comments on whether there are any requirements in the 2006 edition of NFPA 495 that should be in the proposed rule but have not been included.

The proposed rule references DOT regulations in several provisions. OSHA has included these references to DOT regulations to ensure that the proposed rule is consistent with DOT's regulations. However, OSHA is interested in comments on whether such DOT references should be retained, excluded, or replaced with an alternative in the final rule. If you think some or all of the references to DOT regulations should be replaced with an alternative, please provide the alternative language for the affected provisions in the proposed rule.

As an aid to understanding the changes in the proposed rule, a table, ''Proposed Reorganization of Existing Requirements,'' has been placed in the docket (Ex. 2–22) listing the requirements in the existing standard and identifying where they are located in the proposed rule. In addition, a second table, ''New Requirements in Proposed Rule,'' has been placed in the docket (Ex. 2–23) listing all the new provisions in the proposed rule that are not in the existing standard.

Paragraph (a) Scope. Proposed paragraph (a) defines the applicability of § 1910.109, and has been moved from existing paragraph (k), at the end of the standard, to the beginning of the proposed standard. This change enables a reader to quickly determine the applicability of the standard.

Proposed paragraph (a)(1) would apply this section to the manufacture, storage, sale, transportation, handling, and use of explosives, including blasting agents and pyrotechnics. The proposed paragraph is similar to existing paragraph (k)(1) except in three ways. First, for ease of compliance, each of the multiple requirements in existing paragraph (k)(1) has been moved to a separate proposed paragraph. As a result, the requirement in existing paragraph (k)(1) on the applicability of the standard to the use of explosives in medicines and medicinal agents has been moved to proposed paragraph (a)(3)(ii). The requirement in existing paragraph (k)(1) on the applicability of the standard to the sale and use of pyrotechnics has been moved to proposed paragraph (a)(3)(iii).

Second, proposed paragraph (a)(1) has been rewritten for clarity. For example, ambiguous terms such as ''keeping'' and ''having'' in existing paragraph (k)(1) have been removed in proposed paragraph (a)(1). OSHA believes the proposed language is clearer and more concise than the existing language, and will enhance compliance.

Third, the application of this section to storage has been removed. The reason for this is explained in the *OSHA's Authority to Regulate* discussion above.

Proposed paragraph (a)(2) requires the employer to comply with § 1910.119, Process Safety Management (PSM), for operations involving the manufacture of explosives, as defined in proposed paragraph (b). The proposed paragraph revises the requirements in existing paragraph (k)(2), which requires the manufacture of explosives, as defined in existing paragraph (a)(3), to comply with the requirements of § 1910.119.

The proposal deletes existing paragraph (k)(3) which requires the manufacture of pyrotechnics, as defined in existing paragraph (a)(10), to comply with the requirements of § 1910.119. Paragraph (b) of the proposed standard defines pyrotechnics as explosives (see discussion below on proposed paragraph (b)). Thus, it is no longer necessary to have one provision requiring that the manufacture of explosives comply with § 1910.119 and another provision requiring that the manufacture of pyrotechnics comply with § 1910.119. Proposed paragraph (a)(2) requiring that the manufacture of explosives comply with § 1910.119 covers all explosives as defined in proposed paragraph (b), including pyrotechnics.

Under both the existing standard (existing paragraph (k)) and the proposed standard (proposed paragraph (a)(2)), the manufacture of blasting agents does not have to comply with the PSM standard at § 1910.119. The existing standard does not define blasting agents as explosives but the proposed standard classifies them as Class 1 Division 1.5 explosives (see discussion below on proposed paragraph (b)). Even though the proposed standard includes blasting agents as explosives and requires that the manufacture of explosives comply with § 1910.119, OSHA in proposed paragraph (a)(2) is specifically excluding blasting agents from the requirements of § 1910.119. This exclusion includes water gels, slurries, and emulsions classified as Class 1 Division 1.5 explosives.

The PSM standard was developed to safeguard employees from catastrophic releases of toxic, reactive, flammable, or

explosive chemicals (see § 1910.119 *Purpose*). Blasting agents, as Class 1 Division 1.5 explosives, are very insensitive and have a very low probability of causing an unintended mass explosion. For this reason, OSHA has concluded that blasting agents, unlike Division 1.1 to 1.4 explosives, do not pose the potential catastrophic consequences to employees required of chemicals subject to § 1910.119 and should be excluded from the PSM standard. However, if one or more ingredients of a blasting agent is otherwise classified as an explosive (i.e., as a Division 1.1, 1.2, 1.3, or 1.4 explosive), then the manufacturing process for that blasting agent would be required to comply with § 1910.119. Although the manufacture of blasting agents is not subject to the PSM standard, both the existing standard at § 1910.109(g) and (h) and the proposed standard at § 1910.109(c) and (g) have requirements covering the safe manufacture of blasting agents.

Proposed paragraph (a)(3)(i) clarifies that § 1910.109, as a general industry standard, does not apply to construction work covered by 29 CFR part 1926. This paragraph is new but does not change the scope of the existing standard because the existing standard also does not apply to construction work. Subpart U of 29 CFR part 1926 specifically addresses blasting and the use of explosives in the construction industry. OSHA believes the proposed language clarifies the scope of the proposed standard and addresses some confusion on the issue that was revealed during discussions with stakeholders.

Proposed paragraph (a)(3)(ii) states that this section does not apply to the use of explosives in medicines and medicinal agents in the forms prescribed by the official *United States Pharmacopeia and the National Formulary* (USP–NF). The USP–NF is available from the United States Pharmacopeial Convention, Inc., 12601 Twinbrook Parkway, Rockville, MD, 20852. The proposal continues the existing standard's exclusion of medicines and medical agents containing explosives from the standard's requirements. For ease of compliance, this exclusion was separated from other requirements within existing paragraph (k)(1) and made into a separate proposed paragraph (a)(3)(ii). The proposed language is similar to the existing exclusion, and was modified to be consistent with paragraph 1.1.7 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (a)(3)(iii) states that the section does not apply to the use or sale of both public display and consumer pyrotechnics. For ease of compliance, this requirement was separated from other requirements within existing paragraph (k)(1) and is proposed as paragraph (a)(3)(iii). The application of the proposed paragraph has not changed from that of existing (k)(1). However, OSHA has revised the paragraph to clarify that the proposed standard does not apply to the use or sale of both public display and consumer fireworks. Note that, although they are not covered by the existing or proposed § 1910.109 standard, OSHA has the authority to regulate the use of public display fireworks and the sale of public display and consumer fireworks. However, the use of consumer fireworks by the public does not fall within OSHA's authority to regulate workplace safety and health. OSHA believes the proposed language is clearer than the existing language in paragraph (k)(1).

Since the initial publication of § 1910.109, NFPA has published three codes for the use and sale of pyrotechnics: (1) NFPA 1123–2000—Code for Fireworks Display; (2) NFPA 1124–2003—Code for the Manufacture, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles; and (3) NFPA 1126–2001—Standard for the use of Pyrotechnics before a Proximate Audience. In the future, OSHA intends to conduct further rulemaking based upon these NFPA codes and at that time will modify the scope of § 1910.109 to include the sale of both public display pyrotechnics and consumer fireworks and the use of pyrotechnics at public displays. Unless otherwise stated, the provisions of the proposed rule, like those in the current rule, apply to pyrotechnics as well as to other types of explosives. In addition, the proposal continues to apply OSHA's PSM regulations to the manufacture of pyrotechnics as discussed in proposed paragraph (a)(2) above. However, OSHA has decided, because of time and resource constraints, to address additional issues regarding pyrotechnics in a separate rulemaking. OSHA believes that trying to expand pyrotechnics coverage in the current rulemaking would result in significant delay in providing needed protection from explosives hazards. Proposed paragraph (i) is being reserved for this future pyrotechnics rulemaking.

Paragraph (b) Definitions applicable to this section. Paragraph (b) lists and defines all major terms used in the proposed standard. Some of the proposed definitions are the same as those in the existing standard, while others have been reworded. Some definitions are new and some have not been retained from the existing standard.

New Definitions

Upon consideration of technological developments in the explosives field, the plain language initiative, inconsistencies in definitions among Federal agencies, and definitions used in relation to public safety versus employee safety, OSHA proposes the following new definitions:

Blast area. OSHA is proposing to define this term to mean the area of a blast within the influence of flying rock or other debris, gases, and concussion. This term is commonly used in the explosives industry and is being added to the proposal to clarify its safety requirements for blasting operations. The use of the term in the proposal is consistent with its use in the 2001 edition of NFPA 495 (Ex. 2–5).

Blast site. This term would be defined to mean the area where explosives are handled during the preparation and loading of drill holes, including 50 feet (15.2 m) in all directions from the perimeter formed by loaded holes. The 50-foot distance requirement, applies in all directions along the full depth of the drill hole and the blast site exists until the explosives are detonated. This term is commonly used in the explosives industry and is being added to the proposal to clarify its safety requirements for blasting operations. The use of the term in the proposal is consistent with its use in the 2001 edition of NFPA 495 (Ex. 2–5).

Issue #2: In subsequent discussions with the Institute of Makers of Explosives (IME) following their submission of the Petition, they recommended that OSHA revise the definition of blast site to decrease the 50-foot requirement to 30 feet if ''the perimeter of loaded holes is marked and separated from non-blast site areas by a barrier.'' IME would define a barrier as a ''material object or objects that separates, keeps apart, or demarcates in a conspicuous manner such as cones or a warning sign or tape.'' OSHA, however, is concerned that simply installing a barrier, as defined by IME, at a blast site may not provide the degree of safety needed to allow employees to be as close as 30 feet to explosion hazards. OSHA requests specific comments on the IME recommendation.

Blaster-in-charge. OSHA would define this term to mean the person in charge of the handling, loading, and firing of explosives within the blast site and blast area. This term is intended to identify a person designated by the employer to be in charge of the

handling, loading, and firing of explosives.

The 2001 edition of NFPA 495 (Ex. 2–5) does not use the term ''blaster-in-charge'' but uses the term ''blaster'' as a person ''qualified to be in charge of and responsible for the loading and firing of a blast.'' While NFPA 495 does not specifically require one person to be in charge of the blast area, the definition of blaster-in-charge in the proposed standard requires that one person is in charge of the blast area and the blast site. This is being done to enhance safety by centralizing control in one person. The proposed term ''blaster-in-charge'' is based upon a recommendation in the Petition (Ex. 2–1).

Bulk delivery vehicle. This term would be defined to mean any vehicle that transports blasting agents or their ingredients, in bulk form. Bulk delivery vehicles may also be capable of mixing ingredients to form blasting agents and loading blasting agents directly into drill holes. For example, bulk delivery vehicles may contain ammonium nitrate and a fuel oil in separate compartments and mix the two to form a blasting agent just before the blasting agent is transferred into the drill hole. The bulk delivery vehicle may also be capable of adding an emulsion to the mixture. The bulk delivery vehicle will either auger or pump the blasting agent into the drill hole. This definition is intended to provide clarity and reflects technological advancements in bulk blasting agent delivery methods.

Competent person. This term would be defined by OSHA to mean an employee designated by the employer who, by way of training and/or experience, is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to explosives, and has authority to take appropriate corrective actions to control such hazards. Although not defined, this term is used in the existing standard at (c)(5)(viii), (c)(5)(ix), (d)(2)(iii)(b), and (g)(5)(vii). Defining the term in the proposed standard enhances safety by clearly stating the required qualifications of the competent person.

Detonator. OSHA is proposing to define this term to mean any device containing an initiating or primary explosive that is used for initiating detonation in another explosive material. A detonator may not contain more than .35 ounces (10 grams) of total explosives by weight, excluding ignition or delay charges. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, electronic detonators, blasting caps for use with safety fuse, detonating cord delay connectors, and nonelectric instantaneous and delay blasting caps which use detonating cord, shock tube, or any other replacement for electric leg wires. Although the term is used in the existing standard in paragraph (e)(1)(ii), it is not defined. The proposed standard defines the term to enhance regulatory clarity and to reflect recent technological advances in detonation methods.

Electric detonator. OSHA is proposing that this term be defined as a detonator designed for, and capable of, initiation by means of an electric current. This term is reflective of recent technological advancements in detonation methods.

Electronic detonator. OSHA would define this term to mean a detonator that utilizes stored electrical energy as a means of powering an electronic timing delay element/module and that provides initiation energy for firing the base charge. This term is reflective of recent technological advancements in detonation methods.

Emulsion. This term would be defined to mean an explosive that either contains substantial amounts of oxidizer dissolved in water droplets that are surrounded by an immiscible fuel, or contains droplets of an immiscible fuel that are surrounded by water containing substantial amounts of oxidizer. Emulsions, depending on their properties, are classified as Division 1.1 explosives or Division 1.5 blasting agents. This term has been added due to the development and routine use of emulsions by the industry, and is based upon a recommendation in the Petition (Ex. 2–1).

Hot work. OSHA is proposing to define this term to mean any work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations. This term is consistent with the definition in the PSM standard (§ 1910.119(b)).

Vehicle. This term would be defined by OSHA to mean any motor vehicle, machine, tractor, trailer, or semi-trailer propelled or drawn by mechanical power and used in the transportation of explosives. This replaces the existing definition of ''motor vehicle.'' Unlike the existing definition of ''motor vehicle,'' the proposed definition does not contain the word ''highway'' because the proposed standard covers vehicles that are used both on and off the highway. The term ''self-propelled'' in the existing definition would be replaced by the phrase ''propelled or drawn by mechanical power'' to be consistent with the DOT definition of motor vehicle at 49 CFR 171.8 and recommendations of the Petition (Ex. 2–1).

Revised Definitions

OSHA is proposing the following revisions to existing definitions in § 1910.109:

Blasting agent. OSHA is proposing that this term be defined as any material or mixture intended for blasting that is classified as a Division 1.5 explosive. This is different from the definition in existing paragraph (a)(1) that reads:

> Blasting agent—any material or mixture, consisting of a fuel and oxidizer, intended for blasting, not otherwise classified as an explosive and in which none of the ingredients are classified as an explosive, provided that the finished product, as mixed and packaged for use or shipment, cannot be detonated by means of a No. 8 test blasting cap when unconfined.

OSHA has changed the definition of ''blasting agent'' in the proposed standard to update it and make it consistent with the definition used by the DOT and the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (see discussion below) explosives classification system. The changes were also recommended by the Petition (Ex. 2–1).

Explosive. This term would be defined to mean any device, or liquid or solid chemical compound or mixture, the primary or common purpose of which is to function by explosion. The term ''explosive'' would be defined to include all material included as a Class 1 explosive by DOT in accordance with 49 CFR chapter I. The term would include, but would not be limited to, dynamite, black powder, pellet powders, detonators, blasting agents, initiating explosives, blasting caps, safety fuse, fuse lighters, fuse igniters, squibs, cordeau detonant fuse, instantaneous fuse, igniter cord, igniters, pyrotechnics, special industrial explosive materials, small arms ammunition, small arms ammunition primers, smokeless propellant, cartridges for propellant-actuated power devices, and cartridges for industrial guns.

In the proposed standard, OSHA would classify explosives using the same classification system as DOT (see 49 CFR 173.50). Explosives would be classified using the following divisions:

(i) Division 1.1 consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

(ii) Division 1.2 consists of explosives that have a projection hazard but not a mass explosion hazard.

(iii) Division 1.3 consists of explosives that have a fire hazard and either a minor blast hazard or a minor

projection hazard or both, but not a mass explosion hazard.

(iv) Division 1.4 consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

(v) Division 1.5 consists of very insensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions. (The probability of transition from burning to detonation is greater when large quantities are involved.)

(vi) Division 1.6 consists of extremely insensitive articles which do not have a mass explosive hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. (The risk from articles of Division 1.6 is limited to the explosion of a single article.)

These definitions are different from the existing paragraph (a)(3) that reads:

Explosive—any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion, i.e., with substantially instantaneous release of gas and heat, unless such compound, mixture, or device is otherwise specifically classified by the U.S. Department of Transportation; see 49 CFR chapter I. The term ''explosives'' shall include all material which is classified as Class A, Class B, and Class C explosives by the U.S. Department of Transportation, and includes, but is not limited to dynamite, black powder, pellet powders, initiating explosives, blasting caps, electric blasting caps, safety fuse, fuse lighters, fuse igniters, squibs, cordeau detonant fuse, instantaneous fuse, igniter cord, igniters, small arms ammunition, small arms ammunition primers, smokeless propellant, cartridges for propellant-actuated power devices, and cartridges for industrial guns. Commercial explosives are those explosives which are intended to be used in commercial or industrial operations.

Note 1: Classification of explosives is described by the U.S. Department of Transportation as follows (see 49 CFR chapter I):

(i) Class A explosives. Possessing, detonating, or otherwise maximum hazard; such as dynamite, nitroglycerin, picric acid, lead azide, fulminate of mercury, black powder, blasting caps, and detonating primers.

(ii) Class B explosives. Possessing flammable hazard, such as propellant explosives (including some smokeless propellants), photographic flash powders, and some special fireworks.

(iii) Class C explosives. Includes certain types of manufactured articles which contain Class A or Class B explosives, or both, as components but in restricted quantities.

(iv) Forbidden or not acceptable explosives. Explosives which are forbidden or not acceptable for transportation by common carriers by rail freight, rail express, highway, or water in accordance with the regulations of the U.S. Department of Transportation, 49 CFR chapter I.

The term ''explosive'' in the proposed standard has been modified to be more consistent with the definition currently used by DOT. When § 1910.109 was originally promulgated in 1971, OSHA defined explosives in terms of Class A, Class B, and Class C explosives. Blasting agents were considered separately from explosives. At that time, DOT classified explosives in the same way. While OSHA continues to use this classification system in the existing standard, DOT has revised its explosive classification system.

On December 21, 1990, DOT issued a final rule that revised the ''Hazardous Materials Regulations'' contained in 49 CFR chapter I that cover the classification, packaging and shipping of explosives (including blasting agents), oxidizers, and flammable liquids and solids. Essentially, the revisions adopted the United Nations (UN) Recommendations on the Transport of Dangerous Goods (Ex. 2–18), standardizing the testing, classification, packaging, labeling, placarding, and handling of explosives, thereby reducing regulatory inconsistencies that existed between the United States and other countries for purposes of transport of dangerous goods.

The revision of DOT's classification system eliminated Classes A, B, C, and blasting agents, and adopted the UN classification system that assigns all explosives to Class 1. This UN classification system is called the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) (Ex. 2–2). The system further categorizes Class 1 explosives into Divisions 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6. This classification system includes blasting agents defined as explosives, and assigns them to Division 1.5.

ATF's classification of explosive materials at 27 CFR 555.202 is different from both the former and current DOT classification systems and places explosive materials in three categories: high, low, and blasting agents. In addition, a list of explosive materials is to be published at least annually by ATF (see 27 CFR 555.23).

The use of different explosives classification systems by DOT, ATF, and OSHA is confusing and burdensome for the regulated community. Therefore, OSHA is proposing to adopt the DOT UN-based classification system as part of the definition of explosives as applied in § 1910.109(b). The use of this globally-harmonized system enhances clarity and reduces confusion, thereby resulting in greater understanding and increased safety in the use of explosives. Stakeholders have indicated the desire that other departments and agencies should also consider adoption of the DOT UN-based classification system to reduce the burden for and misunderstanding within the industry.

Another change in the definition of explosives in the proposed standard is the specific inclusion of blasting agents and pyrotechnics. Since blasting agents and pyrotechnics are considered explosives by DOT and are listed in the ATF list of explosive materials, they should be included in the OSHA definition of explosives. There is no significant impact expected from this change since, in both the existing and proposed standards, the manufacture of blasting agents is excluded and the manufacture of pyrotechnics is covered by the PSM requirements (see existing standard §§ 1910.109(k)(2) and (3) and proposed standard §§ 1910.109(a)(2) and (b)).

The following conversion table has been developed to illustrate the differences between the existing (labeled ''Current OSHA Classification'') and the proposed (labeled ''Proposed OSHA/Current DOT Classification'') classification systems and a similar table would be inserted at the end of the proposed definition of ''explosives''.

CLASSIFICATION CONVERSION TABLE

Proposed OSHA/ current DOT classification	Current OSHA classification
Division 1.1	Class A explosives.
Division 1.2	Class A or Class B explosives.
Division 1.3	Class B explosives.
Division 1.4	Class C explosives.
Division 1.5	Blasting agents.
Division 1.6	No applicable hazard class.

Pyrotechnics. OSHA would define this term to mean any combustible or explosive compositions or manufactured articles designed and prepared for the purpose of producing audible or visible effects by combustion, deflagration, or detonation, which are commonly referred to as fireworks. This proposed definition is the same as the

existing definition in (a)(10) except that it includes the additional words ''by combustion, deflagration, or detonation.'' These words have been added to the proposed definition to make it consistent with the definitions used by ATF and NFPA for fireworks.

ATF defines fireworks in 27 CFR 555.11 (Ex. 2–4) as ''any composition or device designed to produce a visible or an audible effect by combustion, deflagration, or detonation, and which meets the definition of 'consumer fireworks' or 'display fireworks' as defined by this section.'' NFPA similarly defines fireworks in paragraph 3.3.30 in the 2003 edition of NFPA 1124 (Ex. 2–19) as ''any composition or device for the purpose of producing a visible or an audible effect by combustion, deflagration, or detonation, and that meets the definition of *consumer fireworks* or *display fireworks* as set forth in this code.''

The DOT regulations do not explicitly define fireworks. However, like the proposed standard, fireworks may be classified under the DOT regulations (49 CFR 172.101) as Division 1.1, 1.2, 1.3, or 1.4 explosives, depending on the properties of the composition.

Semiconductive hose. OSHA is proposing to define this term to mean a hose with an electrical resistance high enough to limit flow of stray electric currents to safe levels, yet not so high as to prevent drainage of static electric charges to ground; or a hose of not more than two megohms resistance over its entire length and of not less than 1,000 ohms per foot. This definition has been modified from the existing requirement in paragraph (a)(12) which states: ''Semiconductive hose—a hose with an electrical resistance high enough to limit flow of stray electric currents to safe levels, yet not so high as to prevent drainage of static electric charges to ground; hose of not more than 2 megohms resistance over its entire length and of not less than 5,000 ohms per foot meets the requirement.'' The modification of the existing text requirement of ''not less than 5,000 ohms per foot resistance'' to the proposed text of ''not less than 1,000 ohms per foot resistance'' is recommended in the Petition (Ex. 2–1) and is also in accordance with the 2001 edition of NFPA 495 (Ex. 2–5) definition. In addition, after further discussion on this issue, IME maintained that the use of 1,000 ohms has become the accepted practice in the industry and it is a better balance in terms of safety to ensure the hose does not become electrically charged and create a source of static electricity. A resistance that is too high can cause the hose to become electrically charged and become a dangerous source of static electricity. The proposed reduction in resistance to 1,000 ohms creates a safer work environment by eliminating the possibility of a static charge that can create a spark at the blast hole. At the same time, anything less than 1,000 ohms may be conductive, which could create a current path from the vehicle directly to the drill hole.

Smokeless propellants. This term would be defined by OSHA to mean solid propellants, commonly called smokeless powders, used in small arms ammunition, cannon, rockets, and propellant-actuated power devices. This proposed definition is essentially the same as the existing definition in paragraph (a)(15). However, the phrase ''in the trade'' immediately after the phrase ''commonly called smokeless propellants'' in the existing definition has been eliminated in the proposed definition because it is unnecessary.

Water gels or slurries. OSHA is proposing that this term be defined as explosives that contain substantial proportions of water, oxidizers, and fuel with a cross-linking agent, a gelling, or a thickening agent added. Water gels or slurries, depending on their properties, are classified as Division 1.1 explosives or Division 1.5 blasting agents. This definition is a plain language rewrite of the existing definition in (a)(18) with no substantive change. The proposed change is consistent with the definition of water gel in paragraph 3.3.58 of the 2001 edition of NFPA 495 (Ex. 2–5), and is based upon a recommendation in the Petition (Ex. 2–1).

The definitions in the existing standard for the following terms have not been included in the proposed standard because the terms are not used in the proposed standard: Explosive-actuated power devices, highway, special industrial explosive devices, and DOT specifications.

Existing paragraph (a)(7), which reads: ''Motor vehicle—any self-propelled vehicle, truck, tractor, semitrailer, or truck-full trailers used for the transportation of freight over public highways,'' has not been retained in the proposal and has been replaced with the term ''vehicle'' as part of the plain language rewrite to eliminate the confusion created in the existing standard which uses several different terms to describe a vehicle.

The definitions of the following terms have remained the same in the proposed standard as in the existing standard: Magazine, propellant-actuated power device, small arms ammunition, small arms ammunition primers, and special industrial explosive materials.

Paragraph (c) General provisions. As OSHA reviewed the existing standard, it appeared that many of the provisions contained in other paragraphs of existing § 1910.109 were more suitably placed under the general provisions in proposed paragraph (c) since they have broad applicability. As a result, proposed paragraph (c) contains general provisions that apply to all explosives activities, including a number of provisions that were previously located in other paragraphs in the existing rule.

Paragraph (c)(1) of the proposal addresses explosive hazards. Paragraph (c)(1)(i) would require the employer to ensure that explosives are manufactured, transported, sold, handled, and used in a safe manner. This requirement is essentially the same as and replaces existing paragraph (b)(1) except that, unlike the existing paragraph, the requirements for safe manufacture and sale of explosives are included in the proposed paragraph to be consistent with the scope of the standard in proposed paragraph (a), as described earlier. In addition, the proposed paragraph (c)(1)(i) will not apply to storage of explosives. The reason for this is explained in the *OSHA's Authority to Regulate* discussion above.

Paragraph (c)(1)(ii) would require the employer to ensure that only persons trained in accordance with paragraph (j) of this section handle or use explosives. Loading and unloading of explosives are examples of handling, and blasting of slag pockets is an example of the use of explosives. This is a new requirement that reinforces the importance of training for all employees engaged in the handling and use of explosives. This proposed paragraph is based on a recommendation in the Petition (Ex. 2–1).

Paragraph (c)(1)(iii) would require the employer to ensure that blasting equipment or explosives that are unsafe due to deterioration, damage, or other causes are not used, and are disposed of by a person experienced in the safe disposal of such materials as soon as possible in accordance with manufacturers' recommendations. This paragraph is derived from and replaces existing paragraph (c)(5)(v) which deals with disposal of deteriorated explosives in storage and (e)(2)(iii) which prohibits the use of deteriorated or damaged explosives or blasting equipment. The two existing requirements were combined into one requirement in the proposal covering explosives that may have deteriorated or been damaged to the point where they have become unstable and may be unsafe. This requirement is also consistent with

paragraph 9.6.3 of the 2001 edition of NFPA 495 (Ex. 2–5) for the disposal of explosive materials.

Paragraph (c)(1)(iv) addresses housekeeping and would require the employer to ensure that proper housekeeping is performed to prevent hazardous accumulations of explosives, oxidizers, or fuels and other sensitizers in, on, or in close proximity to facilities and equipment containing explosives. This would include any amount of accumulation that could potentially create a hazardous situation resulting in a fire or explosion. This is a new requirement and was recommended by the Petition (Ex. 2–1) to ensure that proper housekeeping is maintained to prevent an explosion.

Paragraph (c)(1)(v) would require the employer to ensure that all equipment is maintained in good working condition. In addition, paragraph (c)(1)(vi) would require a program of systematic maintenance of equipment be conducted on a regular schedule. Proposed paragraphs (c)(1)(v) and (vi) contain similar requirements as existing paragraph (h)(3)(v)(b). However, while the requirements in existing paragraph (h)(3)(v)(b) only apply to water gels, the requirements in proposed paragraphs (c)(1)(v) and (vi) would apply to all explosives covered by the proposed standard. OSHA believes it is important for employee safety that equipment involved with any explosives, not just water gels, is maintained in good working condition. The proposed paragraphs have also been re-written in clearer and more concise language. In addition, the proposed requirements are generally consistent with the requirements in paragraph 6.3.5(2) of the 2001 edition of NFPA 495 (Ex. 2–5) for explosives mixing facilities.

Paragraph (c)(1)(vii) would require the employer to ensure that no person is allowed to enter facilities containing explosives, or to transport, handle, or use explosives while under the influence of intoxicating liquors, narcotics, or other drugs that may cause the person to act in an unsafe manner in the workplace. Due to safety considerations, OSHA is proposing that such persons be completely restricted from access to a facility where explosives are manufactured or stored as well as restricting them from the handling and transportation of explosives. This requirement is a result of combining and replacing requirements in existing paragraphs (e)(1)(i) and (g)(6)(iv) that deal with hazards associated with intoxicating liquors, narcotics, or other dangerous drugs. This is another example of where OSHA is proposing to combine two similar requirements into one clearer, more concise requirement. Since this proposed requirement applies to all explosives activities, OSHA is proposing to relocate it in the general requirements paragraph. Existing paragraph (e)(1)(i) also addresses the hazards of smoking, matches, and flame near explosives but these issues are dealt with in proposed paragraph (c)(3).

Paragraph (c)(1)(viii) would require the employer to ensure that no person enters a facility containing explosives or a blast site unless authorized by the employer to enter the facility. This is a new requirement that was recommended by the Petition (Ex. 2–1) and is intended to prevent unnecessary entrance of employees into areas where explosives are present. Due to the nature of explosives, it is imperative that only employees necessary to perform required work are allowed to enter the facility or area containing explosives. In addition, in the event of an accidental explosion, this requirement would limit the number of persons exposed to the hazard. The proposal recognizes the fact that there may be occasions where other persons have a legitimate need to be in these areas and the proposed wording gives the employer sufficient flexibility to allow others to enter when necessary. Such situations may occur when an employer needs to conduct an environmental site tour, a customer or regulator site tour, an internal contractor audit, a senior management safety inspection, or other similar circumstances.

Paragraph (c)(1)(ix) would require the employer to ensure that no flammable cleaning solvents are present in facilities containing explosives except where authorized by the employer and where their presence does not endanger the safety of employees. This is a new requirement and is based on a recommendation in the Petition (Ex. 2–1). Due to their potential to create a fire and thus cause an explosion, it is generally not safe to have flammable cleaning solvents in facilities containing explosives. There are a number of situations, however, where the use of such substances may be appropriate. For example, isopropyl alcohol is used in some instances to clean articles. For storage magazines, ATF requirements in 27 CFR 555.215 (Ex. 2–4) require volatile materials be kept at least 50 feet from outdoor magazines.

The requirements in paragraph (c)(2) of the proposed standard address the electrical hazards associated with explosives. Requirements for electrical protection are scattered throughout the existing § 1910.109 standard. Those requirements have been consolidated into one set of requirements in paragraph (c)(2) of the proposed standard. This will more clearly identify to employers the requirements that must be followed to prevent fires or explosions due to electrical hazards. OSHA notes that the requirements in proposed paragraph (c)(2) supplement the general electrical requirements of 29 CFR part 1910 Subpart S. Employers must, therefore, follow both the Subpart S requirements for all explosives facilities and the additional requirements proposed in paragraph (c)(2).

Paragraph (c)(2)(i) would require the employer to ensure that the primary electrical supply to any part of the facility (e.g., building, loading dock, etc.) containing explosives can be disconnected at a safe remote location away from that part of the facility. A safe remote location from a part of the facility containing explosives is a location far enough away to ensure that, if all the explosives in that part of the facility detonated, a person at the remote location would not be injured by the explosion. In determining what a safe remote location is, the employer will need to consider factors such as the type and amount of explosives present.

This is a new requirement that was recommended by the Petition (Ex. 2–1). It is consistent with the requirements in § 1910.308(c) for special electrical systems and would require a remote, electrical power shut-off switch to each part of a facility containing explosives. It is important that, in the event of an evacuation due to a fire or explosion in part of a facility, the electrical power to that part of the facility can be turned off remotely to prevent any further problems caused by energized circuits such as an electrical short circuit. A ''part of a facility containing explosives'' would include any building on a site where explosives are manufactured, handled or stored.

Proposed paragraph (c)(2)(ii) deals with safety hazards caused by electrical storms. During the approach and progress of an electrical storm, paragraph (c)(2)(ii)(A) would require the employer to ensure that all explosive manufacturing and blasting operations are suspended, and paragraph (c)(2)(ii)(B) would require the employer to ensure that employees located in or near facilities containing explosives, or in blast sites, are withdrawn immediately to a safe remote location. A safe remote location in this case would be a location far enough away from all the explosives in the facility or blast site so that a person would not be injured if there were an explosion. These proposed requirements are based on the

requirements in existing paragraph (e)(1)(vii)(a) which requires employers to remove employees from the blasting area during the approach and progress of an electrical storm. However, proposed paragraph (c)(2)(ii)(A) has been expanded to require the suspension of explosive manufacturing operations and proposed paragraph (c)(2)(ii)(B) also requires the immediate withdrawal of employees located near explosives. This reduces the time the employees are exposed to a potential hazard. The expansion of the existing requirement is in recognition that an electrical storm may be hazardous to employees at facilities and blast sites containing explosives and that employees need to be kept a safe distance away from a potential explosion. This is standard practice in the industry and is consistent with a recommendation in the Petition (Ex. 2–1).

Static electricity as a potential source of ignition is probably the single greatest concern for facilities and blast sites containing explosives. The Petition (Ex. 2–1) recommends new requirements for static electricity protection that would require any new static electricity protection system to comply with NFPA 77, Static Electricity (Ex. 2–7). However, it recommended limiting the application of the requirements only to systems installed after the effective date of the new standard and would not require an existing manufacturing facility to install a new system or modify an existing system to meet the requirements of NFPA 77. IME informed OSHA that certain explosives are not static-sensitive and do not require protection. IME further argues that, since explosives manufacturing is subject to the requirements of OSHA's PSM standard at § 1910.119, areas in an explosives manufacturing facility where static electricity protection systems may be needed should already have been identified through the process hazard analysis requirements of the PSM standard, and adequate safeguards should have been instituted in accordance with the PSM standard.

OSHA believes that static electricity protection systems can be important safety features for facilities containing explosives. The Agency considered proposing a requirement in paragraph (c) that would require the employer to ensure that all facilities containing explosives have appropriate and effective static electricity protection systems, with suggested methods of compliance found in NFPA 77. The Agency decided not to propose such language because it lacked sufficient data and information on the types and effectiveness of static electricity protection systems. OSHA is seeking additional information on these issues through public comments.

Issue #3: Do some or all types of facilities containing explosives require static electricity protection systems? If you think such protection systems are necessary, please explain when and why they are necessary. Should different kinds of protection systems be used in different circumstances, such as in different kinds of facilities, explosives, or geographic locations? What would be the costs associated with requiring static electricity protection systems? To what extent are such protection systems currently being used? What benefit in employee safety, if any, would be gained from using such protection systems? Are there any disadvantages to requiring facilities covered by this standard to install static electricity protection systems?

Proposed paragraph (c)(3) contains requirements that address fire and explosion hazards. Some of the requirements in paragraph (c)(3) are new and others are requirements from existing § 1910.109 that have been consolidated, clarified, and moved to this general fire and explosion prevention paragraph. The purpose of this consolidation is to make it easier for users of the standard to know what fire and explosion prevention regulations are required by combining them into one paragraph.

Paragraph (c)(3)(i) would require the employer to ensure that explosives are handled in a manner that minimizes the spillage and jarring, the generation of explosive dust, and the creation of friction in or in close proximity to explosives. This is a new requirement that is based on a recommendation in the Petition (Ex. 2–1) and OSHA believes it is an important precaution for handling and moving shock and friction sensitive explosive materials.

Paragraph (c)(3)(ii)(A) would require the employer to ensure that when a fire is in imminent danger of contact with explosives, employees do not fight the fire. In addition, paragraphs (c)(3)(ii)(B) and (C) would require that all employees be moved to a safe area and the fire be guarded against intruders. These are new requirements based on a recommendation in the Petition (Ex. 2–1) and are consistent with the language in paragraph 9.1.6 of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA considers these to be widely accepted practices within the industry when dealing with fires near explosive materials. If the fire is past the point where it can be prevented from reaching explosive materials, the requirements in proposed paragraph (c)(3)(ii) would help to ensure that employees are safely away from the explosives in the event that the fire causes them to detonate.

The hazards of flame, matches, and spark producing devices are dealt with in proposed paragraph (c)(3)(iii)(A) by requiring the employer to ensure that no open flames, matches, or spark producing devices are located within 50 feet of explosives or facilities containing explosives. As mentioned earlier, ''facilities containing explosives'' refers to any building on a site where explosives are manufactured, handled or stored. This requirement is a consolidation of four requirements in the existing standard that have been combined into one general requirement and clarified in the proposed rule. Existing paragraphs (c)(5)(vii), (e)(1)(i), (g)(2)(vi)(d), and (g)(5)(iii) deal with open flames, matches, or spark producing devices around magazines, near explosives, near buildings or facilities used to mix blasting agents, and near blasting agent storage warehouses. The term ''facilities containing explosives'' used in proposed paragraph (c)(1)(vii) covers all these situations. The 50-foot prohibition is consistent throughout this proposed rule and, in general, is considered to be an acceptable safe distance.

Issue #4: OSHA seeks specific comments on the impact proposed paragraph (c)(3)(iii) would have on the storage and retail sale of small arms ammunition, small arms primers, and smokeless propellants. Do open flames, matches, or spark producing devices create a hazard when located within 50 feet of small arms ammunition, small arms primers, or smokeless propellants, or facilities containing these products? Can employers involved in the storage or retail sale of small arms ammunition, small arms primers, or smokeless propellants prevent all open flames, matches, or spark producing devices from coming within 50 feet of these products or facilities containing these products? If not, why not? Should proposed paragraph (c)(3)(iii) use a protective distance other than 50 feet and, if so, what distance should it be and why? Should OSHA exclude small arms ammunition, small arms primers, and smokeless propellants from the requirements of proposed paragraph (c)(3)(iii)?

Existing paragraphs (c)(5)(vii), (g)(2)(vi)(d), and (g)(5)(iii) also deal with smoking and the hazards of firearms near storage magazines and blasting agent mixing plants. The proposed standard separates these two concepts and deals with them as individual requirements in proposed paragraphs

(c)(3)(iii)(B) and (C). Proposed paragraph (c)(3)(iii)(B) would require the employer to ensure that smoking is only permitted in authorized smoking areas. This requirement is a change from the existing requirements that allow smoking as long as it is done more than 50 feet away from particular activities or operations. Under the proposed requirement, the employer would have to ensure that smoking areas are a safe distance from explosives.

Proposed paragraph (c)(3)(iii)(C) would require the employer to ensure that no person carries firearms, ammunition, or similar articles in facilities containing explosives or blast sites except as required for work duties. This proposed requirement is different from the existing requirements which prohibit firearms within 50 feet of storage magazines and blasting agent mixing plants. The proposed requirement would prohibit firearms at facilities containing explosives and at blast sites. In addition, as recommended by the Petition (Ex. 2–1), the proposed requirement would prohibit ammunition and similar articles along with firearms. The requirement would allow firearms, ammunition, or similar articles to be carried by guards as needed to perform their work duties.

Paragraph (c)(3)(iii)(D) would require the employer to ensure that vehicles are not refueled within 50 feet of a facility containing explosives or a blast site. This is a new requirement based on a recommendation in the Petition (Ex. 2–1). A fire or explosion caused by refueling a vehicle could in turn cause explosives to explode if they are too near to the refueling vehicle. Proposed paragraph (c)(3)(iii)(D) addresses this hazard by requiring a safe 50-foot distance between explosives and refueling vehicles.

Proposed paragraph (c)(4) covers general maintenance and repairs. These requirements deal with the possibility of maintenance or repair work being a potential cause of an explosion. Paragraph (c)(4)(i) would require the employer to ensure that, before any maintenance or repairs are started in or in close proximity to any facility containing explosives or a blast site, the immediate area surrounding the maintenance or repair work is free of explosives, including residues and dusts containing explosives. The removal of explosives and the cleaning of the surrounding area is a basic precaution necessary to prevent an explosion. Maintenance and repair work may create sparking and may require the use of welding equipment. Such activities could be a source of ignition for explosives and their remnants, including residues and dusts. This proposed safety requirement is based on a recommendation in the Petition (Ex. 2–1). OSHA also believes such cleaning around maintenance or repair work to be standard industry practice.

The proposal does not specify a distance around the maintenance or repair work that must be cleaned. The employer must make the determination of what distance is safe based on the situation. For hot work operations, whether done for maintenance, repair, or for any other reason, the employer must also comply with proposed paragraph (c)(4)(ii), which requires the employer to ensure that the fire prevention and protection requirements in § 1910.252(a) and proposed paragraph (c)(3)(iii) of this section are implemented prior to beginning hot work operations. The requirements in § 1910.252(a) provide general rules for welding operations. In addition, proposed paragraph (c)(3)(iii) would require that any hot work operations, since they are fire hazards, be performed 50 feet or more away from explosives or facilities containing explosives. Therefore, hot work operations may not be performed inside or within 50 feet of facilities containing explosives.

One area that continues to create confusion in the explosives industry is labeling requirements. The existing § 1910.109 standard does not contain labeling requirements. However, labels are required by the Department of Transportation (DOT) for the transportation of packages or containment devices that contain hazardous materials meeting one or more of DOT's hazard class definitions (see 49 CFR part 172, subpart E) (Ex. 2–8). In addition, OSHA's Hazard Communication Standard, 29 CFR 1910.1200, requires labels for hazardous chemicals. Specifically, § 1910.1200(f)(1) requires the chemical manufacturer, importer, or distributor to ensure that each container of hazardous chemicals is labeled, tagged, or marked prior to leaving the workplace. The information must contain the identity of the hazardous chemical(s), appropriate hazard warnings, and the name and address of the chemical manufacturer, importer, or other responsible party. In addition, § 1910.1200(f)(5) requires the employer to ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with information about the identity and hazards of the chemicals in the containers. In both cases, the requirements are performance-oriented and do not specify the design or appearance of the label.

In an effort to clarify the labeling requirements for explosives, OSHA is clarifying in proposed paragraph (c)(5)(i) that the employer must communicate hazards associated with explosives in accordance with the requirements of the Hazard Communication Standard, § 1910.1200. This simply clarifies that packages of explosives are required to be labeled in accordance with § 1901.1200. In addition, the proposed requirement specifies that, where labeling of explosives is required under § 1910.1200, Globally Harmonized System of Classification and Labeling of Chemicals (GHS) (Ex. 2–2) labels must be used for the different divisions of explosives. This makes the labeling requirements in the proposed standard more consistent with the DOT labeling requirements. To make it easier to comply with the proposed label requirements, in addition to describing the contents of the labels, OSHA has proposed to include pictures of the required GHS labels. The labels would have a signal word, a hazard statement, and either a division designation or a pictogram. The pictogram would be black on a white background with a red frame sufficiently large to be clearly visible.

In practical terms, the label required by the proposed standard depends on the status of the container, package, box, or bag. For transport containers, a GHS label would not be required where a DOT label is used (see GHS document paragraph 1.4.10.5.1) (Ex. 2–2). Thus, a truck containing explosives would be placarded on the outside according to DOT requirements, and all transport containers inside the truck would need to be provided with a DOT label. Any packages, boxes, or bags within the transport containers in the truck would require labels in accordance with OSHA's Hazard Communication standard (§ 1910.1200) and proposed paragraph (c)(5)(i) would require the labels to be GHS. In addition, all in-plant containers, packages, boxes, or bags would be required to follow § 1910.1200 requirements and thus would be required to have the GHS labels required by proposed paragraph (c)(5)(i).

In effect, proposed paragraph (c)(5)(i) is not adding a label requirement, but merely specifying the type of label that must be present for compliance with § 1910.1200. Labels required for compliance with § 1910.1200 and those required by DOT will still be necessary.

Issue #5: This proposed paragraph does not contain a phase-in period of time for compliance with the GHS label requirements. The Agency seeks input

on whether employers need a phase-in period to comply with the new requirement of proposed paragraph (c)(5)(i) that requires labels be GHS labels? If so, how long should the phase-in period be to allow employers sufficient time to become familiar with and have the capability to provide these labels on containers?

In addition, OSHA is aware that a United Nations Sub-Committee is considering adding unstable explosives to the GHS on the classification of explosives. They claim that even though unstable explosives are precluded from transport, they may occur in the workplace and need to be classified so that they can be regulated. The Agency seeks information on unstable explosives in the commercial explosives industry, where these unstable explosives occur, and what the hazards are? Are there hazards from unstable explosives that OSHA should regulate?

Proposed paragraph (c)(5)(ii) incorporates the already existing requirement that the employer ensure that DOT markings, placards, and labels are retained in accordance with § 1910.1201. The purpose of proposed paragraph (c)(5)(ii) is to clarify employer requirements concerning the use of DOT markings, placards and labels on packages, vehicles, and freight cars or containers containing explosives. Under § 1910.1201, any employer who receives a package of explosives which is required to be marked, labeled, or placarded in accordance with DOT's hazardous materials regulations (49 CFR parts 171 through 180) must retain those markings, labels, and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards. Section 1910.1201 also requires that any employer who receives a vehicle, freight car, or container that is required to be marked or placarded in accordance with DOT's hazardous materials regulations must retain those markings and placards on the vehicle, freight car, or container until the explosives that require the marking or placarding are sufficiently removed to prevent any potential hazards. However, note that under § 1910.1201(d), for non-bulk packages containing explosives that will not be reshipped, the requirements of § 1910.1201 are met if a label or other acceptable marking is affixed in accordance with the Hazard Communication standard (see § 1910.1201(d)). Under § 1910.1201(e), non-bulk packaging is defined at 49 CFR 171.8 as packaging which has: (1) a maximum capacity of 119 gallons (450 L) or less as a receptacle for a liquid; (2) a maximum net mass of 882 pounds (400 kg) or less and a maximum capacity of 119 gallons (450 L) or less as a receptacle for a solid; or (3) a water capacity of 1000 pounds (454 kg) or less as a receptacle for a gas as defined in 49 CFR 173.115.

Paragraph (d) Storage of ammonium nitrate. As discussed in the preamble above, ''OSHA's Authority to Regulate,'' OSHA is proposing to withdraw the provisions in existing paragraph (c) for the storage of explosives because they are preempted by ATF's regulations covering the storage of explosives (see 27 CFR part 555). In the proposed standard, OSHA proposes to continue to regulate the storage of ammonium nitrate (which is not an explosive) and the storage of small arms ammunition, primers, and smokeless propellants (which are not preempted by ATF's regulations).

Proposed paragraph (d) sets forth requirements for the storage of ammonium nitrate. The existing requirements for ammonium nitrate storage in § 1910.109(i) are based on the 1970 edition of NFPA 490. The proposed requirements are based on the 2002 edition of NFPA 490 (Ex. 2–6). The Petition (Ex. 2–1) did not recommend any changes to the existing requirements for the storage of ammonium nitrate.

OSHA is proposing to remove requirements from existing paragraph (i)(1) that are either unnecessary or outdated. Specifically, the requirements in existing paragraphs (i)(1)(i)(b) and (c) would be removed. Existing paragraph (i)(1)(i)(b) states that the regulations addressing the storage of ammonium nitrate do not apply to the transportation of ammonium nitrate. OSHA has concluded that this requirement is inappropriate because provisions covering the storage of ammonium nitrate are clearly different from provisions covering the transportation of ammonium nitrate.

Existing paragraph (i)(1)(c) states that paragraph (i) covering the storage of ammonium nitrate does not apply to the storage of ammonium nitrate under the jurisdiction of and in compliance with the regulations of the U.S. Coast Guard at 46 CFR parts 146 to 149. OSHA proposes to eliminate this requirement from the proposed standard because it is inaccurate and not related to the storage of ammonium nitrate. Parts 146 and 149 of the U.S. Coast Guard regulations are reserved parts that do not contain any regulations. Parts 147 and 148 contain regulations covering the transportation of hazardous materials on ships. In particular, 46 CFR 148.03–11 and 33 CFR 126.28 describes stowage requirements for Ammonium Nitrate onboard vessels and facilities respectively. Stowage is the general term used for ''storage'' onboard ships and waterfront facilities under the regulations found in 46 CFR part 148 and 33 CFR part 126.

Existing paragraph (i)(1)(ii)(b) states that the standards for ammonium nitrate (nitrous oxide grade) are those found in the ''Specifications, Properties, and Recommendations for Packaging, Transportation, Storage, and Use of Ammonium Nitrate,'' available from the Compressed Gas Association, Inc., which is incorporated by reference as specified in § 1910.6. The purpose and intent of the requirement is not clear. First, this existing paragraph merely references a document containing standards for nitrous oxide grade ammonium nitrate. It does not explain how such standards should be applied. Second, nitrous oxide grade ammonium nitrate is not used in the manufacture of explosives. It is not necessary to provide references in § 1910.109 for grades of ammonium nitrate that are not used in the explosives industry. Since this requirement is both unnecessary and confusing, OSHA proposes to eliminate it and its associated incorporation by reference in the proposed standard.

Proposed paragraph (d)(1) sets out the applicability of the requirements for the storage of ammonium nitrate. Proposed paragraph (d)(1)(i) states that proposed paragraph (d) applies to the storage of ammonium nitrate in quantities of 1,000 pounds (454 kg) or more to be used in the manufacture of explosives. Proposed paragraph (d)(1)(i) replaces existing paragraph (i)(2)(i) with a plain-language re-write to clarify that OSHA intends the requirements to apply to ammonium nitrate that will be used in the manufacture of explosives and that the requirements apply specifically to the storage of ammonium nitrate. OSHA is retaining the 1,000 pounds or more quantity for inclusion in proposed paragraph (d)(1)(i). Ammonium nitrate in quantities of 1,000 pounds or more must be stored according to proposed paragraph (d). This designated limit is consistent with paragraph 1.3 of the 2002 edition of NFPA 490 (Ex. 2–6) and is considered an acceptable threshold in the explosives industry.

Issue #6: OSHA seeks specific comments on whether the storage requirements for ammonium nitrate should be triggered by specific quantities. If so, please explain what those quantities should be and why.

Proposed paragraph (d)(1)(ii) revises existing paragraph (i)(1)(i)(a) to clarify that paragraph (d) does not apply to ammonium nitrate that can be classified

as an explosive. As discussed earlier, the storage of ammonium nitrate that can be classified as an explosive would be covered by the storage requirements for explosives in ATF's regulations (27 CFR part 555).

Proposed paragraph (d)(2) addresses ammonium nitrate stored in buildings. Most of the requirements in the paragraph are consistent with paragraphs in the existing standard and are also consistent with the 2002 edition of NFPA 490. Any proposed requirements that differ from the existing requirements are discussed below.

Paragraph (d)(2)(i) states that buildings or structures constructed and used to store ammonium nitrate since before August 27, 1971, and that do not meet the requirements of proposed paragraph (d)(2), are deemed to be acceptable for the continued storage of ammonium nitrate, provided such use does not endanger the safety of employees. To fall within this exception, the building or structure must have been used to store ammonium nitrate from before August 27, 1971, until the effective date of this proposed standard. This proposed paragraph is consistent with and would replace existing paragraph (i)(2)(iii)(e) which allows continued use of buildings or structures built and used to store ammonium nitrate prior to the August 27, 1971 effective date of the existing standard (36 FR 10466), provided that such use does not endanger the safety of employees.

Paragraph (d)(2)(ii)(A) would require the employer to ensure that ammonium nitrate is stored in a manner that minimizes as far as possible fire and explosion hazards, including exposure to toxic vapors from burning or decomposing ammonium nitrate. This proposed requirement is similar to existing paragraph (i)(2)(ii) except that it covers all quantities of ammonium nitrate of 1,000 pounds or more stored in a building, whereas existing (i)(2)(ii) and paragraph 4.1.4 of the 2002 edition of NFPA 490 limit the requirement to ''large quantity storage'' of ammonium nitrate.

It is not clear what amount of ammonium nitrate would be considered a large quantity. Since ''large quantity'' is undefined in NFPA 490, OSHA believes it is necessary and appropriate to propose a more finite quantity to assure adequate employee protection. As a result, OSHA is proposing to apply this requirement to all quantities of ammonium nitrate covered by proposed paragraph (d). Other minor revisions have been added that are consistent with the plain language re-write and do not change the intent of the existing standard.

Paragraphs (d)(2)(ii)(B) and (d)(2)(ii)(C) would require the employer to ensure that storage buildings are not over one story in height above ground level and storage buildings do not have basements unless the basements are open on at least one side. These proposed requirements are the same as and replace the requirements in existing paragraph (i)(2)(iii)(a). To be consistent with maintaining one requirement per paragraph, the proposal replaces the requirements in existing paragraph (i)(2)(iii)(a) with two separate paragraphs. Both of these proposed requirements are similar to paragraph 4.2.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(2)(ii)(D) would require the employer to ensure that storage buildings are adequately ventilated to prevent unsafe heat or fume accumulations. This is essentially the same as existing paragraph (i)(2)(iii)(b), and paragraph 4.2.2 of the 2002 edition of NFPA 490 (Ex. 2–6) except that it does not contain the option that the building be constructed to be self-ventilating in the event of a fire. The purpose of the self-ventilation requirement in existing paragraph (i)(2)(iii)(b) is unclear. OSHA understands ''self-ventilating'' to mean the building is equipped with automatic (smoke or heat operated) roof vents, presumably to operate prior to fire department arrival. Use of these types of vents, however, has been somewhat controversial over the years for general commodity storage. Existing paragraph (i)(4)(i)(a) also deals with ventilation for warehouses that store bulk ammonium nitrate. In OSHA's continued effort in this proposed rule to combine duplicate requirements in the existing standard, OSHA is combining existing paragraphs (i)(2)(iii)(b) and (i)(4)(i)(a) in proposed paragraph (d)(2)(ii)(D).

Issue #7: In proposed paragraph (d)(2), OSHA is requiring that the ventilation in storage buildings should prevent the accumulation of heat or fumes that could cause a fire rather than be designed to ventilate the storage building once a fire has started. OSHA requests specific comments on this issue, including the proposed approach emphasizing pre-fire safety rather than safety during a fire, and whether self-ventilation should be required for buildings or structures that store ammonium nitrate.

Paragraph (d)(2)(ii)(E) would require the employer to ensure that storage building walls are constructed to meet a four-hour fire resistant rating whenever they face and are within 50 feet of a combustible building, forest, pile of combustible materials, or other similar hazards. This proposed paragraph also would allow that, in lieu of a four-hour fire resistant wall, other equivalent means of exposure protection may be used. This proposed requirement is essentially the same as and replaces requirements in existing paragraph (i)(2)(iii)(c) except that ''fire-resistive construction'' was changed to ''four-hour fire resistant rating'' to be consistent with the 2002 edition of NFPA 490. The term ''four-hour fire resistant rating'' is derived from paragraph 4.2.3 in NFPA 490–2002, which requires a Type I wall for the exposed storage wall, and references NFPA 220, Standard on Types of Building Construction (Ex. 2–20), for a description of the wall to be used. Based on Table 3–1 of NFPA 220, OSHA has determined that the appropriate and most protective wall to be used is a four-hour fire resistant wall for protection against combustible materials.

Paragraph (d)(2)(ii)(F) would require the employer to ensure that roof coverings of buildings or structures used to store ammonium nitrate, at a minimum, afford a light degree of fire protection to the roof deck, do not slip from position, and do not present a flying brand hazard. This proposed requirement is equivalent to and replaces the similar requirement in existing paragraph (i)(2)(iii)(c) except that OSHA proposes to delete the reference to the NFPA standard contained in existing paragraph (i)(2)(iii)(c) and include a more performance based requirement instead.[1] Circumstances may differ from facility to facility. OSHA has considered the relevant NFPA standards and has determined that a Class C (as defined in NFPA 256–2003) or better roof would meet the requirements of this proposed provision.

Issue #8: Does paragraph (d)(2)(ii)(F) as proposed provide adequate guidance for employers to follow in providing a safe roof for buildings or structures used to store ammonium nitrate?

Proposed paragraph (d)(2)(ii)(G) would require the employer to ensure that storage buildings do not exceed a height of 40 feet unless constructed of noncombustible material or adequate

[1] Existing paragraph (i)(2)(iii)(c) references NFPA 203M–1970 (Ex. 2–14) to determine whether the roof meets a rating of Class C or better. This is an incorrect reference since NFPA 203M–1970 does not define a Class C roof covering. NFPA 256 actually provides the test methods to determine the rating of a roof. The 2000 edition of NFPA 203 (NFPA 203M was re-designated as NFPA 203) (Ex. 2–15) references paragraphs 3.1.1 and 3.1.5 in NFPA 256 for the test methods to determine the classification of roof coverings.

facilities for fighting a roof fire are available. This proposed requirement is the same as and replaces existing paragraph (i)(4)(i)(b) except that the proposed requirement covers the storage of bulk ammonium nitrate and the storage of ammonium nitrate in bags, drums or other containers whereas the existing requirement only covers the storage of bulk ammonium nitrate. The proposed paragraph has also been re-written in clearer language. In addition, it is consistent with paragraph 6.1.2 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(2)(ii)(H) would require the employer to ensure that all flooring is of noncombustible material. Paragraph (d)(2)(ii)(I) would require the employer to ensure that all flooring is protected against impregnation by ammonium nitrate. Paragraph (d)(2)(ii)(J) would require the employer to ensure that no flooring has drains or piping into which any molten ammonium nitrate could flow and be confined in the event of fire. These proposed requirements are the same as and replace existing paragraph (i)(2)(iii)(d) except that they have been separated into individual provisions and re-written in clearer and more concise language. The proposed requirements are also consistent with paragraph 4.2.4 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(2)(ii)(K) would require the employer to ensure that storage buildings are dry and free from water seepage. This proposed requirement has been re-written in clearer and more concise language and replaces existing paragraph (i)(2)(iii)(f). Proposed paragraph (d)(2)(ii)(K) is also consistent with paragraph 4.2.6 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(2)(ii)(L) would require the employer to ensure that unauthorized persons do not enter an ammonium nitrate storage area. This proposed requirement is the same as and replaces existing paragraph (i)(6)(iii) except that it has been re-written in more succinct and understandable language.

Paragraph (d)(2)(ii)(M) would require the employer to ensure that ammonium nitrate and storage buildings containing ammonium nitrate are located at a safe distance from readily combustible fuels. This proposed requirement is the same as and replaces existing paragraph (g)(5)(v) except that it has been re-written in clearer language. The proposed paragraph is also consistent with paragraph 5.5.2 of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA believes that it is important for employee safety to keep combustible fuels away from all ammonium nitrate, not just piles of ammonium nitrate (as in the existing requirement).

Paragraph (d)(2)(ii)(N) would require the employer to ensure that in areas where lightning storms are prevalent, lightning protection systems are provided. Lightning protection systems meeting the safety requirements found in Appendix K of National Fire Protection Association (NFPA) 780–2004, *Standard for the Installation of Lightning Protection Systems*), or other equally protective criteria would meet the requirements of this provision.

This proposed requirement is similar to and replaces existing paragraph (i)(6)(ii) except that the reference to NFPA has been updated, as discussed below, and compliance options broadened.

OSHA found the requirement in existing paragraph (i)(6)(ii) may be confusing and difficult for employers to comply with for two reasons. First, the phrase ''in areas where lightning storms are prevalent'' is somewhat vague. Without clarification of where these areas are, the Agency believes this requirement may be difficult to comply with and difficult for OSHA to enforce. Second, the existing requirement also refers to NFPA 78–1968, *Lightning Protection Code* (Ex. 2–11), which appears to be problematic as well as outdated. When reviewing this NFPA document, OSHA found it difficult to determine how lightning protection for explosives is covered by NFPA 78–1968. In the NFPA 78–1968 document, Section 20, paragraph 2001 states that the code does not apply to ''explosives manufacturing buildings and magazines.''

The current Lightning Protection Code, NFPA 780–2004 (Ex. 2–10) (in 1992 the numerical designation of the code was changed from NFPA 78 to NFPA 780), is similarly confusing in its application to explosives. The scope of NFPA 780–2004 states in paragraph 1.1.2(1) that the document does not cover lightning protection system installation requirements for explosives manufacturing buildings and magazines. However, in an explanatory note, the reason given for the exclusion is that these structures need special consideration because the contents of the structures are sensitive to arc or spark ignition. The note goes on to direct the reader to Appendix K of NFPA 780–2004 for guidance on protection of such structures. Based on this, it appears that NFPA made a determination to add guidance for lightning protection for explosives facilities after 1968 and those guidelines were placed in an Appendix K to NFPA 780–2004. It also appears that even though the scope of NFPA 780–2004 excludes explosives facilities, the standard does contain requirements for lightning protection at explosives facilities in its Appendix K.

Therefore, proposed paragraph (d)(2)(ii)(N) specifically indicates that Appendix K of NFPA 780–2004 or other equally protective criteria can be used for guidance on installing a lightning protection system. OSHA believes this will clarify the applicability of NFPA 780–2004. However, the systems identified in NFPA 780–2004 Appendix K are not the only systems that can be used. They are identified for purposes of providing guidance to employers on possible systems that meet the requirements of the proposed standard and employers are free to employ any protective systems that would afford equivalent protection.

OSHA did not change the requirement that lightning protection be provided only in areas where lightning storms are prevalent and did not change the applicability to storage of ammonium nitrate. To make the proposed lightning protection requirement easier to understand and comply with, OSHA considered revising the language to eliminate the restriction to ''areas where lightning storms are prevalent.'' In addition, OSHA considered expanding the requirement's application to all facilities containing explosives. This would mean that any existing facility without a lightning protection system would need to be retrofitted with a system.

These changes have not been included in this proposed rule because OSHA believes that additional information is needed in order to fully evaluate the potential impact of such changes on affected facilities. The Agency is seeking specific comments as described below.

Issue #9: Should OSHA require lightning protection systems for any facility that contains ammonium nitrate or explosives? What would these systems cost? What would it cost to install lightning protection systems at facilities that currently do not have them? Is the meaning of the words ''in areas where lightning storms are prevalent'' in proposed paragraph (d)(2)(ii)(N) clear? If not, is there any language OSHA should consider using to clarify the meaning of the proposed provision? Should OSHA require lightning protection systems in all areas since lightning storms can occur anywhere? Is it appropriate for OSHA to refer in proposed paragraph (d)(2)(ii)(N) to NFPA 780–2004 Appendix K for recommended methods of compliance for buildings storing ammonium nitrate?

Proposed paragraph (d)(3) addresses the storage of ammonium nitrate in bags and containers and is similar to existing paragraph (i)(3). In proposed paragraph (d)(3), OSHA uses the term ''containers'' to mean any container used for the storage of ammonium nitrate (including drums). Although existing paragraph (i)(3) includes the term ''drums,'' the term is not used in any of the requirements that follow existing paragraph (i)(3). OSHA believes this could lead to confusion and has proposed, for clarity purposes, that drums be treated the same as other containers used to store ammonium nitrate. OSHA believes this is the intent of both existing paragraph (i)(3) and Chapter 5 of the 2002 edition of NFPA 490.

Paragraph (d)(3)(i)(A) would require the employer to ensure that bags and containers used for ammonium nitrate storage are constructed in accordance with DOT regulations (49 CFR chapter I). Paragraph (d)(3)(i)(B) would require the employer to ensure that bags and containers used for ammonium nitrate storage are labeled in accordance with DOT regulations (49 CFR chapter I) or § 1910.1200 regulations, as applicable. The proposed requirements in (d)(3)(i)(A) and (B) are similar to and replace existing paragraph (i)(3)(i)(a) except that they have been re-written in clearer language using the terms and references consistent with those used throughout this proposed rule. They are also consistent with paragraph 5.1 of the 2002 edition of NFPA 490 (Ex. 2–6). In addition, for ease of compliance, the proposed requirements were revised into two separate subparagraphs, one covering the construction of the bags and containers used for ammonium nitrate storage and the other for the labeling of the bags and containers. This clarifies that the referenced DOT regulations include both construction and labeling criteria and, to be consistent with proposed paragraph (c)(5)(i), the labeling requirements in proposed paragraph (d)(3)(i)(B) include compliance with § 1910.1200, as applicable.

Proposed paragraphs (d)(3)(i)(A) and (d)(3)(i)(B) are not intended to cover bags or containers used for the temporary holding of ammonium nitrate during the manufacture of explosives. If a bag or container is used to temporarily hold ammonium nitrate during the manufacturing of explosives, it is not considered storage. Since the temporary holding of material during the manufacturing process is not considered storage, OSHA is proposing not to retain existing paragraph (i)(3)(i)(b) which excludes containers used in the actual manufacturing of explosives from compliance with existing paragraph (i)(3)(i)(a).

Paragraph (d)(3)(ii) would require the employer to ensure that bags and containers of ammonium nitrate are not placed into storage when the temperature of the ammonium nitrate exceeds 130 °F. This proposed requirement is essentially the same as and replaces existing paragraph (i)(3)(ii)(a) except that it has been rewritten in clearer language using terms consistent with the proposed rule. In addition, unlike the existing requirement that only applies to containers, the proposed requirement applies to both bags and containers since they are treated the same in the proposed standard. Proposed paragraph (d)(3)(ii) is also consistent with paragraph 5.2.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(3)(iii) would require the employer to ensure that bags and containers of ammonium nitrate are not stored within 30 inches of storage building walls and partitions. This proposed requirement is the same as and replaces existing paragraph (i)(3)(ii)(b) except that it also includes containers to be consistent with other requirements in proposed paragraph (d)(3). Proposed paragraph (d)(3)(iii) is also slightly different than paragraph 5.2.2 of the 2002 edition of NFPA 490 (Ex. 2–6) which only addresses bags. However, as stated earlier, OSHA is treating bags and containers in the same way in this proposed standard.

Paragraph (d)(3)(iv) would require the employer to ensure that stacks of bags or containers of ammonium nitrate do not exceed 20 feet in height or 20 feet in width. Proposed paragraph (d)(3)(v) would require the employer to ensure that stacks of bags or containers of ammonium nitrate are limited to 50 feet in length unless located in a building of non-combustible construction or protected by an automatic sprinkler system. Proposed paragraph (d)(3)(vi) would require the employer to ensure that bags or containers of ammonium nitrate are not stacked within 36 inches of the roof or overhead supporting structure of the storage building. These three requirements are the same as and replace those in existing paragraph (i)(3)(ii)(c) except that the proposed requirements use the terms ''stacks of bags or containers'' whereas existing paragraph (i)(3)(ii)(c) uses the term ''piles.'' Proposed paragraphs (d)(3)(iv), (v), and (vi) are also consistent with paragraphs 5.2.3 and 5.2.4 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(3)(vii) would require the employer to ensure that aisles at least 3-feet wide are provided to separate stacks of bags or containers of ammonium nitrate and paragraph (d)(3)(viii) would require the employer to ensure that at least one main aisle separating stacks of bags or containers of ammonium nitrate in the storage area is at least 4-feet wide. The purpose of this wider aisle requirement is to facilitate egress in case of an emergency. These proposed requirements are the same as and replace the requirements in existing paragraph (i)(3)(ii)(d) except that they have been rewritten in clearer language. In addition, the term ''piles'' in existing paragraph (i)(3)(ii)(d) has been replaced in proposed paragraph (d)(3)(vii) and (viii) with the phrase ''stacks of bags or containers.'' The proposed requirements are also consistent with those in paragraph 5.2.5 of the 2002 edition of NFPA 490 (Ex. 2–6).

Proposed paragraph (d)(4) addresses storage of bulk ammonium nitrate. Paragraph (d)(4)(i) would require the employer to ensure that bulk storage bins used to store ammonium nitrate are clean and free of materials which may contaminate the ammonium nitrate. The proposed requirement is essentially the same as and replaces existing paragraph (i)(4)(ii)(a) except that the proposed language uses the term ''bulk storage bins'' instead of just ''bins.'' OSHA believes the term ''bulk storage bins'' better describes the bins that are regulated. Proposed paragraph (d)(4)(i) is also consistent with paragraph 6.2.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(4)(ii) would require the employer to ensure that, to avoid contamination of the ammonium nitrate, galvanized iron, copper, lead, and zinc are not used in the construction of ammonium nitrate bulk storage bins unless suitably protected against the corrosive and reactive properties of the ammonium nitrate. Proposed paragraph (d)(4)(iii) would require the employer to ensure that aluminum and wooden bulk storage bins used to store ammonium nitrate are protected against ammonium nitrate impregnation. Proposed paragraph (d)(4)(iv) would require the employer to ensure that the partitions dividing stored ammonium nitrate from other products are constructed to prevent contamination of the ammonium nitrate with these other products. All three of these proposed requirements are essentially the same as and replace the requirements in existing paragraph (i)(4)(ii)(b). They are also consistent with paragraphs 6.2.2 and 6.2.3 of the 2002 edition of NFPA 490 (Ex. 2–6). To be consistent with the goal of specifying one requirement per paragraph, the proposal simply splits

the requirements in existing paragraph (i)(4)(ii)(b) into three separate paragraphs. Each of the three proposed requirements has been re-written in clearer language without changing the intent of the existing requirements.

Paragraph (d)(4)(v) would require the employer to ensure that ammonium nitrate bulk storage bins or piles are clearly identified by signs reading ''Ammonium Nitrate'' with letters at least 2-inches high. This proposed requirement is the same as existing paragraph (i)(4)(ii)(c) except that the proposed requirement uses the term ''bulk storage bins,'' as discussed earlier. It is also consistent with paragraph 6.2.4 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(4)(vi) would require the employer to ensure that bulk ammonium nitrate in piles or in bulk storage bins is loosened or moved periodically to minimize caking. This proposed requirement is the same as and replaces existing paragraph (i)(4)(iii)(a) except that it has been rewritten in clearer, more concise language. The word ''loosened'' was added to provide a better description of what OSHA intends the standard to require to prevent caking. The proposed paragraph is also consistent with paragraph 6.3.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(4)(vii) would require the employer to ensure that explosives are not used to break up or loosen caked ammonium nitrate. This proposed requirement is essentially the same as and replaces existing paragraph (i)(4)(iii)(d) except that it has been rewritten in clearer language using terms consistent with those defined in this proposed standard. The proposed requirement is also consistent with paragraph 6.3.4 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(4)(viii) would require the employer to ensure that the top of a bulk ammonium nitrate pile is no closer than 36 inches below the roof or supporting structure of the storage building. This proposed requirement is a change from existing paragraph (i)(4)(iii)(b) and paragraph 6.3.2 of the 2002 edition of NFPA 490 (Ex. 2–6). The existing requirement states that: ''Height or depth of piles shall be limited by the pressure-setting tendency of the product.'' Because this sentence is more of an informative statement and is not a safety requirement, OSHA is not retaining it in proposed paragraph (d)(4)(viii). Aside from the elimination of this sentence, the proposed paragraph has been rewritten in clearer language.

Paragraph (d)(4)(ix) would require the employer to ensure that bulk ammonium nitrate is not placed into storage when its temperature exceeds 130 °F. This proposed requirement is the same as and replaces existing paragraph (i)(4)(iii)(c) except that it has been re-written to be consistent with the similar requirement for storage of bags and containers in proposed paragraph (d)(3)(ii). Proposed paragraph (d)(4)(ix) is also consistent with paragraph 6.3.3 of the 2002 edition of NFPA 490 (Ex. 2–6).

Proposed paragraph (d)(5) contains requirements that address ammonium nitrate contaminants. Paragraph (d)(5)(i) would require the employer to ensure that ammonium nitrate is kept in its own building, or is separated from flammable, combustible, corrosive, explosive, or contaminating materials or processes by a wall with at least a 1-hour fire-resistant rating. The separation wall would have to extend at least to the underside of the roof. In lieu of separation walls, ammonium nitrate may be separated from these materials or processes by a space of at least 30 feet with means to prevent mixing, such as sills or curbs. This proposed requirement is a combination of requirements in existing paragraphs (i)(5)(i)(a) and (i)(5)(i)(b). For purposes of clarity and ease of compliance, OSHA proposes to replace the list of items [2] in existing paragraph (i)(5)(i)(a) that ammonium nitrate should be separated from with a description of the types of materials from which ammonium nitrate should be separated. OSHA believes flammable, combustible, corrosive, explosive, or contaminating materials or processes covers all items in the list in existing paragraph (i)(5)(i)(a) and would allow for any other materials or newly developed materials to be covered where the existing list might not include them due to its more restrictive scope. OSHA is concerned that a hazardous material not contained in the existing list could be misconstrued as being safe to store with ammonium nitrate. Also the alternate means to prevent mixing of materials (a 30-foot or more separation) contained in existing paragraph (i)(5)(i)(b) was included in proposed paragraph (d)(5)(i) to make the requirement self-contained for ease of compliance. The addition of a means to prevent mixing by use of sills or curbs was added to proposed paragraph (d)(5)(i) to be consistent with paragraph 7.1.3 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(5)(ii) would require the employer to ensure that flammable liquids are not placed or stored in buildings used for the storage of ammonium nitrate except where permitted by § 1910.106 and proposed paragraph (d)(5)(i) of § 1910.109. Section 1910.106 contains OSHA's general requirements for flammable and combustible liquids. Proposed paragraph (d)(5)(ii) is essentially the same as and replaces existing paragraph (i)(5)(i)(c) except that it has been rewritten in clearer language with redundancies and extraneous words removed. The proposed paragraph is also consistent with paragraph 7.1.4 of the 2002 edition of NFPA 490 (Ex. 2–6). In addition, proposed paragraph (d)(5)(ii) applies to the placement as well as the storage of flammable liquids in buildings used to store ammonium nitrate. OSHA is convinced that even short term placement of flammable liquids in such buildings can be hazardous unless adequate precautions are taken.

Paragraph (d)(5)(iii) would require the employer to ensure that no liquefied petroleum gas is placed or stored in a building used to store ammonium nitrate except in accordance with § 1910.110. Section 1910.110 contains OSHA's general requirements for storage and handling of liquefied petroleum gases. The proposed requirement is essentially the same as and replaces existing paragraph (i)(5)(i)(d). Proposed paragraph (d)(5)(iii) is also consistent with paragraph 7.1.5 of the 2002 edition of NFPA 490 (Ex. 2–6).

Paragraph (d)(5)(iv) would require the employer to ensure that sulfur and finely divided metals are not stored in the same building with ammonium nitrate. This proposed requirement is the same as and replaces existing paragraph (i)(5)(ii)(a) except that it has been rewritten in clearer language. Sulfur and finely divided metals can create a fire hazard and should be kept in a separate building from the ammonium nitrate building. The proposed paragraph is also consistent with paragraph 7.2.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

OSHA is not retaining paragraphs (i)(5)(ii)(b) through (i)(5)(ii)(d) in the

[2] Existing paragraph 1910.109(i)(5)(i)(a) states that: ''Ammonium nitrate shall be in a separate building or shall be separated by approved type firewalls of not less than 1 hour fire-resistance rating from storage of organic chemicals, acids, or other corrosive materials, materials that may require blasting during processing or handling, compressed flammable gases, flammable and combustible materials or other contaminating substances, including but not limited to animal fats, baled cotton, baled rags, baled scrap paper, bleaching powder, burlap or cotton bags, caustic soda, coal, coke, charcoal, cork, camphor, excelsior, fibers of any kind, fish oils, fish meal, foam rubber, hay, lubricating oil, linseed oil, or other oxidizable or drying oils, naphthalene, oakum, oiled clothing, oiled paper, oiled textiles, paint, straw, sawdust, wood shavings, or vegetable oils. Walls referred to in this subdivision need extend only to the underside of the roof.''

existing standard because they focus on the storage of explosives (including blasting agents) rather than the storage of ammonium nitrate. As discussed earlier, the storage of explosives (including blasting agents) is covered by ATF regulations.

The final topic addressing the storage of ammonium nitrate deals with fire protection. Proposed paragraph (d)(6)(i) would require the employer to ensure that buildings in which greater than 2500 tons of ammonium nitrate is stored are equipped with an automatic sprinkler system that complies with § 1910.159. The proposed requirement is similar to and replaces existing paragraph (i)(7)(i). It is also consistent with paragraph 9.1.1 of the 2002 edition of NFPA 490 (Ex. 2–6).

Issue #10: OSHA requests comments on the issue of automatic sprinkler systems for the storage of ammonium nitrate. In terms of employee safety, is it appropriate to only require an automatic sprinkler system for the storage of ammonium nitrate in quantities exceeding 2,500 tons? Should the storage of ammonium nitrate in quantities less than 2,500 tons, e.g. 1,000 tons, require an automatic sprinkler system? Should the storage of ammonium nitrate, regardless of quantity, always require an automatic sprinkler system? Alternatively, should OSHA consider eliminating the requirement for automatic sprinkler systems for ammonium nitrate storage? What evidence would support the elimination of this requirement?

Paragraph (d)(6)(ii) would require the employer to ensure that all fire protection equipment and systems in ammonium nitrate storage buildings meet the requirements of Subpart L, Fire Protection, of this part. This proposed requirement replaces existing paragraphs (i)(7)(ii)(a) and (i)(7)(ii)(b) and requires the use of the more updated and specific OSHA regulations for fire protection equipment and systems contained in subpart L.

Paragraph (e) Transportation of explosives. As discussed earlier in the Authority to Regulate section of the preamble, OSHA has authority to regulate working conditions during the transportation of explosives. Unless otherwise specified, all the requirements in proposed paragraph (e) apply to the transportation of explosives both within and outside private facilities and worksites.

Proposed paragraph (e)(1) addresses general provisions associated with the transportation of explosives. Proposed paragraph (e)(1)(i) would require the employer to ensure that no employee smokes, carries matches or any other flame-producing device, or carries any firearms or cartridges (except firearms and cartridges required to be carried by guards) while in, or within 25 feet (7.63m) of, a vehicle containing explosives. This proposed requirement replaces a comparable requirement in existing paragraph (d)(1)(i) except this proposed paragraph includes an exception for firearms and cartridges required to be carried by guards. It is also consistent with paragraph 7.1.4 of the 2001 edition of NFPA 495 (Ex. 2–5).

Existing paragraph (d)(1)(i) states that: ''No employee shall be allowed to smoke, carry matches or any other flame-producing device, or carry any firearms or loaded cartridges while in or *near* a motor vehicle transporting explosives'' (emphasis added). To eliminate confusion over the meaning of the term ''near'' as used in existing paragraph (d)(1)(i), OSHA specifies in proposed paragraph (e)(1)(i) that such items and activities must remain at least 25 feet away from the vehicle. The proposed 25-foot requirement is also consistent with the Federal Motor Carrier Safety Administration requirements in 49 CFR 397.13.

Proposed paragraph (e)(1)(i), along with many others in this proposed transportation paragraph, uses the term ''vehicle.'' As discussed in the definitions section of this preamble, OSHA has defined the term ''vehicle'' in this proposal, as described in the preamble above when discussing definitions. The reason for defining and using the term ''vehicle'' is to eliminate any confusion created in the existing standard which uses several different terms, such as a motor vehicle, semitrailer, truck, and van, to describe a vehicle.

Paragraph (e)(1)(ii) would require the employer to ensure that no employee drives, loads, or unloads a vehicle containing explosives in an unsafe manner. This proposed requirement is essentially the same as and replaces a requirement in existing paragraph (d)(1)(i) except that it has been re-written in clearer language. It is also consistent with paragraph 7.1.5 of the 2001 edition of NFPA 495 (Ex. 2–5). To achieve the goal of specifying one requirement per paragraph, OSHA has split the requirements in existing paragraph (d)(1)(i) into two separate proposed paragraphs (e)(1)(i) and (e)(1)(ii).

Paragraph (e)(1)(iii) would require the employer to ensure that explosives are not transferred from one vehicle to another without informing local fire and police departments. This will help to ensure that the transfer is performed in a safe manner. In addition, a competent person must supervise the transfer of explosives. This is applicable to all transfer work whether it is done within private facilities or on public highways. A competent person is defined in proposed paragraph (b) as an employee designated by the employer who, by way of training and/or experience, is knowledgeable about applicable standards, is capable of identifying workplace hazards relating to explosives, and has authority to take appropriate corrective actions to control such hazards. Proposed paragraph (e)(1)(iii) would also require the employer to ensure that in the event of breakdown or collision, the local fire and police departments are promptly notified. Informing such local authorities will help to ensure that the breakdown or collision is handled in a safe manner. Proposed paragraph (e)(1)(iii) differs from existing paragraph (d)(1)(iii), but is compatible with paragraph 7.1.7 of the 2001 edition of NFPA 495 (Ex. 2–5). The existing requirement only requires a competent person when the transfer involves a disabled vehicle, whereas the proposal would require the supervision of a competent person whenever a transfer of explosives occurs between two vehicles, whether or not the transfer is caused by the breakdown of one of the vehicles. OSHA recognizes the risks involved in the transfer of explosives and proposes to ensure that this activity is always done under the supervision of a competent person as defined in paragraph (b).

Paragraph (e)(1)(iv) would require the employer to ensure that no repair work, other than emergency repairs that do not present a source of ignition, is performed on a vehicle containing explosives. This is a new requirement based on a recommendation in the Petition (Ex. 2–1). OSHA agrees with the Petition that there are risks involved in making vehicle repairs near explosives since certain repair work could be a source of ignition for the explosives in the vehicle. As a result, OSHA is only permitting such repair work in emergency situations when the work can be performed safely. The proposed paragraph is consistent with requirements in proposed paragraph (c)(4) discussed above.

Paragraph (e)(1)(v) would require the employer to ensure that detonators are not transported with other explosives in the same vehicle, unless packaged, segregated, and transported in accordance with the regulations of DOT (49 CFR chapter I) (Ex. 2–8). This proposed requirement replaces existing paragraph (d)(1)(iv) except that, instead of using the terms ''blasting caps'' and

''electric blasting caps'' as in the existing paragraph, OSHA is proposing to use the term ''detonators'' (which includes blasting caps and electric blasting caps) to be consistent with the industry use of this term. The proposed paragraph is also consistent with paragraph 7.1.8 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (e)(1)(vi) would require the employer to ensure that when explosives are transported on a railway car utilizing private railroad tracks, the car, its contents, and method of loading are in accordance with the regulations of DOT (49 CFR chapter I) (Ex. 2–8). This proposed requirement replaces existing paragraph (f)(1). While DOT regulations cover railway cars on public railroad tracks, the proposed requirement covers such cars on private railroad tracks. OSHA's intent here is to ensure that employees are provided the same level of safety when the railway car is on private tracks as compared to public railway tracks. The proposed language is also consistent with paragraph 11.1.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (e)(1)(vii) would require the employer to ensure that explosives at a railway facility, truck terminal, pier, harbor facility, or airport terminal, whether for delivery to a consignee or forwarded to some other destination, are kept in a manner that minimizes risk to employees. This proposed requirement is changed somewhat from existing paragraph (f)(4) and paragraph 11.1.4 of the 2001 edition of NFPA 495 (Ex. 2–5). Compared to the existing requirement and the NFPA standard, the proposed paragraph places more emphasis on employee safety to ensure that risk to employees is minimized.

Paragraph (e)(1)(viii) would require the driver or other employee attending the vehicle be knowledgeable about the nature and hazards of the explosives contained in the vehicle and the procedures for handling emergency situations. This proposed requirement replaces a requirement in existing paragraph (d)(3)(iii) except that it has been updated and rewritten in clearer and more concise language. OSHA has eliminated the language in existing paragraph (d)(3)(iii) that refers to public safety because such issues are outside of OSHA's authority to regulate.

Proposed paragraph (e)(2) addresses vehicles used in the transportation of explosives. Paragraphs (e)(2)(i)(A) through (C) would require the employer to ensure that any vehicle used to carry explosives is able to safely carry the designated load, has close-fitting floors, and has wood or other non-sparking materials covering any exposed spark-producing metal on the inside of the vehicle body. Proposed paragraph (e)(2)(i) rewrites and simplifies the requirements in existing paragraph (d)(2)(i), putting the revised requirements into three separate proposed paragraphs, (e)(2)(i)(A) through (C). The proposed requirements are also consistent with paragraphs 7.2.1, 7.2.3, and 7.2.4 of the 2001 edition of NFPA 495 (Ex. 2–5).

Issue #11: Existing paragraph (d)(2)(i) and proposed paragraph (e)(2)(i)(C) require the employer to ensure that any vehicle used to carry explosives has wood or other non-sparking materials covering any exposed spark-producing metal on the inside of the vehicle body. This is not consistent with paragraph 8.2.3 of the 2006 edition of NFPA 495 (Ex. 2–21) which requires: ''Vehicles used for transporting frictional spark-sensitive explosive materials such as Black Powder and primary explosives shall have no exposed spark-producing surface inside of the cargo body.'' Should the requirements in proposed paragraph (e)(2)(i)(C) only apply to frictional spark-sensitive explosives? Would such a limitation in proposed paragraph (e)(2)(i)(C) reduce the cost of transporting non-frictional spark-sensitive explosives?

Paragraph (e)(2)(ii) would require the employer to ensure that any vehicle containing explosives or oxidizers located at a private facility or blast site has exterior markings or placards designed and displayed in accordance with the regulations of DOT (49 CFR chapter I) (Ex. 2–8). This proposed requirement is a change from and replaces existing paragraph (d)(2)(ii)(a) which contains a table of required OSHA markings and placards. Since DOT already addresses vehicle markings and placards, and compliance with DOT regulations during the transportation of explosives outside of private facilities is required throughout the explosives industry, OSHA proposes to adopt DOT regulations and apply them to vehicles containing explosives or oxidizers in private facilities rather than continue to require a separate set of placards and markings. OSHA believes this proposed language will make it easier for employers to comply with placarding and marking requirements and will increase safety by eliminating any possible confusion created by different OSHA and DOT requirements for the similar activities. Since DOT placarding and marking regulations already cover transportation outside of private facilities, this proposed paragraph applies the same requirements to vehicles on private facilities.

Because OSHA proposes to reference DOT regulations for placarding and marking of vehicles, the placarding and marking requirements in existing paragraphs (d)(2)(ii)(c), (d), and (e) are no longer necessary and are not included in the proposed standard.

Proposed paragraph (e)(2)(iii) addresses open-bodied vehicles. Proposed paragraph (e)(3)(iii)(A) would require the employer to ensure that any explosives on an open-bodied vehicle are protected with a flameproof and moisture-proof tarpaulin or other effective means of protection from fire, sparks, and moisture. This proposed requirement is essentially the same as and replaces a requirement in existing paragraph (d)(2)(i) except that it has been re-written in clearer language and the proposed paragraph includes protection from fire as well as sparks and moisture. A similar requirement was contained in paragraph 421 of the 1970 version of NFPA 495 (Ex. 2–13). It is not, however, in the current 2001 edition of NFPA 495. While OSHA is not sure why this requirement was eliminated from the 2001 edition, it believes that this type of protection is still important for employee protection and proposes to retain this requirement in the proposed standard.

Paragraph (e)(2)(iii)(B) would require the employer to ensure that the explosives in open-bodied vehicles are not loaded above the sides of the vehicle. This proposed requirement is the same as and replaces a requirement in existing paragraph (d)(2)(i). This requirement was also in paragraph 421 of the 1970 version of NFPA 495 (Ex. 2–13) but is not in the 2001 edition. However, OSHA believes this to be an important requirement for employee protection and is proposing to retain it in this proposed standard. As discussed earlier, existing paragraph (d)(2)(i) is a very long requirement containing many separate requirements. To encourage better understanding, OSHA is proposing to split existing paragraph (d)(2)(i) into several paragraphs, each containing an individual requirement.

Proposed paragraph (e)(2)(iv) addresses the necessity for fire extinguishers in vehicles used to carry explosives. Paragraph (e)(2)(iv)(A) would require the employer to ensure that each vehicle used to carry explosives is equipped with at least two fire extinguishers filled and in good working order, each having a rating of at least 4–A:40–B:C. This proposed requirement is essentially the same as existing paragraph (d)(2)(iii) except that the required fire extinguishers have been upgraded to meet the standards in paragraph 8.2.6 of the 2006 edition of

NFPA 495 (Ex. 2–21). In addition, the changes in the proposed requirement were recommended by the Petition (Ex. 2–1).

Paragraph (e)(2)(iv)(B) would require the employer to ensure that each vehicle used to carry explosives has one fire extinguisher located in close proximity to the driver's seat. This proposed requirement is derived from existing paragraph (d)(2)(iii)(b) and paragraph 7.2.6 of the 2001 edition of NFPA 495 (Ex. 2–5). The extinguisher filling and examination requirements contained in existing paragraph (d)(2)(iii)(b) are addressed in proposed paragraph (e)(2)(v)(A), as discussed below. The multiple requirements contained in existing paragraph (d)(2)(iii)(b) have been split up in the proposed standard. OSHA believes this will make the proposed requirements easier to comply with and more understandable. In addition, the proposed requirement substitutes the term ''in close proximity'' for ''near'' which is used in the existing standard to describe the required location of the extinguisher in relation to the driver's seat. OSHA believes ''in close proximity'' is a more definitive term than ''near'' the driver's seat and is intended to convey the requirement that the vehicle driver have quick access to a fire extinguisher in the event of an emergency.

Paragraph (e)(2)(iv)(C) would require the employer to ensure that each vehicle used to carry explosives is equipped only with fire extinguishers listed or approved by a nationally recognized testing laboratory. The proposed requirement also refers to § 1910.155(c)(3)(iv)(A) for a definition of listed fire extinguishers and § 1910.7 for nationally recognized testing laboratories. This proposed requirement is essentially the same as and replaces existing paragraph (d)(2)(iii)(a). It is also consistent with paragraph 7.2.6.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (e)(2)(v) contains additional requirements for vehicles used for carrying explosives. Paragraph (e)(2)(v)(A) would require the employer to ensure that the fire extinguishers required in proposed paragraph (e)(2)(iv)(C) above are used, maintained, and tested in accordance with § 1910.157. This proposed requirement is changed from existing paragraph (d)(2)(iv)(a) in that the existing provision simply requires that extinguishers be filled and in working order without specifying how this should be done. Since OSHA has standards for portable fire extinguishers in § 1910.157, the Agency wants to emphasize in the proposed requirement that portable fire extinguishers in vehicles used for carrying explosives must comply with § 1910.157 requirements in addition to the requirements in this proposed standard.

Paragraph (e)(2)(v)(B) would require the employer to ensure that the use of fire extinguishers is restricted to fighting non-explosive fires involving tires, batteries, engines, cabs, etc., where the fire is not in imminent danger of reaching the explosive cargo. OSHA believes it is important to clarify that the fire extinguishers should not be used to fight explosives fires or fires that have the potential to rapidly reach the explosives. Portable extinguishers are not effective enough to sufficiently protect the safety of employees fighting such dangerous fires. The proposed language was recommended by the Petition (Ex. 2–1). This is a new requirement which is consistent with proposed paragraph (c)(3)(ii)(A) which requires employers to ensure that employees do not fight fires if they are in imminent danger of contact with explosives.

Paragraph (e)(2)(v)(C) would require the employer to ensure that the explosive cargo cannot shift, spill, or become damaged during transit. This is a new requirement based on a recommendation in the Petition (Ex. 2–1). OSHA believes that spillage and damage to containers can create a potential explosion hazard and should be eliminated. This requirement would simply require that the explosive cargo be secured to ensure that no spillage or damage occurs to the containers.

Paragraph (e)(2)(vi) would require the employer to ensure that any vehicle containing explosives is maintained in good and safe working condition. This is a change from existing paragraph (d)(2)(iv) which contains a detailed list of items to be inspected on the vehicle and paragraph 7.2.7 of the 2001 edition of NFPA 495 (Ex. 2–5) which contains the same list of inspection items. OSHA is adopting a more performance oriented approach and is proposing to simplify and replace the existing detailed, but not necessarily all inclusive, requirements by requiring the employer to ensure that the vehicle is in proper working order. OSHA does not want to limit the inspection to a specific set of items to ensure the vehicle is in safe working condition. Some common items that should be checked during an inspection include but are not limited to fire extinguishers; electrical wiring; fuel tank and feedline; brakes; lights; horn; windshield wipers; steering apparatus; and tires. While the proposal does not require an inspection prior to each use of the vehicle, it does require the employer to ensure that the vehicle is kept properly maintained at all times.

Proposed paragraph (e)(3) addresses the operation of vehicles containing explosives. Paragraph (e)(3)(i)(A) would require the employer to ensure that only employees designated by the employer are permitted to ride in or drive a vehicle containing explosives. This is a new requirement proposed by the Petition (Ex. 2–1). OSHA agrees that it is important to workplace safety that only employees given permission to do so by the employer should operate or ride in vehicles containing explosives. Paragraph (e)(3)(i)(B) would require the employer to ensure that vehicles containing explosives are only driven by and are in the charge of a driver who is familiar with relevant traffic regulations and the provisions of this section, and possesses a valid driver's license appropriate for the vehicle being driven. This proposed requirement is similar to and replaces existing paragraphs (d)(3)(i) and (g)(6)(ii) which address general explosive transportation and specific transportation for blasting agents, respectively. Since blasting agents are defined as explosives in this proposed standard, OSHA is combining these two existing requirements into one general proposed requirement for driving a vehicle containing explosives. OSHA believes the proposed language is a simpler, more concise way to describe the responsibilities of the driver.

Issue #12: OSHA requests comments on the appropriateness of proposed paragraph (e)(3)(i)(B) for the on-site transportation of explosives at private facilities. The proposal would require that employees have a valid driver's license appropriate for the vehicle being driven. In certain situations, employees who transport explosives or blasting agents on the employer's premises may be required to obtain a commercial driver's license (CDL) and hazardous materials endorsement. Even drivers whose activities are limited to tasks such as moving a loaded vehicle from the loading dock to an onsite transportation staging area, or backing a vehicle up to a loading dock would need a valid driver's license appropriate for the vehicle being driven and, depending on the vehicle type, that may require a CDL. OSHA is seeking specific comments on whether it is appropriate for safety reasons to require a valid driver's license for on-site transportation.

Paragraph (e)(3)(i)(C) would require the employer to ensure that, except under emergency conditions, no vehicle containing explosives is parked before reaching its destination on any public street adjacent to or in close proximity

to any place of employment. The proposed requirement is similar to existing paragraph (d)(3)(ii). It is also consistent with paragraph 7.3.3 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (e)(3)(i)(D) would require the employer to ensure that no spark-producing metal, spark-producing tools, oils, matches, firearms, electric storage batteries, flammable substances, acids, oxidizers, or corrosive compounds are carried in the body of any vehicle containing explosives, unless the carrying of such dangerous articles and the explosives comply with DOT regulations (49 CFR chapter I) (Ex. 2–8). The body of the vehicle is intended to mean the cargo-carrying body that contains the explosives and not the cab portion or engine compartment of the vehicle. The proposed requirement is a combination of existing paragraphs (d)(3)(iv) and (g)(6)(iii), which address general explosives transportation and specific transportation for blasting agents, respectively. Since blasting agents are defined as explosives in the proposed rule, OSHA is combining these two existing requirements into one general proposed requirement for driving a vehicle containing explosives.

Paragraph (e)(3)(i)(E) would require the employer to ensure that deliveries of explosives are only received by employees authorized by the employer to receive such explosives. This proposed requirement is based on existing paragraph (d)(3)(vi) which addresses both the delivery of explosives and the storage of the delivered explosives. The proposed paragraph is also consistent with paragraph 7.3.8 of the 2001 edition of NFPA 495 (Ex. 2–5). Because the storage of delivered explosives is already covered by ATF's regulations at 27 CFR part 555, the proposed paragraph (e)(3)(i)(E) only covers the delivery of explosives to authorized employees.

Paragraph (e)(3)(ii) would require the employer to ensure that every vehicle containing Division 1.1, 1.2, or 1.3 explosives at the employer's worksite or facility is attended at all times by the driver or other responsible person authorized by the employer. This proposed requirement is similar to a requirement contained in existing paragraph (d)(3)(iii) except that it has been rewritten in clearer language and revised to be consistent with the proposed explosives classification system discussed earlier. The proposed paragraph is also consistent with paragraph 7.3.4 of the 2001 edition of NFPA 495 (Ex. 2–5) except that the proposed paragraph only applies to vehicles at an employer's worksite or facility. The term ''transporting'' in existing paragraph (d)(3)(iii) has been replaced with the term ''containing'' in the proposed paragraph to clarify that the provision applies to stationary as well as moving vehicles. OSHA is restricting proposed paragraph (e)(3)(ii) to employers' worksites and facilities because DOT already has attendant requirements for vehicles containing explosives on public highways at 49 CFR 397.5.

Proposed paragraph (e)(3)(ii)(A) clarifies that the vehicle containing explosives is considered ''attended'' only when the driver or another responsible person authorized by the employer is physically on or in the vehicle, or can see and reach the vehicle quickly without any interference. In addition, this proposed paragraph states that ''attended'' also means that the driver or other responsible authorized person is awake, alert, and not engaged in other duties or activities which may divert his or her attention from the vehicle. If the driver needs to leave the vehicle to obtain food or drink or to use a restroom, a second authorized responsible employee should remain with the vehicle. Proposed paragraph (e)(3)(ii)(A) replaces existing paragraph (d)(3)(iii)(a) except that the exception in the existing paragraph for communication or to obtain food or physical comfort has not been retained in the proposed paragraph. The Agency believes that vehicles containing explosives should not be left unattended for any period of time. Any exception to this would directly conflict with the requirements in proposed paragraph (e)(3)(ii), discussed above, which requires that vehicles be attended at all times. Proposed paragraph (e)(3)(ii)(A) is similar to paragraph 7.3.5 of the 2001 edition of NFPA 495 (Ex. 2–5) but the NFPA standard has an exception for communication and to obtain food or physical comfort.

Paragraph (e)(3)(ii)(B) would require the driver or other employee attending the vehicle to be authorized, capable, and have the necessary means to safely drive the assigned vehicle. This proposed requirement replaces a requirement in existing paragraph (d)(3)(iii) except that it has been rewritten in clearer and more concise language.

Two requirements in existing paragraph (d)(3) covering the transportation of explosives have not been retained in the proposed standard. Existing paragraph (d)(3)(iii)(b) allows the unattended parking of a vehicle containing Class A or B explosives if it is parked within a securely fenced or walled area with all gates or entrances locked or if it is at a magazine site established solely for the purpose of storing explosives. OSHA has not included these requirements in the proposed standard because similar provisions are already required by the Federal Motor Carrier Safety regulations at 49 CFR 397.5. OSHA does not want to unnecessarily duplicate the regulations of other federal agencies.

Existing paragraph (d)(3)(v) requires that vehicles transporting explosives avoid congested areas and heavy traffic. Since equivalent requirements are already contained in the Federal Motor Carrier Safety Administration regulations at 49 CFR 397.67, OSHA is not retaining this requirement in the proposed rule to avoid duplicating the requirements of other Federal agencies.

Paragraph (f) Use of explosives for blasting. Proposed paragraph (f) addresses the use of explosives for blasting. Most explosives in the United States are used for blasting purposes in the construction and mining industries. These blasting operations are not covered by § 1910.109 but are covered by OSHA's construction regulations (29 CFR part 1926 subpart U) and MSHA's blasting regulations (30 CFR part 56 subpart E, 30 CFR part 57 subpart E, 30 CFR part 75 subpart N, and 30 CFR part 77 subpart N). However, § 1910.109 does cover the use of explosives by general industry. These general industry uses, when not part of construction or mining activities, include the blasting of rocks, slag pockets, and beaver dams, as well as blasting associated with metal hardening, stump removal, pond creation, and avalanche control, and various types of blasting used to create art sculptures. Compared to the use of explosives by the mining and construction industries, these general industry uses do not require large amounts of explosives and are performed relatively infrequently.

Paragraph (f)(1) of the proposed standard sets out the general requirements for blasting. Proposed paragraphs (f)(1)(i)(A) through (f)(1)(i)(E) are new requirements that prescribe the duties and responsibilities of the blaster-in-charge to ensure the blast site and blast area are safe at all times. Paragraph (f)(1)(i)(A) would require the employer to ensure that the blaster-in-charge is trained, knowledgeable, and experienced in the storage, transportation, handling, and use of explosives. This new requirement is intended to ensure that the blaster-in-charge has the necessary training and experience in all relevant aspects of explosives. Throughout this proposed paragraph, the blaster-in-charge is given the authority by the employer to control the blast site and the blast area. In

addition to training and experience, proposed paragraph (f)(1)(i)(B) requires the employer to ensure that the blaster-in-charge is knowledgeable about relevant federal, state, and local regulations pertaining to explosives. These include all applicable OSHA regulations and any other Federal regulations that apply, including ATF and DOT requirements. In addition, the blaster-in-charge must be aware of any state and local regulations that may impact the blast site and blast area. OSHA believes that without the prescribed training, knowledge, and experience, the blaster-in-charge will be unable to satisfactorily do his or her job and that the employer will be unable to ensure employee safety during workplace blasting operations.

Paragraph (f)(1)(i)(C) would require the employer to ensure that the blaster-in-charge is trained, knowledgeable, and experienced in the use of each type of blasting method being used. Since every blast site is unique and the methods used may vary from one blast site to another, it is important that the blaster-in-charge have the training, knowledge, and experience in the particular method to be used to ensure a safe blast site.

Paragraph (f)(1)(i)(D) would require the employer to ensure that the blaster-in-charge is in control of the blasting operations, blast site, and blast area. This new proposed requirement ensures that the blaster-in-charge has overall control of the blast site and blasting operations, including control over the employees entering the blast site, as well as all the safety and security requirements before, during, and after the blast is fired. This is a general requirement that includes all aspects of the blasting operations from setting the blast site and blast area dimensions to giving the all-clear signal after the blast has been completed.

Paragraph (f)(1)(i)(E) would require the employer to ensure that the blaster-in-charge evaluates each blast site and blast area and implements the measures that will ensure the safety of employees and the security of each blast site and blast area. This requires the blaster-in-charge to evaluate each unique blast site and blast area, using his or her knowledge, training, and experience to determine proper procedures during the set-up and firing of the blast and during the post-blast operations to ensure that the blast site and blast area are safe and secure for all employees.

Although proposed paragraphs (f)(1)(i)(A) through (E) require the employer to place significant duties on the blaster-in-charge, it is ultimately the responsibility of the employer to designate a blaster-in-charge and to ensure that he or she has the proper knowledge, training, and experience to be qualified as a blaster-in-charge and that all requirements in proposed paragraphs (f)(1)(i)(A) through (E) are met.

The requirements in proposed paragraph (f)(1)(i) were recommended by the Petition (Ex. 2–1). It recommended that only one person at the blast site should control all the activities of the site and be in charge of the safety and security of the blast site and blast area. OSHA agrees that these duties should be handled by one person, the blaster-in-charge, who is highly trained, knowledgeable, and experienced in blasting operations. Proposed paragraph (f)(1)(i) replaces existing paragraph (e)(1)(iv) with a much more complete set of responsibilities for the newly defined blaster-in-charge. OSHA believes the requirements in proposed paragraph (f)(1)(i) are clearer and more precise than the existing requirements and will allow for easier compliance with the proposed requirement. The concept of a ''blaster-in-charge'' is evident in existing paragraph (e) and in Chapter 9 of NFPA 495–2001 which contain descriptions of the duties of the person in charge of blasting operations. Since the term ''blaster-in-charge'' is commonly used in the explosives industry to describe the duties of this person, OSHA believes the use of this term is appropriate in the proposed standard.

Paragraph (f)(1)(ii)(A) would require the employer to ensure that explosives are used in accordance with manufacturers' recommendations. This is a new requirement recommended by the Petition (Ex. 2–1). OSHA agrees with the Petition that it is important for employee safety during blasting operations to follow manufacturers' recommendations and proposes to include this requirement in the proposed standard.

Paragraph (f)(1)(ii)(B) would require the employer to ensure that all employees involved in blasting operations work only under the supervision of the blaster-in-charge. This is a new requirement which OSHA believes is essential for employee safety during blasting operations. It ensures that the blaster-in-charge has the overall control of the blasting operations.

Paragraph (f)(1)(ii)(C) would require the employer to ensure that only Type 3 magazines or the original containers are used to transport detonators and other explosives from magazines to the blast site. ''Original container'' here means the containers in which the detonators were originally transported from the detonator manufacturer. Proposed paragraph (f)(1)(ii)(C) is similar to existing paragraph (e)(1)(ii) except that it has been modified by updating the type of magazine that can be used for the transportation of the explosives. Existing paragraph (e)(1)(ii) requires a Class II magazine whereas proposed paragraph (f)(1)(ii)(c) requires a Type 3 magazine. A Type 3 magazine, as defined by ATF at 27 CFR 555.203(c) (Ex. 2–4), is a portable outdoor magazine for the temporary storage of high explosives. To be consistent with the newer ATF magazine types, the proposed paragraph references a Type 3 magazine which is classified as a class II magazine under the existing standard. Type 3 magazines containing explosives must never be left unattended (27 CFR 555.209). A Type 3 magazine is commonly called a ''day box''.

Paragraph (f)(1)(ii)(D) would require the employer to ensure that employees are protected from flying fragments produced during blasting operations by removing employees to a safe distance, using protective barricades, or utilizing other equivalent means to protect employees. This proposed requirement is loosely based on existing paragraph (e)(1)(iii) and has been modified to improve employee safety. The existing requirement addresses adjacent structure damage and, presumably, pedestrian protection in congested areas near the blasting operations. In the proposed standard, the protective measures have changed to focus on employee safety and include removal of employees to safe locations or the use of other equivalent means to protect employees.

Paragraph (f)(1)(ii)(E) would require the employer to ensure that adequate precautions are taken to prevent sources of induced current, such as lightning, adjacent power lines, dust storms, snow storms, radar, radio transmitters, cellular phones, or other sources of extraneous electricity, from causing the accidental detonation of electric blasting caps. This proposed paragraph replaces a similar requirement in existing paragraph (e)(1)(vii) except that it has been revised to include snow storms and cellular phones. Both snow storms and cellular phones can generate extraneous electricity and be potential sources of accidental ignition. The addition of snow storms is consistent with the requirements in paragraph 9.1.16 of the 2001 edition of NFPA 495 (Ex. 2–5). In addition, due to the increasing use of cellular phones and their potential to be a source of ignition, OSHA proposes to add cellular phones to the list of items to be controlled. This addition was based on a

recommendation in the Petition (Ex. 2–1).

Paragraph (f)(1)(ii)(F) would require the employer to post signs warning against the use of mobile radio transmitters or cellular phones on all roads within 350 feet of the blasting operations. This is similar to existing paragraph (e)(1)(vii)(b), except that cellular phones have been added to the proposed language. Cellular phones have been included because of their increased use and potential to be a source of ignition for electric blasting caps. Unlike existing paragraph (e)(1)(vii)(b), proposed paragraph (f)(1)(ii)(F) identifies the specific warning language to be displayed on the signs:

WARNING

EXPLOSIVES HAZARD

DO NOT USE MOBILE RADIO TRANSMITTERS OR CELLULAR PHONES

Proposed paragraph (f)(1)(iii) deals with certain types of blasting operations. Paragraph (f)(1)(iii)(A) would require the employer to ensure that all surface blasting operations are conducted only during daylight hours. This proposed language is similar to and replaces existing paragraph (e)(1)(v), except that the existing requirement applies to ''blasting operations'' whereas the proposed language limits the requirement to ''surface blasting operations.'' The proposed language is the same as paragraph 9.1.14 of the 2001 edition of NFPA 495 (Ex. 2–5). Surface blasting operations rely on natural light whereas underground blasting operations are illuminated with artificial light. Therefore, OSHA proposes to limit (f)(1)(iii)(A) to surface blasting operations because it believes it is unnecessary for the purposes of employee safety to restrict underground blasting operations to daylight hours.

Proposed paragraph (f)(1)(iii)(B) provides a limited exception to proposed paragraph (f)(1)(iii)(A). It allows unusual blasting operations associated with industrial processes, such as blasting slag pockets and dustcatchers, to be performed at any time of the day, provided they are performed indoors and a minimum illumination density of 20 lumens per square foot is provided within a 5-foot (1.5 m) radius of locations where explosives are being assembled, placed, or attached to detonators. This is a new requirement but it is consistent with OSHA policy contained in OSHA Instruction STD 1–5.12, dated October 30, 1978 (Ex. 2–3). In that directive, OSHA identified several necessary revisions it planned to make to § 1910.109, including a revision to allow unusual blasting operations associated with industrial processes to occur at any time of day, provided proper illumination and other appropriate requirements were met. Proposed paragraph (f)(1)(iii)(B) is intended to implement the Agency's stated intention.

Paragraph (f)(1)(iv) would require that whenever blasting operations are being conducted in close proximity to gas, electric, water, telephone, or other similar utilities, the employer shall not commence such blasting operations until receiving and documenting approval from the appropriate utility representatives. This proposed paragraph replaces existing paragraph (e)(1)(vi). The existing standard only requires notification of the affected utility 24 hours in advance of blasting. It does not require a response from the utility prior to the employer beginning blasting. Thus, the employer may have already begun or even completed the blasting operation before a utility has had adequate time to identify a potential problem with the blasting operation and communicate this fact to the employer. The Agency believes this is a flaw in the existing standard and could lead to the endangerment of employees working in blasting operations near utility lines. Obtaining and documenting approval from the utility prior to blasting is important to employee safety. The approval process will vary by locality depending on already established procedures and may, in fact, often take less than 24 hours. Documentation may be in the form of a fax, e-mail, or record of a conversation.

Proposed paragraph (f)(2) addresses the handling and storage of explosives at blast sites. Proposed paragraph (f)(2)(i) would require the employer to ensure that empty containers and paper and fiber packing materials which previously contained explosives are disposed of in a safe manner, or reused in accordance with DOT regulations (49 CFR chapter I) (Ex. 2–8). This proposed requirement is the same as existing paragraph (e)(2)(i) except that it has been re-written in clearer language. The proposed requirement is also consistent with paragraph 9.6.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(2)(ii) would require the employer to ensure that only non-sparking tools are used to open containers of explosives. This proposed requirement is consistent with the requirement in existing paragraph (e)(2)(ii) which allows the use of non-sparking metallic slitters for opening fiberboard cases. However, this proposed paragraph differs from paragraph 9.1.10 of the 2001 edition of NFPA 495 (Ex. 2–5) which does not require that metal slitters used for opening fiberboard containers be non-sparking. OSHA believes the requirement to use non-sparking slitters is needed to reduce the potential for introducing any material that can create sparks into areas where explosives are located. The Agency does not believe the exception for fiberboard containers is necessary and is concerned that it may actually create a hazard by allowing a sparking tool in the area of explosives. If permitted, the tool could potentially be mistakenly used for a task other than opening fiberboard containers. As a general approach, this proposed rule requires the consistent use of only non-sparking tools and materials when working with explosives.

Paragraph (f)(2)(iii) would require the employer to ensure that no explosives are abandoned. This proposed requirement is the same as and replaces existing paragraph (e)(2)(iv) and is consistent with paragraph 9.1.2 of the 2001 edition of NFPA 495 (Ex. 2–5) and ensures that abandoned explosives are not accidentally detonated.

Paragraph (f)(2)(iv) would require the employer to ensure that all unused explosives are returned immediately to appropriate magazines. This proposed requirement is similar to a requirement in existing paragraph (e)(3)(iv) except that it has been moved to proposed paragraph (f)(2) which addresses the storage of explosives at blast sites. The proposed paragraph is intended to address safety and security by ensuring that no unused explosives are left behind after a blast and are returned immediately to the proper storage magazine if not used. Proposed paragraph (f)(2)(iv) is consistent with paragraph 9.2.6 of the 2001 edition of NFPA 495 (Ex. 2–5) which requires that all excess explosive materials be removed from the area and returned to the proper storage facilities.

The requirement in existing paragraph (e)(2)(ii) that containers of explosives not be opened in any magazine or within 50 feet of any magazine has not been retained in the proposed rule because it is already covered by ATF at 27 CFR 555.214(c) and OSHA does not want to duplicate the regulations of other federal agencies. In addition, the language in existing paragraph (e)(2)(ii) addressing the opening of kegs and wooden cases is not in the proposed rule since these types of containers are no longer used in the industry.

Paragraph (f)(3) in the proposal addresses the loading of explosives in

drill holes. Paragraph (f)(3)(i) would require the employer to ensure that all drill holes are of sufficient size to permit the free insertion of explosives. Attempting to force explosives into a drill hole that is too small for the size of the explosives may in some circumstances cause the explosives to detonate. This proposed requirement replaces existing paragraph (e)(3)(i) except that it has been re-written in clearer language. The proposed language is also consistent with the requirement in paragraph 9.2.2 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (f)(3)(ii) addresses safe procedures for tamping explosives. Paragraph (f)(3)(ii)(A) would require the employer to ensure that tamping of explosives is performed only with non-sparking tools. This proposed requirement replaces a requirement in existing paragraph (e)(3)(ii) except that it has been rewritten to simplify the requirement by only allowing the use of non-sparking tools. The existing requirement limits the tool to be used for tamping to wood rods. Rather than specifying the type of tamping rods used, OSHA is using performance language to allow any non-sparking tool to be used. In this way, an employer may elect to use a non-wood tamping rod provided it is only comprised of non-sparking material. OSHA's intent is that no part of the rod, including any connectors, can be made of a sparking material.

Paragraph (f)(3)(ii)(B) would require the employer to ensure that tamping of explosives is performed in a manner that does not degrade, or otherwise damage the explosives or cause the explosives to detonate. This proposed requirement is consistent with a requirement in existing paragraph (e)(3)(ii) except that it has been revised to better clarify the meaning of violent tamping. Both existing paragraph (e)(3)(ii) and paragraph 9.2.5.1 of the 2001 edition of NFPA 495 (Ex. 2–5) require that violent tamping be avoided. Initiation of explosives by impact or friction could result from severe or violent tamping, especially if a detonator is involved. In the proposal, OSHA more clearly expresses the intent of the requirement by using performance language and stating that tamping must be done in a manner that does not degrade or damage the explosives or cause the explosives to detonate. The Agency believes this better describes the intent of the existing requirement and the meaning of the term ''violent tamping,'' and will aid in compliance with the regulation.

Proposed paragraph (f)(3)(iii) would require the employer to ensure that certain requirements are followed when performing pneumatic loading of explosives into drill holes primed with electric detonators or other static electricity-sensitive initiation systems. For example, paragraph (f)(3)(iii)(A) would require the employer to ensure that the equipment is bonded and grounded, paragraph (f)(3)(iii)(B) would require the employer to ensure that a semi-conductive hose is used, and paragraph (f)(3)(iii)(C) would require the employer to ensure that the blaster-in-charge evaluates all systems to assure that they will safely dissipate static electricity under potential field conditions. These proposed requirements are essentially the same as and replace existing § 1910.109(e)(3)(iii) and (g)(3)(iv)(c). The only modification to the language in the proposed rule is an update to include drill holes primed with electric detonators or other static electricity-sensitive initiation systems. The existing language in (e)(3)(iii) only addresses electric blasting caps. This modification reflects current industry practice and is consistent with the paragraph 9.2.4 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(3)(iv) would require the employer to ensure that no employee drills into explosives or any portion of a hole that at any time contained explosives. This proposed requirement modifies existing paragraph (e)(3)(vi), which prohibits the deepening of drill holes that have previously contained explosives. The proposed language increases employee safety by expanding the coverage of existing paragraph (e)(3)(vi) to prohibit drilling into explosives or any portion of a hole that at any time contained explosives. This includes drilling through a cross-section of a drill hole that once contained explosives. This proposed language was recommended by the Petition (Ex. 2–1).

Paragraph (f)(3)(v) would require the employer to ensure that, after the drill hole loading process is completed but before detonation, all remaining explosives, including detonators, are immediately returned to the appropriate magazines. This ensures that none of the remaining explosives are unintentionally left near the loaded drill holes and detonated when the loaded drill holes are detonated. The proposed requirement replaces existing paragraph (e)(3)(vii) except that, without changing the intent of the requirement, it has been rewritten in clearer language using terms more consistent with those used in other parts of the proposed standard. Unlike the existing requirement, the proposed version explicitly states that all the remaining explosives must be immediately returned to the appropriate magazines before the loaded explosives are detonated. This proposed requirement is also consistent with paragraph 9.2.6 of the 2001 edition of NFPA 495 (Ex. 2–5) which addresses storage of excess explosive materials.

Paragraph (f)(3)(vi) would require the employer to ensure that, during the time that drill holes are loaded or are being loaded, only personnel who are engaged in drilling or loading operations, or are otherwise authorized by the employer, may enter the blast site. The time when the drill holes are loaded or being loaded is a period of increased risk of accidental detonation of the explosives. The proposed provision reduces the risk to employees by ensuring that only essential employees are in the blast site during this time. This is a new requirement recommended by the Petition (Ex. 2–1). The Agency agrees that this is an important consideration for the safety and security of the blast site and should be addressed in the proposed rule. This proposed requirement is also consistent with paragraph 9.2.1 of the 2001 edition of NFPA 495 (Ex. 2–5) which addresses unauthorized personnel entering the blast site during loading operations.

Paragraph (f)(3)(vii)(A) would require the employer to ensure that, after the loaded drill holes are connected but prior to them being connected to a source of initiation, the blast area is barricaded and posted, guarded, or both. If the blast area is barricaded and posted, the posted sign must contain sufficient language, such as ''DANGER—EXPLOSIVES HAZARD—DO NOT ENTER,'' to ensure that employees are aware of the hazards involved within the blast area. In addition, paragraph (f)(3)(vii)(B) would require all personnel to be removed from the blast area. These proposed requirements are new and were recommended by the Petition (Ex. 2–1). The Agency agrees with the Petition that it is necessary to ensure that all employees are removed from the blast area for their safety during this stage of the blasting operations. These proposed requirements are also consistent with paragraph 9.2.7 of the 2001 edition of NFPA 495 (Ex. 2–5) which addresses personnel in the blast area during pre-blast and post-blast operations.

Proposed paragraph (f)(4) continues with the blasting operation sequence and addresses the initiation of the explosives. Paragraph (f)(4)(i) would require the employer to ensure that, where sources of extraneous electricity in excess of fifty (50) milliamperes (flowing through a one-ohm resistor) are present, electric detonators are used only after sufficient measures are taken

to ensure that the detonators will not inadvertently activate. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.3 of the 2001 edition of NFPA 495 (Ex. 2–5). This determination about whether to use electric detonators would need to be made by the blaster-in-charge on a case-by-case basis. As discussed earlier in proposed paragraph (f)(1)(ii)(E), certain sources of electrical current can cause accidental ignitions of electric detonators and paragraph (f)(4)(i) is being proposed to ensure that appropriate steps are taken so that electric detonators do not activate accidentally.

Paragraph (f)(4)(ii) would require the employer to ensure that the blaster-in-charge supervises selection and installation of the blast initiation system. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.6.4(1) of the 2001 edition of NFPA 495 (Ex. 2–5). The purpose of this requirement is to ensure that the proper initiation system is selected and installed depending on the particular blast to be performed.

Paragraph (f)(4)(iii) would require the employer to ensure that the initiation system is used in accordance with the manufacturer's recommendations. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.6.4(2) of the 2001 edition of NFPA 495 (Ex. 2–5). This proposed requirement applies to both electric and electronic detonators and OSHA believes it would increase employee safety in the use of initiation systems.

Proposed paragraphs (f)(4)(iv), (f)(4)(v), and (f)(4)(vi) address requirements that are specific to non-electric initiation systems, including electronic initiation systems. The proposal also contains similar (where applicable) requirements specific to electric initiation systems below in proposed paragraphs (f)(4)(xi) and (f)(4)(xii). Paragraph (f)(4)(iv) would require the employer to ensure that the blaster-in-charge checks the initiation system visually after the blast hookup. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.6.4(3) of the 2001 edition of NFPA 495 (Ex. 2–5). The purpose of this requirement is to visually ensure the connections in the initiation system were made properly in order to prevent misfires. Paragraph (f)(4)(v) would require the employer to ensure that the blaster-in-charge tests the blast layout for continuity as recommended by the manufacturer. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.6.4(4) of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA believes this new requirement will enhance employee safety during blasting operations by reducing the chance of misfires due to improper connections.

Paragraph (f)(4)(vi) would require the employer to ensure that where deemed necessary by the blaster-in-charge, a double trunk line or closed-loop hookup is used in the initiation system. This is a new requirement based on a recommendation in the Petition (Ex. 2–1) and is consistent with paragraph 9.3.6.4(5) of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA believes this proposed requirement would increase employee safety by reducing misfires through the use, where necessary, of double trunk lines or closed-loop hookups.

Proposed paragraph (f)(4)(vii) would require the employer to ensure that when a safety fuse is used, only a crimper approved by the detonator manufacturer or the safety fuse manufacturer is used to connect the detonator to the safety fuse. This requirement replaces a requirement in existing paragraph (e)(4)(ii) that, when a fuse is used, the blasting cap must be securely attached to the safety fuse with a standard-ring type cap crimper. Compared to the existing requirement, the new language enhances employee safety by ensuring that the appropriate type of crimper is used to connect the detonator to the safety fuse. This new requirement was recommended by the Petition (Ex. 2–1).

Issue #13: Paragraph 10.3.2 of the 2006 edition of NFPA 495 (Ex. 2–21) includes a requirement that when a safety fuse is used, ''in no case shall fuse lengths of less than 3 ft or with a burn time of less than 120 seconds be used.'' The proposed standard does not contain this requirement. Should it be included in the standard? If so, are the fuse length and burn time restrictions adequate to protect the safety of employees?

Paragraph (f)(4)(viii) would require the employer to ensure that all primers are assembled at least 50 feet (15.25 m) away from any magazine. This proposed requirement replaces a similar requirement in existing paragraph (e)(4)(ii). It is also consistent with a requirement in paragraph 9.3.6.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Issue #14: After further discussions with IME concerning the Petition, IME suggested an exception to proposed paragraph (f)(4)(viii) to allow primers to be assembled within 50 feet of a Type 3 ''day box'' magazine. IME argued that worksite conditions and space restrictions may make it impractical or impossible to keep the Type 3 magazine, in which detonators are located, at a distance of 50 feet or more from the place where the primer is being assembled. IME asserted that such situations may occur when blasting is taking place in an underground or other confined area. IME argued that the 50 foot restriction in the proposed paragraph requires the blaster-in-charge to transport only one detonator at a time from the Type 3 magazine which could potentially leave the primers unattended and could result in the magazine being located in an area out of the sight and physical control of the blaster-in-charge. OSHA requests comments on whether proposed paragraph (f)(4)(viii) should apply to all magazines including Type 3 magazines? Alternatively, when warranted by work conditions, should primers be allowed to be assembled within 50 feet of a Type 3 magazine? If so, what kinds of work conditions would warrant such an exception? If an exception is made for Type 3 magazines, how close to such a magazine can primers be assembled safely?

Paragraph (f)(4)(ix) would require the employer to ensure that primers are made up only as needed for immediate use. This proposed requirement is the same as and replaces existing paragraph (e)(4)(iii) except that it has been rewritten in clearer language without changing the intent of the requirement. In addition, the proposed requirement is consistent with a requirement in paragraph 9.3.6.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(4)(x) would require the employer to ensure that when an explosives cartridge that does not have a detonator well is used as a primer, a hole large enough to accommodate the detonator is made in the cartridge with a spark-resistant powder punch approved either by the explosives manufacturer or by the blaster-in-charge. This proposed paragraph is based on and replaces existing paragraph (e)(4)(iv) but has been revised to reflect current industry practice. The revised language also clarifies the kind of powder punch that can be used to make a well for the detonator. The proposed requirement allows the use of a spark-resistant cap crimper for this purpose since it is a form of a powder punch. The purpose of this requirement is to ensure that, for safe use, the detonator well is made in the correct manner and is the correct size to accommodate the detonator. For safety

reasons, the employer should never use a cast primer or booster if the hole for the detonator is too small. Further, the employer should never enlarge a hole in a cast primer or booster to accept a detonator or force or attempt to force a detonator into explosive material. The revisions in the proposed paragraph were recommended by the Petition (Ex. 2–1) and are consistent with the requirements contained in paragraph 9.3.6 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(4)(xi) would require the employer to ensure that, when testing electric circuits that connect loaded drill holes, only blasting galvanometers or other instruments specifically designed for this purpose are used. This proposed requirement is similar to existing paragraph (e)(4)(vii) except that it has been updated to be consistent with paragraph 9.3.5 of the 2001 edition of NFPA 495 (Ex. 2–5) which allows other test instruments to be used as long as they are designed for that purpose.

Proposed paragraph (f)(4)(xii) addresses requirements for electrical firing of blasts. Paragraph (f)(4)(xii)(A) would require the employer to ensure that only the person making the lead-line connections or the blaster-in-charge fires the shot. This paragraph is essentially the same as a requirement in existing paragraph (e)(4)(viii) but has been revised to allow the blaster-in-charge the authority to fire the shot in addition to the person making the lead-line connections. The change was made to be consistent with the responsibilities given to the blaster-in-charge in this proposed rule and to be consistent with paragraph 9.3.7 of the 2001 edition of NFPA 495 (Ex. 2–5), which allows the blaster-in-charge to fire the shot. In some cases, the blaster-in-charge may need to delegate the responsibility of firing the shot to the person who made the lead-line connections. This is the only other person the blaster-in-charge may delegate to perform this duty.

Proposed paragraph (f)(4)(xii)(B) would require the employer to ensure that blasting lead lines remain shunted (shorted) and not connected to the blasting machine or other source of current until the charge is to be fired. This proposed requirement is the same as and replaces a requirement in existing paragraph (e)(4)(viii) except that the term ''shunted'' has been added to clarify the intent of the requirement and to be consistent with paragraph 9.3.7 of the 2001 edition of NFPA 495 (Ex. 2–5).

Issue #15: The proposed rule does not address static sensitive detonators. OSHA would like specific comments on whether there is a potential hazard associated with static electricity setting off electric detonators. If there is a hazard, should OSHA address this hazard in § 1910.109 by requiring all electric detonators be tested for electrostatic sensitivity? If so, what testing procedures should be used? Is it technically and economically feasible to require detonator manufacturers to test for static sensitivity? Are there procedures employees can take to eliminate an electrostatic hazard such as using rubber gloves or friction tape when working with electric detonators?

Proposed paragraph (f)(5) addresses the need for a warning signal prior to firing a blast. Paragraph (f)(5) would require the employer to ensure that, before a blast is fired, all persons and vehicles are at a safe distance outside the blast area or under sufficient cover, and that an adequate warning signal is given. This proposed requirement is essentially the same as and replaces existing paragraph (e)(5) except that it has been rewritten in clearer language. Unlike the existing paragraph, the proposed paragraph does not include a requirement that surplus explosives be in a safe place because this requirement is already addressed in proposed paragraphs (f)(2)(iv) and (f)(3)(v) which require that unused explosives and detonators be immediately returned to the appropriate magazines. The purpose of the warning signal, usually a siren, is to ensure that all employees are a safe distance away from the blast when fired. Typically, the blast area is cleared by the blaster-in-charge well before the siren sounds. The siren is used to warn of an imminent blast (the siren usually sounds up to a minute before the blast). If anyone is still in the blast area, it provides them with adequate time to get out safely. Also, the warning siren allows anyone outside the blast area a chance to move behind a barrier or use necessary hearing protection. Proposed paragraph (f)(5) is consistent with paragraph 9.3.8 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(6) in the proposal addresses post blast procedures. Paragraph (f)(6)(i) would require the employer to ensure that, after a blast, no other person enters the blast area until it is inspected by the blaster-in-charge and found to be free of misfires and other safety hazards and the blaster-in-charge has given an all-clear signal. This is a new requirement that requires the blaster-in-charge to conduct a search for safety hazards and to prevent all persons from entering the blast area until the blaster-in-charge determines it is safe. It is also consistent with paragraphs 9.4.1 and 9.4.3 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(6)(ii) would require the employer to ensure that the blaster-in-charge does not enter the blast site until sufficient time has passed to allow smoke and fumes to dissipate and dust to settle. This is a new requirement intended to prevent the blaster-in-charge from entering the blast site before it is safe to conduct the inspection of the blast site. It is also consistent with paragraph 9.4.2 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (f)(7) in the proposal addresses misfires. It is a consolidation of many paragraphs scattered throughout the existing standard concerning misfires. OSHA felt it would be easier for employers to understand the requirements involving misfires if they were located in the same paragraph.

Paragraph (f)(7)(i) would require the employer to ensure that, whenever there is a misfire while using blasting cap and fuse or electronic detonators, all employees remain outside the blast area for at least 1 hour. If electric detonators or non-electric detonators are used and a misfire occurs, this waiting period may be reduced to 30 minutes. This proposed requirement is essentially the same as existing paragraph (e)(4)(vi) and paragraphs 9.5.4 and 9.5.5 of the 2001 edition of NFPA 495 (Ex. 2–5). The only changes are that, compared to the existing requirement, the proposed requirement has been rewritten for clarity and electronic detonators have been added. Since electronic detonators are relatively new technology, the existing standard does not contain requirements that address a waiting period following a misfire involving electronic detonators.

Issue #16: OSHA is seeking comments on what is an appropriate waiting period after misfires. The Agency is proposing a misfire waiting period of at least 1 hour if a blasting cap and fuse or an electronic detonator was used and a misfire waiting period of at least 30 minutes if an electric or non-electric (other than blasting cap and fuse) detonator was used. OSHA's construction standard at § 1926.911(d) requires a waiting period of at least one hour if there is a misfire while using cap and fuse. On the other hand, MSHA's regulations at 30 CFR §§ 56.6310 and 57.6310 require persons to wait 30 minutes if a safety fuse and blasting caps are used and 15 minutes if any other type of detonator is used. These MSHA requirements apply to surface metal and nonmetal mines and to underground metal and nonmetal mines. Paragraphs 9.5.4 and 9.5.5 of the 2001 edition of NFPA 495 require a 1-hour waiting period after a misfire using

cap and fuse and a 30 minute waiting period after a misfire using an electric or non-electric detonator (other than cap and fuse). However, the 2006 edition of NFPA 495 (Ex. 2–21) has reduced the waiting periods to 30 minutes when using electronic or cap and fuse initiation and 15 minutes for all others.

OSHA is seeking comment on whether the waiting periods for misfires in its proposed standard are appropriate for employee safety. Should the Agency consider the waiting periods in the 2006 edition of NFPA 495 or other alternative waiting periods and, if so, why? What is the general industry practice for waiting periods after misfires?

Paragraph (f)(7)(ii) would require the employer to ensure that, whenever explosives remain in a misfired hole, a new primer is inserted and the hole is reblasted. Where reblasting presents a hazard, the remaining explosives shall be washed out with water, or, where the misfire is underwater, blown out with air. This proposed requirement is similar to and replaces existing paragraph (e)(4)(v) and has been rewritten in clearer language. Unlike the existing requirement, when reblasting presents a hazard, the proposed paragraph allows the explosive to be extracted using water or, where the misfire is underwater, using air. This is consistent with the requirements in paragraph 9.5.3 of the 2001 edition of NFPA 495 (Ex. 2–5) and provides for misfire situations where reblasting may be unsafe.

Paragraph (f)(7)(iii) would require the employer to ensure that misfires are handled under the direction of the blaster-in-charge and all initiation paths are carefully traced and a thorough search made for unexploded charges. This proposed requirement is essentially the same as and replaces requirements in existing paragraph (e)(4)(vi) except that the blaster-in-charge is specifically assigned the duty to direct the handling misfires. This proposed requirement is also consistent with paragraphs 9.5.6 and 9.5.7 of the 2001 edition of NFPA 495 (Ex. 2–5) which address the employer's responsibility concerning misfires and the need to conduct a search for unexploded charges.

Paragraph (f)(7)(iv) would require the employer to ensure that explosives recovered from blasting misfires are placed in a magazine that is used only for the storage of misfired explosives and are then disposed of as soon as possible in accordance with the manufacturers' recommendations. This would be a new requirement and is consistent with the requirements in paragraph 8.8.4 of the 2001 edition of NFPA 495 (Ex. 2–5). The proposed paragraph is intended to protect employee safety by requiring possibly dangerous and unstable misfired explosives to be isolated in magazines and to be kept away from other explosives.

Paragraph (f)(7)(v) would require the employer to ensure that detonators recovered from blasting misfires are not reused and are disposed of as soon as possible in accordance with the manufacturers' recommendations. Proposed paragraphs (f)(7)(iv) and (v) are essentially the same as and replace those in existing paragraph (c)(5)(ix) and are also consistent with the requirements in paragraph 8.8.4 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (g) Blasting agents, water gels, slurries, and emulsions. In paragraph (g), OSHA is proposing specific requirements for blasting agents, water gels, slurries, and emulsions. Existing paragraph (g) covers blasting agents and existing paragraph (h) covers water gels and slurries. OSHA has determined that these two paragraphs contain many duplicative requirements. Therefore, OSHA is proposing to combine these two existing paragraphs into one proposed paragraph (g) to cover blasting agents, water gels, slurries, and emulsions. Most of the requirements in proposed paragraph (g) would cover blasting agents, water gels, slurries, and emulsions, but some would only cover water gels, slurries, and emulsions.

Existing paragraph (h) addresses water gels and slurries but does not address emulsions. Emulsions are similar to water gels and slurries but are a relatively new product which did not exist when the current § 1910.109 standard was promulgated. They are being included with blasting agents, water gels, and slurries in proposed paragraph (g).

Proposed paragraph (g)(1)(i)(A) would require that, unless otherwise specified in proposed paragraph (g), blasting agents, water gels, slurries, and emulsions shall be stored, transported, handled, and used in the same manner as other explosives. The revised requirement is essentially the same as existing paragraph (g)(1) and (h)(1).

Proposed paragraph (g)(1)(i)(B) would require that, unless otherwise specified in proposed paragraph (g), water gels, slurries, and emulsions classified as Division 1.1 or Division 1.5 must meet the same requirements as blasting agents in paragraph (g). As mentioned above in the preamble, there is a large overlap between existing paragraph (g) covering blasting agents and existing paragraph (h) covering water gels and slurries. To avoid unnecessary duplication, these two existing paragraphs are being combined in proposed paragraph (g), which would apply to blasting agents, water gels, slurries, and emulsions. In addition, proposed paragraph (g)(1)(i)(B) states that the manufacture of water gels, slurries, and emulsions that can be classified as Division 1.1 explosives must also comply with § 1910.119 Process Safety Management. However, unless specified in the proposed standard, water gels, slurries, and emulsions that can be classified as Division 1.5 explosives are subject to the same requirements in the proposed standard that apply to other kinds of blasting agents. This includes the requirements in the proposed standard covering the manufacture of such Division 1.5 water gels, slurries, and emulsions.

CONSOLIDATION OF REQUIREMENTS IN EXISTING PARAGRAPHS (G) AND (H) INTO PROPOSED PARAGRAPH (G)

Existing paragraph (g) blasting agents	Existing paragraph (h) water gels	Proposed paragraph (g) blasting agents, water gels, slurries, and emulsions
(g)(2)(ii)(a)	(h)(3)(ii)(a)	(g)(2)(i)(A).
(g)(2)(ii)(b)	(h)(3)(ii)(b)	(g)(2)(i)(B).
(g)(2)(ii)(d)	(h)(3)(ii)(d)	(g)(2)(i)(C).
(g)(2)(ii)(e)	(h)(3)(ii)(e)	(g)(2)(i)(D)–(F).
(g)(2)(ii)(f)	(h)(3)(ii)(f)	(g)(2)(i)(G) and (H).
(g)(2)(ii)(c)	(h)(3)(ii)(c)	(g)(2)(i)(J).
(g)(2)(iii)(a) ...	(h)(3)(iv)(a) ...	(g)(2)(ii)(A).
(g)(3)(iii)(a) ...	(h)(4)(ii)(b)	(g)(3)(iii)(A) and (B).
(g)(3)(iii)(c) ...	(h)(4)(ii)(d)	(g)(3)(iii)(C).
(g)(3)(iii)(d) ...	(h)(4)(ii)(e)	(g)(3)(iii)(E).
(g)(3)(iii)(e) ...	(h)(4)(ii)(f)	(g)(3)(iii)(G).

Paragraph (g)(1)(ii)(A) would require the employer to ensure that caked oxidizers, either in bags or in bulk, are not loosened by blasting. The provision is the same as existing (g)(5)(vi) and consistent with paragraph 5.5.3 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (g)(1)(ii)(B) would require the employer to ensure that equipment used for mixing and packaging blasting agents is constructed of materials compatible with the blasting agent composition. The proposed paragraph is phrased in performance language but is consistent with existing paragraph (g)(2)(iii)(b) and with paragraph 5.2.4.2 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (g)(1)(ii)(C) would require the employer to ensure that spills or leaks which may contaminate

combustible materials are cleaned up immediately. The provision is equivalent to and replaces existing paragraph (h)(3)(iii)(b) with the exception that the proposed requirement does not retain the statement that: ''Nitrate-water solutions may be stored in tank cars, tank trucks, or fixed tanks without quantity or distance limitations.'' OSHA has omitted this statement from the proposal because it is merely advisory and does not improve employee safety. In addition, the proposed paragraph extends the coverage of the existing paragraph to cover not only water gels, slurries, and emulsions but also blasting agents in general. OSHA believes that the expansion of the existing requirement to blasting agents in general will enhance employee safety.

Paragraph (g)(1)(ii)(D) would require the employer to ensure that ingredients are not kept with incompatible materials that may endanger the safety of employees if the ingredients and incompatible materials are commingled. This proposed requirement is essentially the same as and replaces the corresponding existing provision (h)(3)(iii)(d) and is consistent with paragraph 6.3.3(4) of the 2001 edition of NFPA 495 (Ex. 2–5). While the existing paragraph only applies to water gels, slurries, and emulsions, the proposed paragraph also applies to blasting agents in general. OSHA believes that it is important for employee safety that ingredients of blasting agents in general, and not only those of water gels, slurries, and emulsions, be kept away from incompatible materials.

Paragraph (g)(1)(ii)(E) would require the employer to ensure that water gels, slurries, and emulsions maintain their liquid or water content. This is a new requirement based on a recommendation in the Petition (Ex. 2–1). OSHA believes the requirement is needed because, according to IME, when water gels, slurries, and emulsions lose their liquid or water content, their stability decreases and the possibility of unintentional detonation increases. Therefore, maintaining the water content of water gels, slurries, and emulsions helps to maintain their stability and avoid unintentional deteriorations.

Proposed paragraph (g)(1)(iii) would apply where a Type 5 magazine is used as a bulk storage container for blasting agents and would require the employer to ensure that any electrically-driven conveyor used for loading or unloading the magazine be designed to minimize damage from corrosion. This proposed provision is consistent with the requirements of existing (g)(4)(iv) and with paragraph 5.4.5 of NFPA 495–2001 (Ex. 2–5). One minor change is that OSHA has not retained the language in existing paragraph (g)(4)(iv) that specifically requires electrically driven conveyors to conform to subpart S (Electrical) because the obligation is already imposed in subpart S and, therefore, there is no need to restate that requirement.

Existing paragraphs (g)(4)(i) through (iii), covering explosives storage, are not being retained in the proposed standard because they are preempted by ATF's explosives storage regulations at 27 CFR part 555. See the discussion above at ''OSHA's Authority to Regulate'' on how ATF's explosives storage regulations preempt OSHA's explosives storage regulations in § 1910.109.

Proposed paragraph (g)(2) sets forth a number of requirements related to fixed location mixing of blasting agents. The requirements are essentially the same as existing requirements except for editorial revisions to make the provisions easier to understand. The proposed requirements are also consistent with the 2001 edition of NFPA 495.

Proposed paragraph (g)(2)(i)(A) would require the employer to ensure that buildings used for the mixing of blasting agents are of noncombustible construction or constructed of sheet metal on wood studs. The provision is equivalent to existing (g)(2)(ii)(a) and (h)(3)(ii)(a) and is consistent with paragraphs 5.2.3.1 and 6.3.2(1) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(i)(B) would require the employer to ensure that the floors of any building used for mixing blasting agents are constructed of concrete or other minimally absorbent material and have no drains or piping into which molten materials could flow and be confined during a fire. Apart from minor revisions, the provision is equivalent to existing paragraphs (g)(2)(ii)(b), (g)(2)(vi)(a), and (h)(3)(ii)(b) and is consistent with paragraphs 5.2.3.2 and 6.3.2(2) of the 2001 edition of NFPA 495 (Ex. 2–5). Specifically, the word ''nonabsorbent'' in the existing provision has been changed to ''minimally absorbent'' to reflect that concrete floors can allow some liquid to penetrate their surface. Concrete floors are common in fixed location mixing buildings, and the ''nonabsorbent'' language of the existing provision has caused some concern about the use of concrete. Therefore, the purpose of the revision is to clarify the requirements of the proposed provision. OSHA believes this minor change will have no negative effect on employee safety.

Proposed paragraph (g)(2)(i)(C) would require the employer to ensure that the building is ventilated to prevent unsafe heat or fume accumulations. The provision is equivalent to and replaces existing paragraphs (g)(2)(ii)(d) and (h)(3)(ii)(d) and is consistent with 5.2.3.4 and 6.3.2(4) of the 2001 edition of NFPA 495 (Ex. 2–5) . However, existing paragraphs (g)(2)(ii)(d) and (h)(3)(ii)(d) and paragraphs 5.2.3.4 and 6.3.2(4) of the 2001 edition of NFPA 495 use the phrase ''well ventilated.'' The proposed paragraph uses the phrase ''ventilated to prevent unsafe heat or fume accumulations.'' OSHA believes the proposed language more clearly expresses the intent of the requirement.

Proposed paragraph (g)(2)(i)(D) would require the employer to ensure that heating, if supplied for the building, is provided in a manner that does not create a fire or ignition hazard. Proposed paragraph (g)(2)(i)(E) would further require that all direct sources of indoor heat be provided exclusively from units located outside the building. For example, if heat is pumped into the building, the heating element must be located outside the building to eliminate the ignition source from within the building. Proposed paragraph (g)(2)(i)(F) would clarify that heating units may be used in the building if they do not depend on combustion processes, such as electric heaters, and do not create a fire or ignition hazard. Examples of unacceptable heating units are those that use kerosene or propane. The provisions replace requirements in existing paragraphs (g)(2)(ii)(e) and (h)(3)(ii)(e) and are consistent with paragraphs 5.2.3.5 and 6.3.2(5) of the 2001 edition of NFPA (Ex. 2–5).

Proposed paragraph (g)(2)(i)(G) would require the employer to ensure that all internal combustion engines are located outside the building, or that they are safely ventilated and isolated by a fire barrier wall with at least a 1-hour rating. Proposed paragraph (g)(2)(i)(H) would require the employer to ensure that the exhaust systems on all internal-combustion engines are located so that no sparks or other ignition sources create a hazard to any materials in or in close proximity to the building. These requirements are essentially the same as and replace those in existing paragraphs (g)(2)(ii)(f) and (h)(3)(ii)(f) and are consistent with paragraphs 5.2.3.6 and 6.3.2(6) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(i)(I) would require the employer to ensure that all electric equipment located in the mixing room meets the requirements in subpart S of this part for Class II, Division 2 locations. The proposed provision is

equivalent to and replaces existing paragraph (g)(2)(v) and is consistent with paragraph 5.2.6 of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (g)(2)(i)(J) would require the employer to ensure that all fuel-oil storage facilities are separated from the mixing building and located in such a manner that in case of tank rupture, the oil will drain away from the mixing building and other facilities containing explosives or employees. Alternatively, tanks may be diked in a manner that will contain the entire tank contents in case of rupture. The proposed provision replaces existing paragraphs (g)(2)(ii)(c) and (h)(3)(ii)(c) except that OSHA has made two changes in the proposed paragraph compared to the existing paragraphs. First, in the proposed paragraph, OSHA has added the alternative method of diking tanks. This addition is based on a recommendation in the Petition (Ex. 2–1). OSHA believes this alternative method is as safe as allowing the oil to drain away from the mixing building. Second, the existing paragraphs only require the oil from a ruptured tank to drain away from the mixing building, whereas the proposed paragraph requires such oil to drain away from all buildings and other facilities containing explosives or employees. OSHA believes this expansion increases safety for employees at the workplace by ensuring that oil from a ruptured tank is diverted away from buildings and other facilities where employees may be located. Except for these two additions, the proposed paragraph is consistent with paragraphs 5.2.3.3 and 6.3.2(3) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(i)(K) would require the employer to ensure that the land surrounding blasting agent mixing plants be kept clear of all combustible materials for a distance of at least 25 feet. This proposed paragraph is the same as and replaces existing paragraph (g)(2)(vi)(e) and is consistent with paragraph 5.2.8(5) in the 2001 edition of NFP A 495. Note that under § 1910.119(e)(3)(v), the employer must already identify and control any hazards, such as nearby combustible materials, relating to the siting of a facility at which Division 1.1 to 1.4 explosives are manufactured, that could initiate a catastrophic release within the manufacturing process.

Proposed paragraph (g)(2)(ii) sets forth requirements for equipment used for mixing of blasting agents at fixed locations. Like the requirements of proposed paragraph (g)(2)(i), the requirements in proposed paragraph (g)(2)(ii) are essentially the same as those in the existing standard and in paragraph 5.2 of NFPA 495 except that they have been reorganized into separate provisions so they are easier to understand.

Proposed paragraph (g)(2)(ii)(A) would require the employer to ensure that the mixing equipment minimizes the possibility of frictional heating, compaction, and confinement of the explosives present. The provision is equivalent to and replaces corresponding requirements in existing paragraphs (g)(2)(iii)(a) and (h)(3)(iv)(a) and is consistent with paragraphs 5.2.4.1 and 6.3.4(1) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(ii)(B) would require the employer to ensure that all surfaces of the mixing equipment are accessible for cleaning. The provision is equivalent to and replaces the corresponding requirement in existing paragraph (g)(2)(iii)(a) and is consistent with paragraph 5.2.4.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(ii)(C) would require the employer to ensure that all bearings and drive assemblies are mounted outside the mixer and are protected against dust accumulation. The provision is equivalent to and replaces the corresponding requirement of existing paragraph (g)(2)(iii)(a) and is consistent with paragraph 5.2.4.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(ii)(D) would require the employer to ensure that fuel oil is prevented from flowing to the mixer in case of fire. It further requires that in gravity-flow systems, an automatic spring-loaded shutoff valve with a fusible link be installed. The provision is equivalent to and replaces the corresponding requirement of existing paragraph (g)(2)(iii)(c) and is consistent with paragraph 5.2.4.3 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(ii)(E) would require the employer to ensure that both the equipment and handling procedures prevent the inadvertent introduction of foreign objects or materials into the mixing process. The provision is equivalent to and replaces existing paragraph (h)(3)(iv)(b) and is consistent with paragraph 6.3.4(2) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(ii)(F) would require the employer to ensure that mixers, pumps, valves, and related equipment are regularly and periodically flushed, cleaned, dismantled, and inspected. The provision is equivalent to and replaces existing paragraph (h)(3)(iv)(c) and is consistent with paragraph 6.3.4(3) of the 2001 edition of NFPA 495 (Ex. 2–5). In the existing standard, the requirements in paragraphs (h)(3)(iv)(b) and (c) apply only to water gels and slurries whereas proposed paragraphs (g)(2)(ii)(E) and (F) are applying these requirements to all blasting agents, including water gels, slurries, and emulsions. OSHA believes that the regular and periodic flushing, cleaning, dismantling, and inspection of these types of equipment help to prevent the malfunction of the equipment. Such malfunctions could lead to a potential explosion hazard and endanger the safety of employees. OSHA further believes that these safety provisions should cover the manufacture of all blasting agents and not just water gels and slurries.

Proposed paragraph (g)(2)(iii) sets forth requirements for blasting agent compositions in fixed mixing locations. Paragraph (g)(2)(iii)(A) would require the employer to ensure that oxidizers of small particle size, such as crushed ammonium nitrate prills or fines, which may be more sensitive than coarser products, are handled with additional care compared to the coarser products. These oxidizers of small particle size may be more sensitive and more likely to be accidentally ignited or initiated if care is not taken in their handling. The provision is equivalent to and replaces the requirement of existing paragraph (g)(2)(iv)(b) and is consistent with paragraph 5.2.5.1 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(iii)(B) would require the employer to ensure that no hydrocarbon liquid fuel with a flashpoint lower than 125 °F (51.7 °C) is used in the manufacture of blasting agents except at ambient air temperatures below 45 °F (7.2 °C) where fuel oils with flashpoints as low as 100 °F (37.8 °C) are used. The requirement replaces existing paragraph (g)(2)(iv)(c) and has been updated to be consistent with paragraph 5.2.5.2 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(iii)(C) would require the employer to ensure that crude oil and crankcase oil are not used as blasting agent ingredients. This requirement is the same as and replaces existing paragraph (g)(2)(iv)(d).

Proposed paragraph (g)(2)(iii)(D) would require the employer to ensure that metal powders such as aluminum are kept dry and stored in moisture-resistant or weather-tight containers. Proposed paragraph (g)(2)(iii)(E) would require that solid fuels be used in a manner that minimizes dust explosion hazards as far as possible. These requirements are essentially the same as and replace those in existing paragraph (g)(2)(iv)(e) and are consistent with paragraph 5.2.5.4 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(iii)(F) would prohibit the use of peroxides and chlorates in mixing blasting agents. The provision is equivalent to and replaces existing paragraph (g)(2)(iv)(f) and is consistent with paragraph 5.2.5.5 of the 2001 edition of NFPA 495 (Ex. 2–5) .

Proposed paragraph (g)(2)(iv) sets forth requirements for mixing operations for blasting agents and water gels, slurries, and emulsions classified as Division 1.5 blasting agents. However, water gels, slurries, and emulsions classified as Division 1.1 explosives must meet the requirements of § 1910.119. Paragraph (g)(2)(iv)(A) would require the employer to ensure that empty ammonium nitrate bags are disposed of daily in a safe manner. The provision is equivalent to existing paragraph (g)(2)(vi)(f) and is consistent with paragraph 5.2.8(6) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(iv)(B) would require the employer to ensure that no hot work or open flame is permitted in or around the mixing building unless the equipment and surrounding area have been completely washed down and all oxidizers and fuels removed. This provision is similar to existing paragraph (g)(2)(vi)(g) except the more general term ''hot work'' has been substituted in the proposal for the term ''welding'' in the existing standard. As discussed above in Definitions, proposed paragraph (b), ''hot work'' means any work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations. Hot work in general, including welding, can be a hazard in the presence of explosives. The proposed language is consistent with § 1910.119, the process safety management standard, and was recommended by the Petition (Ex. 2–1).

Proposed paragraph (g)(2)(iv)(C) would require the employer to ensure that, before welding or repairing hollow shafts of mixing equipment, all blasting agents and their ingredients are removed from the outside and inside of the shaft, and the shaft is vented through an opening at least one-half inch in diameter. This provision is equivalent to and replaces existing paragraph (g)(2)(vi)(h) and is consistent with paragraph 5.2.8(8) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(2)(iv)(D) would require the employer to ensure that no explosives other than blasting agents (Class 1, Division 1.5 explosives) are located inside or within 50 feet (15.25 m) of any building used for the mixing of blasting agents. The provision is equivalent to and replaces existing paragraph (g)(2)(vi)(i) and is consistent with paragraph 5.2.8(9) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3) sets forth requirements for bulk delivery vehicles transporting blasting agents and their ingredients. Proposed paragraph (g)(3)(i) would require that, in addition to the provisions of proposed paragraph (g)(3), bulk delivery vehicles also meet the requirements of proposed paragraph (e) Transportation of explosives. OSHA has added the new language to make it clear that bulk delivery vehicles transporting blasting agents or their ingredients in bulk form are subject to both proposed paragraph (e) and (g)(3).

Proposed paragraph (g)(3)(ii) sets forth requirements for the construction of bulk delivery vehicles. Proposed paragraph (g)(3)(ii)(A) would require the employer to ensure that the vehicle body is constructed of noncombustible materials. Proposed paragraph (g)(3)(ii)(B) would require the employer to ensure that bulk delivery vehicles have enclosed bodies. Proposed paragraph (g)(3)(ii)(C) would require the employer to ensure that all moving parts of the mixing system are designed to prevent heat buildup. Proposed paragraph (g)(3)(ii)(D) would require the employer to ensure that shafts or axles which contact the blasting agent or blasting agent ingredients have outboard bearings with a 1-inch (2.54 cm) minimum clearance between the bearings and outside of the product container. The requirements in proposed paragraph (g)(3)(ii) replace those in existing paragraph (g)(3)(ii)(a) through (c) and are consistent with paragraph 5.3.2(1) through 5.3.2(3) of the 2001 edition of NFPA 495 (Ex. 2–5). The proposal does not retain the portion of existing paragraph (g)(3)(ii)(c) that requires the employer to give particular attention to clearances on moving parts. The intent of the provision is unclear, the issue of clearance is covered in part by proposed paragraphs (g)(3)(ii)(A), (C), and (D), and the provision would be difficult to enforce

Proposed paragraph (g)(3)(ii)(E) would require the employer to ensure that when electrical power is supplied by a self-contained generator located on the vehicle, the generator is located where it will not create a fire or ignition hazard. The requirement is similar to and replaces existing paragraph (h)(4)(i)(b) and is consistent with paragraph 6.4.1(2) of the 2001 edition of NFPA 495 (Ex. 2–5), except that the existing requirement and the NFPA provision only apply to vehicles used to deliver water gels. OSHA is proposing to revise the requirement to apply to vehicles used to deliver all types of blasting agents, not just water gels. This change is based on a recommendation in the Petition (Ex. 2–1) and OSHA believes it will improve employee safety by ensuring that the location of the generator will not create a fire or ignition hazard on bulk delivery vehicles transporting all types of blasting agents. The proposed requirement also differs from the existing requirement and the NFPA provision in that they only require a generator to be at a point separate from the where the water gel is discharged, whereas the proposed requirement contains performance language and requires that the generator be located so that it does not create a fire or ignition hazard.

Proposed paragraph (g)(3)(ii)(F) would require the employer to ensure that the vehicle is able to safely carry the designated load. This requirement is equivalent to a requirement in existing paragraph (g)(3)(ii)(d) and is consistent with paragraph 5.3.2(4) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(ii)(G) would require the employer to ensure that the vehicle's processing equipment, including its mixing and conveying equipment, is compatible with the relative sensitivity of the materials being handled and does not create a risk of accidental ignition or detonation of the materials. The provision is equivalent to and replaces the corresponding requirement of existing (h)(4)(i)(c) (which refers to existing paragraph (h)(3)(iv)(a)) and consistent with paragraph 6.4.1(3) of the 2001 edition of NFPA 495 (Ex. 2–5) except the existing requirement only applies to vehicles used to deliver water gels. The proposed requirement would apply to vehicles used to deliver all types of blasting agents, not just water gels. OSHA believes that this application is reasonable, is important for employee safety, and reflects current industry practice.

Proposed paragraph (g)(3)(ii)(H) would require the employer to ensure that all hollow shafts in the vehicle's processing equipment are constructed to permit venting through an opening at least one-half inch in diameter. Although this is a new requirement, it is already implicitly contained in existing paragraph (g)(3)(v)(b) which requires that, before welding or making repairs to a hollow shaft on bulk delivery and mixing vehicles, the shaft must be vented through a minimum one-half-inch diameter opening. The new requirement was recommended by the Petition (Ex. 2–1) and is consistent with paragraph 5.3.5(2) of the 2001 edition of NFPA 495 (Ex. 2–5) which requires that all oxidizing material be

removed from the outside and inside of the shaft and the shaft is vented with an opening at least one-half inch in diameter. Proposed paragraph (g)(3)(ii)(H) is also consistent with proposed paragraph (g)(3)(v)(B) which requires the employer to ensure that, before welding or repairing a hollow shaft on bulk delivery vehicles, the shaft must be vented with an opening at least one-half inch in diameter.

Proposed paragraph (g)(3)(ii)(I) would require the employer to ensure that suitable means are provided to prevent the flow of fuel oil to the mixer in case of fire. The proposed requirement would also require that, in a gravity-flow system, an automatic spring-loaded shutoff valve with a fusible link be installed. This proposed requirement is the same as existing paragraph (g)(2)(iii)(c) and proposed paragraph (g)(2)(ii)(D) for fixed location mixing of blasting agents. The requirement is being proposed for the construction of bulk delivery vehicles since the hazard of fire is the same as in fixed location mixing of blasting agents. The Petition (Ex. 2–1) also recommended extending this requirement to cover the construction of bulk delivery vehicles.

Proposed paragraph (g)(3)(iii) sets forth requirements for the operation of bulk delivery vehicles. Proposed paragraph (g)(3)(iii)(A) would require the employer to ensure that the driver of the vehicle is trained and capable of safely operating the vehicle. Proposed paragraph (g)(3)(iii)(B) would require the employer to ensure that the operator, whether the driver or another employee, is trained and capable of safely operating the mixing, conveying, and related equipment on the vehicle. As described above in the preamble on definitions, proposed paragraph (b), some bulk delivery vehicles only transport blasting agents or their ingredients but have no mixing, conveying or related equipment. Other bulk delivery vehicles include such additional equipment. On these vehicles, this additional equipment may be operated by the driver or by one or more additional employees. Proposed paragraph (g)(3)(iii)(B) requires the employer to ensure that, whoever is the operator of the mixing, conveying and related equipment, they must be trained and capable of operating the equipment in a safe manner. Proposed paragraphs (g)(3)(iii)(A) and (B) are equivalent to and replace requirements in existing paragraphs (g)(3)(iii)(a) and (h)(4)(ii)(b), and are consistent with paragraphs 5.3.3(2) and 6.4.2(1) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iii)(C) would prohibit smoking, matches, open flames, spark-producing devices, and firearms (except firearms required to be carried by guards) within 25 feet (7.63 m) of bulk delivery vehicles. The proposed paragraph differs from the existing provisions in paragraphs (g)(3)(iii)(c) and (h)(4)(ii)(d) as well as paragraphs 5.3.3(5) and 6.4.2(2) of the 2001 edition of NFPA 495 (Ex. 2–5). The proposal sets a distance of 25 feet (7.63 m) from the vehicle where smoking, matches, open flames, spark producing devices, and firearms are not permitted whereas the existing requirements in paragraphs (g)(3)(iii)(c) and (h)(4)(ii)(d) use the phrase ''in or about bulk vehicles'' and the NFPA standard uses the phrase ''in or around bulk vehicles'' to describe the distance or area in which smoking, carrying matches, etc., is not permitted. The proposed change is based on a recommendation from the Petition (Ex. 2–1). OSHA believes the language in the existing requirements is too vague and should be replaced with the more concise restriction of 25 feet.

A similar 25-foot restriction is imposed by the Federal Motor Carrier Safety Administration (FMCSA) in its transportation of hazardous materials regulations. At 49 CFR 397.13, FMCSA requires that ''[n]o person may smoke or carry a lighted cigarette, cigar, or pipe on or within 25 feet of (a) A motor vehicle which contains Class 1 materials.'' However, this FMCSA regulation only applies to motor vehicles on public highways whereas paragraph (g)(3)(iii)(C) in the proposal applies at all times to bulk delivery vehicles, whether or not they are at private facilities or worksites or on public highways.

Proposed paragraph (g)(3)(iii)(D) would require the employer to ensure that the transfer of blasting agents or their ingredients from one bulk delivery vehicle to another vehicle is performed at a safe distance away from any blast site where drill holes are loaded or in the process of being loaded. This proposed requirement is similar to existing paragraph (h)(4)(ii)(g) except the existing requirement only applies to vehicles used to deliver water gels whereas the proposed requirement applies to vehicles used to deliver all types of blasting agents. The proposed paragraph is also consistent with paragraph 6.4.2(5) of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA believes that this proposed language is reasonable, necessary to minimize the risk of accidental detonation, and reflects current industry practice.

Proposed paragraph (g)(3)(iii)(E) would require the employer to ensure that while the bulk delivery vehicle is in a blast site, caution is exercised to avoid driving the vehicle over hoses or dragging hoses over firing lines, detonating cords, detonator wires or tubes, or explosives. Proposed paragraph (g)(3)(iii)(F) would require the employer to ensure that the driver has the assistance of a second person to act as a guide to ensure the safe movement of the bulk delivery vehicle in the blast site. These provisions are equivalent to and replace the requirements in existing paragraphs (g)(3)(iii)(d) and (h)(4)(ii)(e) and are consistent with paragraphs 5.3.3(6) and 6.4.2(3) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iii)(G) would prohibit the mixing of blasting agent ingredients while the bulk delivery vehicle is in transit. This proposed requirement is equivalent to and replaces existing paragraphs (g)(3)(iii)(e) and (h)(4)(ii)(f) and is consistent with paragraphs 5.3.3(7) and 6.4.2(4) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iii)(H) would require the employer to ensure that a positive action parking brake, which sets the wheel brakes on at least one axle, is used during bulk delivery operations. Proposed paragraph (g)(3)(iii)(I) would require the employer to ensure that at least two wheels are chocked whenever necessary to prevent vehicle movement. These provisions are similar to existing paragraph (h)(4)(i)(d) and are consistent with paragraph 6.4.1(4) of the 2001 edition of NFPA 495 (Ex. 2–5). However, unlike the existing requirement, the proposed requirement applies to vehicles used to deliver all types of blasting agents, not just water gels. OSHA believes that this proposed requirement will increase employee safety compared to the existing requirement and reflects current industry practice.

Proposed paragraph (g)(3)(iii)(J) would require the employer to ensure that the vehicle is maintained in good mechanical condition. This requirement is equivalent to and replaces corresponding requirements in existing paragraphs (g)(3)(ii)(d) and (g)(6)(vi). The proposed paragraph is also consistent with paragraphs 5.3.2(4), 5.3.3(4), and 5.6.6 of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iv) sets forth requirements for drill holes, primed with electric detonators or other static-electricity sensitive systems that are being pneumatically loaded from bulk delivery vehicles. Paragraph (g)(3)(iv)(A) would require the employer to ensure that the blaster-in-charge evaluates all such systems to determine that they adequately dissipate static

electricity under potential field conditions. The proposed provision substitutes ''blaster-in-charge'' for the term ''qualified person'' used in existing paragraph (g)(3)(iv)(c) and is consistent with paragraph 5.3.4(3) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iv)(B) would require the employer to ensure that a grounding device is used to prevent the accumulation of static electricity. This provision is equivalent to and replaces existing paragraph (g)(3)(iv)(a) and is consistent with paragraph 5.3.4(1) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(iv)(C) would require the employer to ensure that the discharge hose used has a resistance range sufficient to prevent conducting stray currents, yet is conductive enough to bleed off static electricity buildup. The provision is equivalent to and replaces existing paragraph (g)(3)(iv)(b) and is consistent with paragraph 5.3.4(2) of the 2001 edition of NFPA 495 (Ex. 2–5).

Proposed paragraph (g)(3)(v) proposes requirements for repairs to bulk delivery vehicles. Paragraph (g)(3)(v)(A) would prohibit hot work from being performed, or open flames used, on or around any part of the bulk delivery vehicle until all blasting agents and their ingredients have been removed and the vehicle has been completely washed down. This provision is similar to existing paragraph (g)(3)(v)(a) and paragraph 5.3.5(1) of the 2001 edition of NFPA 495 (Ex. 2–5) except in two areas. First, the existing paragraph and the NFPA standard use the term ''welding'' whereas the proposed paragraph uses the term ''hot work.'' As discussed above in the explanation of proposed paragraph (b), ''hot work'' means any work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations. Thus, ''hot work'' includes welding but is a more general term. Use of the term ''hot work'' in the proposed paragraph broadens the protective scope of the provision and is consistent with the use of the term in other parts of the proposed standard. Second, the existing language requires that welding must not be performed unless ''all oxidizer material'' has been removed. The proposed language is more general in that it requires ''all blasting agents and their ingredients'' be removed before hot work is performed. Again, the language of the proposed paragraph broadens the protective scope of the provision. OSHA believes that the broader language in proposed paragraph (g)(3)(v)(A) provides greater safety for employees. Similar language for this proposed provision was recommended by the Petition (Ex. 2–1).

Proposed paragraph (g)(3)(v)(B) would require the employer to ensure that before welding or repairing hollow shafts of equipment, all blasting agents and their ingredients are removed from the outside and inside of the shaft and the shaft is vented through an opening at least one-half inch in diameter. The proposed language is similar to and replaces existing paragraph (g)(3)(v)(b) and is consistent with paragraph 5.3.5(2) of the 2001 edition of NFPA 495 (Ex. 2–5). However, the proposed language is more specific than the existing language by requiring that ''all blasting agents and their ingredients be removed.'' The existing language only requires that the shaft be thoroughly cleaned but does not specify what is to be removed. OSHA believes the proposed language is more understandable and increases workplace safety by explicitly requiring that all blasting agents and their ingredients must be removed before such welding or repair work.

Existing paragraphs (g)(4)(v), (g)(4)(vi), and (g)(5) (except for (g)(5)(v) and (vi)) are not retained in the proposed standard because they deal with issues covered by ATF regulations at 27 CFR part 555 subpart K (see preamble discussion above on preemption of storage requirements in § 1910.109 by ATF's regulations). Existing paragraphs (g)(5)(v) and (vi) are retained in the proposed standard in proposed paragraphs (d)(2)(ii)(B) and (g)(1)(i)(B), respectively (see the preamble discussion above on these two proposed paragraphs for a detailed explanation).

Existing paragraph (g)(7) requires persons using blasting agents to comply with all applicable provisions of existing paragraph (e), Use of explosives and blasting agents. With the redefining of explosives in the proposed standard to include blasting agents, existing paragraph (g)(7) becomes redundant and therefore is not retained in the proposed rule.

Paragraph (h) Small arms ammunition, small arms primers, and smokeless propellants. The requirements of proposed paragraph (h) are very similar to the requirements in existing paragraph (j). Most of the revisions have been made to make proposed paragraph (h) consistent with the 2001 edition of NFPA 495.

Small arms ammunitions are finished consumer products that pose lesser hazards to employees when compared with most other forms of explosives. There are very small quantities of explosive matter sealed in the ammunition shells which, when inadvertently detonated (except when confined as in the firing chamber of a weapon), do not constitute a substantial projection or mass explosion hazard. Therefore, the safe storage and transportation requirements for small arms ammunition are different from other explosives.

Proposed paragraph (h)(1) states that proposed paragraph (h) does not apply to in-process temporary storage during the manufacture of small arms ammunition, small arms primers, and smokeless propellants. This is similar to and replaces existing paragraph (j)(1) except that the proposed language uses the phrase ''temporary in-process storage'' whereas the existing language only uses the phrase ''in-process storage.'' The term ''temporary'' has been added to emphasize that in-process storage is limited to storage which is temporary in nature and is an integral and indispensable part of the manufacturing process. However, proposed paragraph (h) does apply to the non-temporary storage of small arms ammunition, small arms primers, and smokeless propellants. In addition, existing paragraph (j)(1) states that existing paragraph (j) does not apply to the intraplant transportation during the manufacture of small arms ammunition, small arms primers, and smokeless propellants. This provision has not been retained in the proposed paragraph because none of the requirements in proposed paragraph (h) apply to such intraplant transportation.

Existing paragraph (j)(2)(i) contains a requirement that states: ''No quantity limitations are imposed on the storage of small arms ammunition in warehouses, retail stores, and other general occupancy facilities, except those imposed by limitations of storage facilities.'' This statement has not been included in proposed paragraph (h) because it is not mandatory in the existing paragraph and does not improve employee safety.

Proposed paragraph (h)(2) would require the employer to ensure that small arms ammunition is separated from flammable liquids, flammable solids, and oxidizing materials by a fire barrier wall with at least a 1-hour fire resistance rating or by a distance of at least 25 feet. The proposed requirement replaces the existing paragraph (j)(2)(ii). The existing provision defines ''flammable solid'' in terms of the classification used by DOT. The proposed rule has dropped the reference to DOT's classification because ''flammable solid'' is defined in OSHA's Hazard Communication standard at § 1910.1200.

Issue #17: Although proposed paragraph (h)(2) is consistent with paragraph 923 of the 1970 edition of NFPA 495 (Ex. 2–13), it is not consistent with paragraph 13.2.3 of the 2001 edition of NFPA 495 (Ex. 2–5). In the 2001 edition, NFPA has reduced the separation distance from 25 to 15 feet. This reduction in distance may reduce employee protection. OSHA requests specific comments on whether the minimum separation distance between small arms ammunition and flammable liquids, flammable solids, and oxidizing materials should remain 25 feet, be reduced to 15 feet, or be changed to some other distance.

Existing paragraph (j)(2)(iii), which addresses small arms ammunition storage with Class A and Class B explosives, has not been retained in the proposed rule because it is already covered by ATF storage regulations (27 CFR part 555 subpart K) and OSHA does not want to duplicate the regulations of other federal agencies.

Proposed paragraph (h)(3) sets forth requirements for smokeless propellants. Paragraph (h)(3)(i)(A) would require the employer to ensure that all smokeless propellants be stored in shipping containers in accordance with DOT regulations at 49 CFR part 173 for smokeless propellants. The proposed provision is consistent with paragraph 13.3.6 of the 2001 edition of NFPA 495 (Ex. 2–5) and substantially the same as existing paragraph (j)(3)(i).

Paragraph (h)(3)(i)(B) would require the employer to ensure that no more than 20 pounds of smokeless propellants, in containers not to exceed 1 pound, are displayed in a commercial establishment. The existing standard does not have any provisions restricting the quantity of smokeless propellants that may be displayed in commercial establishments. On March 31, 1972, OSHA revised § 1910.109 to include the following language: ''Not more than 20 pounds of smokeless propellants, in containers of 1 pound maximum capacity, shall be displayed in commercial establishments'' (37 FR 6577). This is identical to the intent of proposed paragraph (h)(3)(i)(B). However, on October 24, 1978, OSHA removed this language from the explosives standard because it believed it addressed public safety requirements that are subject to the control of local building and fire code officials (43 FR 49726). While OSHA agrees that the provision did cover a public safety issue, it now believes that it also addressed an employee safety issue because employees in commercial establishments that display smokeless propellants are often in close proximity to the propellants. OSHA believes that having no restriction on the quantity of smokeless propellants that can be displayed in commercial establishments is contrary to employee safety. Therefore, OSHA is reinstating this provision in the proposed standard as paragraph (h)(3)(i)(B).

Issue #18: Although proposed paragraph (h)(3)(i)(B) is consistent with paragraph 937 of the 1970 edition of NFPA 495 (Ex. 2–13), it is not consistent with paragraph 13.3.8 of the 2001 edition of NFPA 495 (Ex. 2–5), which allows not more than 50 pounds of smokeless propellants to be displayed in a commercial establishment. The 1970 edition appears to provide greater employee safety. OSHA requests specific comments on whether there should be a weight restriction for the display of smokeless propellants in commercial establishments and, if so, whether the maximum weight limit should be 20 pounds, 50 pounds, or some other quantity.

Proposed paragraph (h)(3)(ii) sets forth storage requirements for commercial stocks of smokeless propellants. Proposed paragraph (h)(3)(ii)(A) would require the employer to ensure that quantities of smokeless propellants over 20 pounds and not exceeding 100 pounds be stored in portable wooden boxes having walls at least 1 inch thick.

Issue #19: Proposed paragraph (h)(3)(ii)(A) is not consistent with paragraph 13.3.9(1) of the 2001 edition of NFPA 495 (Ex. 2–5) which requires commercial stocks of smokeless propellants exceeding 50 pounds but not over 100 pounds to be stored in portable wooden boxes having walls at least 1 inch thick. The weight restrictions in proposed paragraph (h)(3)(ii)(A) are the same as in paragraph 937 of the 1970 edition of NFPA 495 (Ex. 2–13) and in existing paragraph (j)(3)(iii) (i.e., over 20 pounds but not over 100 pounds). Thus they appear to provide better employee protection than the 2001 edition of NFPA 495. OSHA requests comments on whether the weight restrictions should be over 20 pounds but not over 100 pounds, over 50 pounds but not over 100 pounds, or some other range of weights. In addition, OSHA seeks comments on whether it should allow storage of quantities of 20 to 100 pounds in either portable wooden containers or non-portable cabinets.

Paragraph (h)(3)(ii)(B) would require the employer to ensure that quantities of smokeless propellants over 100 pounds and not exceeding 750 pounds are stored in non-portable cabinets having walls at least 1 inch thick. Paragraph (h)(3)(ii)(B)(*1*) would require that not more than 400 pounds be permitted to be stored in any one non-portable cabinet, and paragraph (h)(3)(ii)(B)(*2*) would require non-portable cabinets be separated by a distance of at least 25 feet or by a fire barrier wall with at least a 1-hour fire resistance rating. Proposed paragraphs (h)(3)(ii)(B) and (h)(3)(ii)(B)(*1*) are similar to existing paragraph (j)(3)(iv). Proposed paragraph (h)(3)(ii)(B)(*2*) is a new requirement that OSHA believes would increase employee safety and is contained in paragraph 13.3.9(2) of the 2001 edition of NFPA 495 (Ex. 2–5).

Issue #20: Proposed paragraph (h)(3)(ii)(B) is not consistent with paragraph 13.3.9(2) of the 2001 edition of NFPA 495 (Ex. 2–5), insofar as the NFPA provision requires commercial stocks of smokeless propellants exceeding 100 pounds but not over 800 pounds to be stored in nonportable storage cabinets having walls at least 1 inch thick. The weight restrictions in proposed paragraph (h)(3)(ii)(B) (over 100 pounds but not over 750 pounds) are the same as in paragraph 937 of the 1970 edition of NFPA 495 (Ex. 2–13). Thus they appear to provide better employee protection than the 2001 edition of NFPA 495. OSHA requests comments on whether the weight restrictions for the storage of commercial stocks of smokeless propellants should be over 100 pounds but not over 750 pounds, over 100 pounds but not over 800 pounds, or some other range of weights.

Paragraph (h)(3)(ii)(C) would require the employer to ensure that quantities of smokeless propellants over 750 pounds and not exceeding 5,000 pounds are stored in a building only if the requirements in proposed provisions (h)(3)(ii)(C)(*1*) through (h)(3)(ii)(C)(*7*) are met. These proposed provisions are new and offer an alternate means of compliance to existing paragraph (j)(3)(v) for commercial stocks of smokeless propellants over 750 pounds but less than 5,000 pounds. If the quantity of smokeless propellants is greater than 750 pounds, and the provisions in proposed paragraph (h)(3)(ii)(C)(*1*) through (*7*) are not met, storage in accordance with the proposed (h)(3)(iii) is required. If the quantity of smokeless propellants is over 5000 pounds, then the storage requirements in proposed paragraph (h)(3)(iii) must be met.

Paragraph (h)(3)(ii)(C)(*1*) would require that the warehouse or storage room not be accessible to unauthorized personnel. Paragraph (h)(3)(ii)(C)(*2*) would require that smokeless propellants be stored in nonportable

storage cabinets having wood walls at least 1 inch thick and having shelves with no more than 3 feet of separation between shelves. Paragraph (h)(3)(ii)(C)(*3*) would require that no more than 400 pounds be stored in any one cabinet. Paragraph (h)(3)(ii)(C)(*4*) would require that cabinets be located against the walls of the storage room or warehouse. Paragraph (h)(3)(ii)(C)(*5*) would require the cabinets to be at least 40 feet apart. It further allows that the separation between cabinets shall be permitted to be reduced to 20 feet where barricades twice the height of the cabinets are attached to the wall midway between each cabinet and the barricades extend at least 10 feet outward, and are constructed of either 1/4-inch boiler plate, 2-inch thick wood, brick, or concrete block. Paragraph (h)(3)(ii)(C)(*6*) would require that smokeless propellants be separated from flammable liquids, flammable solids, and oxidizing materials by a distance of at least 25 feet or by a fire barrier wall with at least a 1-hour fire resistance rating. Paragraph (h)(3)(ii)(C)(*7*) would require that the building be protected by an automatic sprinkler system installed in accordance with § 1910.159. Proposed paragraphs (h)(3)(ii)(C)(*1*) to (*7*) are based on paragraphs 13.3.9(3)(a) to (g) of the 2001 edition of NFPA 495 (Ex. 2–5). OSHA believes that the level of safety provided by these requirements in proposed paragraph (h)(3)(ii)(C) would provide an equivalent level of employee safety to existing paragraph (j)(3)(v).

Paragraph (h)(3)(iii) would require the employer to ensure that smokeless propellants exceeding 5,000 pounds or not stored in accordance with proposed paragraphs (h)(3)(ii)(A) through (C) of this section are stored in a Type 4 magazine in accordance with ATF regulations for the storage of explosives (27 CFR 555.203 and 555.210). Proposed paragraph (h)(3)(iii) is equivalent to existing paragraph (j)(3)(v) except that it also covers the new requirements in proposed paragraph (h)(3)(ii)(C) for quantities over 750 pounds but not exceeding 5,000 pounds.

Proposed paragraph (h)(4) sets forth requirements for small arms ammunition primers. Paragraph (h)(4)(i)(A) would require the employer to ensure that small arms ammunition primers be stored in shipping containers in accordance with the applicable regulations of DOT (49 CFR chapter I) (Ex. 2–8). This is substantially the same as existing paragraph (j)(4)(i).

Paragraph (h)(4)(i)(B) would require the employer to ensure that small arms ammunition primers be separated from flammable liquids, flammable solids, and oxidizing materials by a fire barrier wall with at least a 1-hour fire resistance rating or by a distance of at least 25 feet. The proposed requirement is similar to existing paragraph (j)(4)(iii) and is consistent with paragraph 13.5.6(2)(f) of the 2001 edition of NFPA 495 (Ex. 2–5). The existing provision defines ''flammable solid'' in terms of the classification used by DOT. The proposed rule has dropped the reference to DOT's classification because ''flammable solid'' is defined in OSHA's Hazard Communication standard at § 1910.1200.

Paragraph (h)(4)(i)(C) would require the employer to ensure that no more than 10,000 small arms primers be displayed in a commercial establishment. This requirement is in accordance with paragraph 13.5.5 of the 2001 edition of NFPA 495 (Ex. 2–5). In a notice published in the **Federal Register** on October 24, 1978 (43 FR 49726), OSHA revoked a similar provision that it believed addressed public safety requirements subject to the control of local building and fire code officials. As with proposed paragraph (h)(3)(i)(B) discussed above, OSHA agrees that this is a public safety issue but believes that it is also an employee safety issue because employees, as well as the public, can be near primers in a commercial establishment that displays them. Limiting display quantities of small arms primers protects such employees. Therefore, a display limitation is included in proposed paragraph (h)(4)(i)(C).

Issue #21: Proposed paragraphs (h)(3)(i)(B) and (h)(4)(i)(C) place restrictions on the quantity of smokeless propellants and small arms primers, respectively, that can be displayed in commercial establishments. Should OSHA further clarify the quantity limitations for smokeless propellants and small arms primers to allow multiple displays in commercial establishments? If so, what quantities should be allowed and should the quantities be based on the size of the commercial establishment? Should there be a minimum distance between displays to ensure employee safety? Should the same limitations placed on commercial establishments also apply to gun shows?

Proposed paragraph (h)(4)(ii) sets forth requirements for commercial stocks of small arms primers. Paragraph (h)(4)(ii)(A)(*1*) and (*2*) would require the employer to ensure that, when quantities of 750,000 or less are stored in a building, not more than 100,000 are stored in any one pile and the piles are at least 15 feet (4.6 m) apart. The proposed provisions are equivalent to and replace existing paragraph (j)(4)(iv) and are in accordance with paragraph 13.5.6(1) of the 2001 edition of NFPA 495 (Ex. 2–5).

Paragraph (h)(4)(ii)(B) would require the employer to ensure that quantities of small arms ammunition primers in excess of 750,000 are stored in a building only if it meets the requirements in proposed paragraphs (h)(4)(ii)(B)(*1*) through (h)(4)(ii)(B)(*7*).

Paragraph (h)(4)(ii)(B)(*1*) would require that the warehouse or storage room not be accessible to unauthorized personnel. Paragraph (h)(4)(ii)(B)(*2*) would require primers to be stored in cabinets with no more than 200,000 primers stored in any one cabinet. Paragraph (h)(4)(ii)(B)(*3*) would require that shelves in cabinets have a vertical separation of at least 2 feet. Paragraph (h)(4)(ii)(B)(*4*) would require cabinets to be located against the walls of the warehouse or storage room. Paragraph (h)(4)(ii)(B)(*5*) would require the cabinets be at least 40 feet apart. It further allows that the separation between cabinets may be reduced to 20 feet where barricades twice the height of the cabinets are firmly attached to the wall midway between each cabinet and the barricades extend at least 10 feet outward and are constructed of either ¼-inch boiler plate, 2-inch thick wood, brick, or concrete block. Paragraph (h)(4)(ii)(B)(*6*) would require primers to be separated from materials classified by DOT as flammable liquids, flammable solids, and oxidizing materials by a distance of at least 25 feet or by a fire barrier wall with at least a 1-hour fire resistance rating. Paragraph (h)(4)(ii)(B)(*7*) would require the building to be protected by an automatic sprinkler system installed in accordance with § 1910.159. Proposed paragraphs (h)(4)(ii)(B)(*1*) to (*7*) are based on paragraph 13.5.6(2) of the 2001 edition of NFPA 495 (Ex. 2–5). These proposed paragraphs are all new and offer an alternate means of compliance to existing paragraph (j)(4)(v), which requires primers in excess of 750,000 to be stored in magazines. OSHA believes that the level of safety provided by these alternative requirements would provide an equivalent level of employee safety as the existing paragraphs (j)(4)(iv) and (j)(4)(v).

Proposed paragraph (h)(4)(iii) would require the employer to ensure that small arms ammunition primers that are not stored in accordance with proposed paragraph (h)(4)(ii) be stored in a magazine in accordance with ATF regulations for the storage of explosives (27 CFR 555.203 and 555.210).

Issue #22: Paragraph 14.1.6 of the 2006 edition of NFPA 495 (Ex. 2–21)

requires that: ''The bulk repackaging of small arms ammunition, primers, smokeless propellants, or Black Powder propellants shall not be performed in retail stores.'' The proposed standard does not contain this requirement. Should it be included in the standard to protect the safety of employees and, if so, why?

Paragraph (i) Pyrotechnics. Proposed paragraph (i) is reserved for the future development of pyrotechnic regulations. The existing standard has no separate requirements for pyrotechnics, although they are covered, where applicable, by the general explosives provisions of the proposed standard as well as other existing OSHA standards, such as § 1910.119, Process safety management.

Paragraph (j) Training. Proposed paragraph (j) is new and contains proposed training requirements for employees in the explosives industry. OSHA believes that the proposed training requirements will enhance the workplace safety benefits resulting from the proposal's safety provisions. This paragraph has been written to clearly state what training is required and to avoid overlapping training requirements with other standards.

Paragraph (j)(1) would require the employer to provide information and training on safe work practices for each employee prior to or at the time of the employee's initial job assignment involving the manufacture, storage, sale, transportation, handling, or use of explosives, including repair or maintenance of related facilities and equipment. An equivalent training requirement is contained in OSHA's hazard communication standard at § 1910.1200(h)(1).

Paragraph (j)(2) would require the employer to ensure that the training provided under proposed paragraph (j) is specific to each employee's unique work duties. It is not the intent of OSHA that each employee should be trained in all aspects of an operation. However, every employee needs to be trained to do his or her specific job safely.

Paragraph (j)(3) would reinforce the training requirements in § 1910.1200, the Hazard Communication standard, and further requires the employer to inform each employee of the requirements in § 1910.109 that apply to the employee's work duties. Employers must also make available to employees a copy of the § 1910.109 standard. This will help employees to be better informed about workplace hazards involving explosives.

Paragraph (j)(4) would require employers to train employees in safety practices, including applicable emergency procedures, that relate to their work involving explosives and are necessary for their safety. OSHA is proposing this paragraph because it believes that training in safety practices, including applicable emergency procedures, enhances workplace safety.

Paragraph (j)(5) would require the employer to retrain employees as necessary to ensure that each employee has the requisite proficiency in the relevant safe work practices whenever there are workplace changes, such as the institution of new or modified procedures or products. Workplace changes can create new safety hazards to employees. OSHA believes that, when such changes create new workplace hazards, retraining is necessary to ensure employee safety and health.

Paragraph (j)(6) would require the employer to conduct retraining whenever the employer has reason to believe that there are inadequacies in the employee's knowledge or performance of safe work practices. These reasons may include, but are not limited to, observation of unsafe work practices and errors in operating procedures. Considering the potential catastrophic impact of unsafe work practices in the explosives industry, such unsafe work practices or habits need to be detected and corrected as soon as possible before a tragedy occurs.

Paragraph (j)(7) would require the employer to provide information and training in a manner that is understandable to each employee. Differences in language, reading capabilities, and physical challenges may create communication issues in a workplace. It is essential that employers adapt their training methods so that individual employees comprehend the information and training provided.

Paragraph (j)(8) would require the employer to determine that each employee has demonstrated proficiency in all aspects of the required training. Such demonstrations help to identify comprehension deficiencies or training failures so they can be corrected in a prompt manner.

Paragraph (j)(9) would state that an employer is deemed to be in compliance with a training provision in proposed paragraph (j) of this section for an employee if an identical training provision has been satisfied for that employee under § 1910.1200, Hazard Communication or DOT training requirements (49 CFR part 172) (Ex. 2–8). This provision is consistent with OSHA's goal that duplicative training efforts are not required.

All existing ''reserved'' paragraphs in § 1910.109 would be eliminated in the proposed standard. These existing paragraphs are: (a)(5), (a)(9), (a)(11), (c)(3)(viii), (d)(1)(ii), (d)(2)(ii)(b), (e)(4)(i), (g)(2)(i), (g)(6)(v), (h)(3)(i), (i)(1)(ii)(a), (j)(3)(ii), and (j)(4)(ii).

OSHA is proposing to revise the definition of explosives in OSHA's hazard communication standard at § 1910.1200 by replacing it with the definition of explosives in paragraph (b) of the proposed standard. This revision of the definition of explosives in the hazard communication standard would not only make the definition consistent with the one used in the proposed standard, it would also make it consistent with the definition of explosives used by DOT. As discussed earlier, the definition in the proposed standard incorporates the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Thus, the revised definition of explosives in the hazard communication standard would also incorporate the GHS.

IV. Preliminary Economic and Regulatory Screening Analysis

Overview

The proposed rule would revise and update the provisions contained in § 1910.109 of the existing Subpart H standards. OSHA has determined that this action is not a significant regulatory action within the meaning of Executive Order 12866. In sum, the proposed rule is anticipated to generate a maximum of $1.5 million in regulatory costs annually. These costs will be at least partially, if not fully, offset by cost savings that may be attributed to the de-regulatory aspects of the proposed revision.

The proposed requirements primarily update and clarify regulatory language and address regulatory inconsistencies between OSHA and other Federal agencies. A number of the new requirements are deregulatory in nature, and will yield cost-savings relative to the existing standards. For example, in cases where there is overlap between OSHA and other agencies, the result of this action could potentially be a reduction in regulatory burden as covered employers will no longer have to track and comply with multiple sets of Federal regulations for explosives.

OSHA has conducted detailed comparisons of the existing and proposed rules in order to determine which provisions are expected to increase compliance costs, which are expected to be neutral with respect to costs, and which are expected to reduce employers' regulatory burden. Generally, the cost-neutral changes to the existing standard are changes that fall into two categories: (1) Clarifications

to the scope of the standard and (2) some of the overlaps with other OSHA or Federal standards that have precedence over § 1910.109. As an example of the first category, proposed § 1910.109(a)(3)(i) explicitly excludes the construction industry, which is consistent with the OSHA convention that a specific OSHA standard supersedes the more general applicable standard. Activities occurring during construction or demolition would be covered under the part 1926 construction standards rather than the part 1910 general industry standards for explosives and blasting agents. While the explicit exclusion of construction improves clarity, it does not represent any change in regulatory burden.

Several provisions represent changes with deregulatory or cost-saving features. For example, proposed paragraph (b) adds the definition of a ''competent person,'' which is applied in proposed paragraph (e)(1)(iii), replacing existing paragraph (d)(1)(iii). This existing requirement states that ''proper and qualified supervision'' needs to be provided for transferring explosives from one vehicle to another, which tends to infer that a supervisor may be required for such a transfer. In the proposed standard, the competent person needed to perform these duties need not be a supervisor, so there will be a cost savings due to differential wage rates associated with the new wording. These cost savings are estimated below. As a second example, the labeling criteria for explosives in proposed paragraph (c)(5), by recognizing the globally harmonized system criteria, may provide a cost savings as these are the same criteria that DOT is using for the transportation of explosives. This will help remove the need for having two different sets of labeling for shipments overseas or within the United States. The proposed rule also eliminates storage requirements. Currently, the employer must follow the storage requirements for explosives in § 1910.109 and ATF's storage regulations in 27 CFR part 555. Under the proposed rule, the employer would only have to comply with the ATF regulations. This reduction in overlapping regulations should result in cost savings for the employer.

Compliance Cost Estimates

There are a few provisions in the proposed standard that may potentially result in cost increases for affected employers. Specifically, these relate to new general provisions in paragraph (c) and new training provisions in paragraph (j), as described below. OSHA estimates that the costs associated with complying with the provisions in paragraph (c) would be $549,375 annually and the training provisions in paragraph (j) would be $908,354 annually. OSHA believes that the cost estimates presented below represent upper bound estimates since the overwhelming majority of employers in the explosives industry are subject to other explosives regulations in addition to § 1910.109.

In addition, provisions in current paragraphs (h)(3)(iv)(*b*) and (*c*) that now apply only to water gels will apply to all blasting agents in proposed paragraphs (g)(2)(ii)(E) and (F). OSHA believes that employers are currently meeting the proposed requirements that both equipment and handling procedures be designed to prevent the introduction of foreign objects or materials and that mixers, pumps, valves, and related equipment be designed to permit regular and periodic flushing, cleaning, dismantling, and inspection. Thus, employers will not incur new costs. OSHA welcomes comments on this assumption.

New General Provisions in Paragraph (c)

The manufacturers of blasting agents may be affected by new provisions that are contained in proposed paragraph (c). Specifically, the provisions with potential cost implications are:

- Requiring that the primary electrical supply to a facility containing explosives be able to be disconnected from a safe remote location [proposed paragraph (c)(2)(i)];
- requiring the removal of explosive materials, prior to the conduct of maintenance or repair activities, from the immediate area where such activities are to take place [proposed paragraph (c)(4)(i)].

These new provisions affect only areas where blasting agents (explosives classified as Division 1.5 explosives) are manufactured or loaded. Since the manufacturing of Division 1.1–1.4 explosives must follow the Process Safety Management (PSM) standard requirements (which already include these types of requirements), manufacturers of blasting agents, who in general also manufacture other explosives, are already likely to be in compliance with the proposed paragraph (c) provisions.

Manufacturers of blasting agents are classified in the North American Industry Classification System (NAICS) as code 325920, Explosives Manufacturing. This classification includes all types of explosives manufacturing, not just blasting agent manufacturing. According to the U.S. Department of Commerce's (USDOC, 2003) *2001 County Business Patterns* (CBP) database and as shown in Table 1, there are 100 establishments with a total of 7,325 employees in NAICS 325920. These include all types of explosives manufacturing, not just blasting agents.

OSHA estimates that the costs to comply with the above requirements are a function of the size of the establishment. Larger establishments typically: (1) Require a greater investment for disconnecting the primary electrical supply to a facility from a remote location and (2) have larger amounts of maintenance and repair activities where the removal of explosive materials would be required. Thus, to account for the size of the establishment, the compliance costs were expressed on a per-employee basis.

In OSHA's professional judgment, a reasonable estimate of the annualized expenses associated with complying with these provisions is $75 per employee. Thus, with 7,325 employees affected by the new general provisions in paragraph (c), the aggregate annual costs of complying with the provisions in (c) are estimated to be $549,375 for all affected facilities. OSHA estimates that providing a remote way to disconnect electricity to a facility would be about $25 per employee or $250 for a facility with 10 employees. Other costs, such as labor costs to remove explosive materials during maintenance and repair activities are estimated to be $50 per employee. For a facility with 10 employees, $500 translates into roughly 25 hours per year (or 2 hours per month) at a wage rate of $20.44 for production and maintenance workers.[3] This seemed reasonable for maintenance activities that occur during the year. OSHA requests comments on these estimates.

These figures are considered to represent upper bound estimates for several reasons. First, the above estimates assume that all explosive manufacturers produce blasting agents, which is not likely to be the case. Second, not all employees at all facilities are involved in making blasting agents. Third, many manufacturers of blasting agents also manufacture other explosives and are already likely to be in compliance with these new requirements in the buildings where the other explosives are handled, since they are subject to PSM

[3] The hourly wage rate (including fringe benefits) is based on the average hourly wage data for 2002 reported in the Bureau of Labor Statistics (BLS) National Industry-Specific Occupational Employment and Wage Estimates (BLS, 2003). The BLS wage data are discussed in greater detail in estimating the costs associated with new training requirements.

requirements. Finally, the above requirements represent IME or NFPA recommended practices, which many manufacturers follow voluntarily.

New Training Provisions in Paragraph (j)

The new training requirements include the following:

- Providing information and training on safe work practices for each employee prior to or at the time of the employee's initial job assignment involving the manufacture, storage, sale, transportation, handling, or use of explosives, including repair or maintenance of facilities and related equipment;
- ensuring that the training provided is specific to each employee's unique work duties;
- in addition to the information and training requirements of § 1910.1200, Hazard Communication, informing each employee of the requirements of this section that apply to the employee's work duties and making a copy of the standard available to the employee;
- training employees in any safety practices, including applicable emergency procedures that relate to their work and are necessary for their safety;
- whenever there are workplace changes, such as the institution of new or modified procedures or products, retraining employees, as necessary, to ensure that each employee has the requisite proficiency in the relevant safe work practices;
- retraining employees whenever the employer has reason to believe that there are inadequacies in the employees' knowledge of or performance of safe work practices;
- providing information and training in a manner that is understandable to each employee; and
- determining that each employee has demonstrated proficiency in all aspects of the required training.

The proposed training requirements also state that an employer will be deemed to be in compliance with the training requirements for an employee if an identical training provision has been satisfied for that employee under Section 1910.1200, Hazard Communication, or the DOT training requirements (in 49 CFR part 172).

The proposed training requirements could primarily affect employees who come into contact with explosive materials during the manufacturing of explosives, including blasting agents (NAICS 325920) and small arms ammunition (NAICS 332992). In particular, these employees primarily include production employees, as well as installation/maintenance/repair employees and transportation/material moving employees. Some transportation workers (*i.e.*, truck drivers, packers, and packagers), as well as shipping clerks and order fillers, must already be trained in accordance with DOT requirements, so their employers would already be in compliance with the training required by proposed paragraph (j). In addition, the ATF requirements described earlier will apply to persons involved with handling, storing, and using explosives and pyrotechnics. The ATF requirements have training and qualification criteria and Hazcom training requirements are applicable (so these persons, too, would already have training meeting the requirements of proposed paragraph (j)).

Table 1 presents summary data for the manufacturing of explosives, including blasting agents (NAICS 325920) and small arms ammunition (NAICS 332992). According to the U.S. Department of Commerce's (USDOC, 2003) 2001 *County Business Patterns* (CBP) database, there are 100 establishments with 7,325 employees in NAICS 325920. An estimated 58 percent are installation/maintenance/repair, production, and transportation/material moving workers (excluding truck drivers, packers, and packagers), based on the Bureau of Labor Statistics (BLS, 2003) *Occupational Employment Statistics (OES) Survey* data for 2002 for NAICS 3259. Similarly, *the 2001 CBP* database (USDOC, 2003) indicates that there are 111 establishments with 6,717 employees in NAICS 332992. An estimated 66 percent are installation/maintenance/repair, production, and transportation/material moving workers (excluding truck drivers, packers, and packagers) based on the BLS (2003) *OES Survey* data for 2002 for NAICS 3329. Thus, combined, there are, after rounding, approximately 8,700 employees who potentially will need training in accordance with proposed paragraph (j).

The estimation of the compliance costs associated with providing the necessary training to these employees has been determined based on: (1) An assessment of the risks faced by each employee given each employee's unique work duties; (2) the provision of training courses to employees that satisfy the hazard communication requirements tailored to explosive chemicals; and (3) the allowance for some additional time to go over emergency evacuation procedures with each employee. The number of chemicals that an employee will be using and exposed to in making blasting agents will be limited in number. Therefore, the training can be more targeted to the chemicals being used, rather than to more general training on all types of chemicals.

The compliance cost estimates for the risk assessment are based on the amount of supervisor time (15 minutes per employee) and clerical support time (3 minutes per employee) required to determine the risk of exposure and the appropriate training level for each employee (given each employee's unique work duties), coupled with supervisor and clerical wages.

The cost estimates for the necessary training materials are based upon two alternative approaches: (1) Using a self-paced on-line training course (example at *http://www.hazmatschool.com*) or (2) using a self-paced interactive training course available on CD–ROM (example at *http://www.jjkeller.com*). With each of the training approaches, approximately two hours of employee time is expected to be required to complete the course, including time to demonstrate a proficiency with the material learned to a supervisor. Thus, the compliance cost estimates associated with the hazard communication training are calculated based on estimates of the average cost of the training course (about $50 per employee), the amount of training time required for each employee to take the course, clerical support time (3 minutes per employee) to document that the training was taken and successfully completed, coupled with employee and clerical wages.

Finally, the compliance cost estimates associated with explaining the emergency evacuation procedures to each employee are based on the amount of supervisor time (5 minutes per employee) and employee time (5 minutes per employee) required, coupled with supervisor and employee wages.

The hourly wage rates for the above employees are based on the average hourly wage data for 2002 and were obtained from the Bureau of Labor Statistics (BLS) *National Industry-Specific Occupational Employment and Wage Estimates* (BLS, 2003) for those occupational categories and affected industry sectors where explosives (including blasting agents) and small arms ammunition are manufactured. For benefits data, the March 2000 edition of *Employer Costs for Employee Compensation* (BLS, 2000) was used, which indicates a fringe benefits rate of 37 percent of the hourly wage rate. Specifically, average hourly wage rates (including fringe benefits) of $31.34, $20.42, and $16.40 were used for supervisors, employees, and clerical support, respectively, within NAICS 3259 and NAICS 3329.

Combining the training course cost with the labor hour estimates and the hourly wage rates produces a total training cost of approximately $105 per employee. This consists of $9 per employee for the risk assessment, $92 per employee for the training itself, and $4 per employee for the review of the evacuation procedures. For the 8,682 employees that require training, the annual training cost is estimated to be $908,354. Again, these figures are considered to represent upper bound estimates in that most explosives and small arms ammunition manufacturers are believed to be in compliance with these new training requirements since they represent current industry recommended practices, as well as overlap with other OSHA, DOT, and ATF regulations.

As described earlier in the Summary and Explanation section of this Notice, for blasting operations conducted near gas, electric, water, telephone, or other similar utilities, proposed paragraph (f)(1)(iv) would require that, prior to the start of blasting operations, employers document the approval given by utility representatives. The current standard, at paragraph (e)(1)(vi), specifies that employers are to notify utility representatives in writing at least 24 hours in advance of the blasting operations. The 2001 edition of NFPA 495 (Ex. 2–5) contains provisions for written notification of utilities that are nearly identical to OSHA's current requirement.

Based on a review of the consensus standard indicated above and discussions with industry experts, OSHA believes that most employers maintain a written record of communication with utilities prior to blasting operations. However, even if that were not the case, the incremental employer burden associated with the documentation of approval given by utilities would in all likelihood be modest, representing, at most, three minutes of a clerical employee's time to document and maintain a written record that the utility representative has approved the blasting operation. By applying a conservative estimate that as many as 1,000 blasting operations could be affected by this provision, total costs would equal $820 (1,000 operations × 3 minutes × $16.40/hour). With costs for the other requirements in the proposed standard totaling $1.5 million, the costs for documenting approval of blasting operations near utilities would increase total costs by 0.06 percent and would therefore not present economic feasibility concerns. OSHA requests public comment on this cost issue.

Technological and Economic Feasibility

The proposed requirements primarily update and clarify regulatory language and address regulatory inconsistencies between OSHA standards and those of other Federal agencies. A number of the new requirements are deregulatory in nature, and will yield cost-savings relative to the existing standard. The new requirements that potentially generate costs are consistent with OSHA standards that apply in similar industries. Moreover, OSHA believes that most explosives and small arms ammunition manufacturers are already in compliance with the proposed training requirements since they represent current industry recommended practices, as well as overlap with OSHA's PSM requirements and with the requirements of DOT and ATF regulations. High levels of current compliance with the proposed rule clearly demonstrate that the proposed rule is both technologically and economically feasible. OSHA anticipates that there will be no technological barriers for employers to achieve compliance with the proposed standard.

OSHA estimated the cost to employers of the proposed standard and considered whether it would be economically feasible. This analysis is presented in Table 2. For NAICS 325920 and 332992, estimated upper bound compliance costs are significantly less than one percent of revenue, and 2.6 percent and 1.9 percent of profits respectively. Therefore, OSHA has determined that the proposed standard is economically feasible.

Regulatory Flexibility Screening Analysis

In order to determine whether a regulatory flexibility analysis is required under the Regulatory Flexibility Act, OSHA has evaluated the potential economic impacts of this action on small entities. Table 3 and Table 4 present the data used in this analysis to determine whether this standard would have a significant impact on a substantial number of small entities. For purposes of this analysis, OSHA used the Small Business Administration (SBA) definition of a small firm. For NAICS 325920 and NAICS 332992, SBA uses an employment based standard of 500 and 1,000 employees, respectively.

OSHA derived estimates of profits and revenues using data from the U.S. Census Bureau and Dun and Bradstreet. As shown in Table 4, upper bound gross compliance costs represent 0.07 percent of the revenues for NAICS 325920 and 0.08 percent of the revenues for NAICS 332992. Upper bound gross compliance costs constitute 1.7 percent of profits for NAICS 325920 and 2.4 percent of profits for NAICS 332992. Based on this evaluation, OSHA certifies that this proposed regulation will not have a significant economic impact on a substantial number of small entities.

Benefits

De-Regulatory Benefits. Several provisions in the proposed standard potentially reduce compliance costs. As noted above, one area of cost savings is in the change in definition of competent person. In the proposed standard, a competent person need not be a supervisor, so there are some cost savings due to differential wage rates.

These cost savings will accrue primarily to employers involved in the manufacturing of explosives, including blasting agents (NAICS 325920) and small arms ammunition (NAICS 332992). The U.S. Department of Commerce's (USDOC, 2003) 2001 County Business Patterns (CBP) database reports that there are 100 establishments with 7,325 employees in NAICS 325920 and 111 establishments with 6,717 employees in NAICS 332992. An estimated 4.1 percent of the employees in NAICS 325920 and 3.9 percent of the employees in NAICS 332992 (based on the Bureau of Labor Statistics (BLS, 2003) Occupational Employment Statistics (OES) Survey data for 2002 for NAICS 3259 and NAICS 3329, respectively) are supervisory personnel responsible for the production and transport of explosive materials. Thus, combined, there are an estimated 561 supervisory employees.

The hourly wage rates (including fringe benefits) for all production and transportation personnel and for all production and transportation supervisory personnel are estimated to be $19.85 and $30.88, respectively, for NAICS 3259 and NAICS 3329 combined. These estimates are based on average hourly wage data for 2002, which were obtained from the Bureau of Labor Statistics (BLS) National Industry-Specific Occupational Employment and Wage Estimates (BLS, 2003) for these occupational categories for the affected industry sectors (NAICS 3259 and NAICS 3329) where explosives and small arms ammunition are manufactured. For benefits data, the March 2000 edition of Employer Costs for Employee Compensation (BLS, 2000) was used, which indicates a fringe benefits rate of 37 percent of the hourly wage rate.

To the extent that certain responsibilities under the proposal can

be handled by a trained competent person rather than by a supervisor, a savings in labor costs of about $11 per hour can be realized. Depending on the amount of time devoted to these activities, the cost-savings could be quite significant. For example, if each of the 561 supervisors delegate to competent persons the responsibilities of enforcing safety requirements and precautions related to the transferring of explosives from one vehicle to another for approximately 80 hours per year (equivalent to 2 weeks), then the total labor savings would be equal to $0.5 million per year.

The above cost savings estimate applies only to the competent person requirement. OSHA believes that the proposed rule offers many other opportunities for cost savings. For example, while the existing standard covers the storage of explosives (including small arms ammunition, primers, and smokeless propellants), the proposed standard would only cover the storage of small arms ammunition, primers, and smokeless propellants, but not other explosives. OSHA is proposing this change because ATF regulates the storage of explosives (but not the storage of small arms ammunition, primers, and smokeless propellants designed for use in small arms). OSHA has determined that its authority to regulate the storage of these explosives is preempted by ATF's regulations. Therefore, currently an employer must comply with both OSHA and ATF regulations for the storage of explosives while under the proposed standard, the employer would only have to comply with the ATF regulations. This reduction in regulatory burden would likely lead to cost reductions. Another example relates to the exterior markings or placards on vehicles that transport explosives. Currently employers must comply with OSHA's marking and placarding requirements and with those of the DOT. Under the proposed standard, employers would only have to use the markings and placards required by DOT. Again, this reduction in regulatory burden should lead to cost savings by employers.

The proposal's elimination of overlapping (and sometimes conflicting) regulatory requirements should save some time each year in assuring compliance with the standard. For example, if the revised standard can save, on average, four hours of review by a lawyer, as well as four hours of review by a health or safety engineer for each establishment, the potential cost savings would equal $108,200. This estimate is based on an hourly wage rate of $87.51 for lawyers and $40.73 for health or safety engineers, which includes 37 percent for fringe benefits applied to the 211 establishments in NAICS 325920 and NAICS 332992 (BLS, Employer Costs for Employee Compensation, 2000; and National Industry-Specific Occupational Employment and Wage Estimates, 2003).

Safety Benefits. The potential safety benefits of the proposed standard include a reduction in the number of injuries and deaths associated with accidents involving explosives. In addition, significant property damage often occurs during these accidents. Unlike injury and fatality data, OSHA does not systematically collect data on the amount of property damage which is incurred during workplace accidents. Consequently, OSHA did not attempt to estimate benefits associated with reduced property damage.

To determine the extent to which the proposed standard may reduce the number of deaths and injuries attributable to explosive accidents, OSHA examined its accident investigation reports. The most recent and complete reports cover 1992–2002, and provide detailed information regarding accidents involving explosive materials. During 1992–2002, there were 39 accidents, including 18 that were fatal.

As noted above, the proposed standard primarily affects explosive manufacturing that is not covered under PSM. Upon review of the accident reports, OSHA found that seven of the 39 accidents occurred during the manufacture of explosives. Seven fatalities and five hospitalizations occurred as a consequence of these accidents during 1992–2002. Upon further review, OSHA found that at least one of these accidents, which involved two fatalities, could have potentially been prevented through compliance with the new training requirements. Specifically, in this particular accident, the employer did not assure that the employees were wearing appropriate protective clothing or that spark producing devices were not taken into explosive processing areas.

Focusing only on this single accident, the proposed standard would have produced $12.6 million in total benefits or $1.3 million annually if it were 100 percent effective at preventing these deaths.[4]

TABLE 1.—SUMMARY OF EXPLOSIVES MANUFACTURING AND SMALL ARMS AMMUNITION MANUFACTURING INDUSTRIES

NAICS code	Number of establishments [1]	Number of firms [1]	Employment [1]	Total compliance costs	Compliance cost per firm
325920	100	63	7,325	$993,888	$15,776
332992	111	105	6,717	463,840	4,418

[1] U.S. Census Bureau, Statistics of U.S. Businesses, 2001.

TABLE 2.—ECONOMIC FEASIBILITY ANALYSIS

NAICS code	Number of firms [1]	Total revenue ($1,000) [2]	Profit rate [3] (percent)	Revenue per firm ($1,000)	Profit per firm ($1,000)	Compliance cost as a percent of revenue	Compliance cost as a percent of profit
325920	63	1,582,333	2.45	25,116	615,352	0.06	2.56
332992	105	1,051,301	2.28	10,012	228,282	0.04	1.94

[1] U.S. Census Bureau, Statistics of U.S. Businesses, 2001.

[2] U.S. Census Bureau, Statistics of U.S. Businesses, 1997, updated to 2002 dollars using the GDP implicit price deflator (NAICS 325920 maps to SIC 2892 and NAICS 332992 maps to SIC 3482)

[4] Based on EPA's estimate of a value of $6.1 million for a statistical life, updated to $6.3 million for inflation (See EPA's Guidelines for Preparing Economic Analyses, EPA 240–R–00–003, September 2000).

[3] Dun & Bradstreet, Industry Norms and Key Business Ratios, 2000/2001. An alternative source of profit data is the IRS Corporation Source Book of Statistics of Income, which suggests profit rates of 5.05 percent and 7.09 percent, respectively. OSHA chose the lower rates reported in Dun & Bradstreet to keep the analysis conservative.

TABLE 3.—SUMMARY OF EMPLOYMENT DATA AND COMPLIANCE COST ESTIMATES FOR SMALL EXPLOSIVES AND SMALL ARMS AMMUNITION MANUFACTURING FIRMS

NAICS code	SBA employment size standard	Number of SBA establishments [1]	Number of SBA firms [1]	Total compliance costs for SBA firms	Compliance cost per firm
325920	500	59	52	$269,062	$5,174
332992	1,000	101	99	84,178	850

[1] U.S. Census Bureau, Statistics of U.S. Businesses, 2001.

Note: The published data for NAICS 332992 (SIC 3482) does not provide information for the < 1,000 employment size class, so the analysis was based on the < 500 size class. Because the overwhelming majority of establishments/firms fall into the < 500 category, OSHA believes the approach is reasonable. Comments are welcome.

TABLE 4.—SCREENING ANALYSIS FOR SMALL FIRMS AFFECTED BY THE RULE

NAICS code	Number of SBA firms [1]	Total SBA revenue ($1,000) [2]	Profit rate [3] (percent)	Revenue per firm	Profit per firm	Compliance cost as a percent of revenue	Compliance cost as a percent of profit
325920	52	383,261	4.16	$7,370,406	$306,609	0.07	1.69
332992	99	105,296	3.31	1,063,595	35,205	0.08	2.42

[1] U.S. Census Bureau, Statistics of U.S. Businesses, 2001.
[2] U.S. Census Bureau, Statistics of U.S. Businesses, 1997, updated to 2002 dollars using the GDP implicit price deflator (NAICS 325920 maps to SIC 2892 and NAICS 332992 maps to SIC 3482).
[3] Dun & Bradstreet, Industry Norms and Key Business Ratios, 2000/2001. An alternative source of profit data is the IRS Corporation Source Book of Statistics of Income, which suggests profit rates of 5.05 percent and 7.09 percent, respectively. OSHA chose the lower rates reported in Dun & Bradstreet to keep the analysis conservative.

Note: The published data for NAICS 332992 (SIC 3482) does not provide information for the < 1,000 employment size class, so the analysis was based on the < 500 size class. Because the overwhelming majority of establishments/firms fall into the < 500 category, OSHA believes the approach is reasonable. Comments are welcome.

V. Environmental Impact Analysis

The proposed standard has been reviewed in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*), the regulations of the Council on Environmental Quality (CEQ) (40 CFR part 1500), and DOL NEPA Procedures (29 CFR part 11). The provisions of the proposed standard focus on the reduction and avoidance of employee injuries and deaths during the storage, handling, transportation and use of explosives, including blasting agents and pyrotechnics. OSHA has determined that these proposed provisions will have no significant effect on air, water, or soil quality, plant or animal life, the use of land, or other aspects of the environment.

VI. Paperwork Reduction Act

After review of the proposed revisions to the Explosives Standard, OSHA has identified one new collection of information (paperwork) requirement and determined other paragraphs are not paperwork requirements or impose no burden hours or costs on employers. Collection of information requirements are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (PRA95), 44 U.S.C. 3501 *et. seq.,* and its regulation at 5 CFR part 1320. PRA95 defines a collection of information to mean ''the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public of facts or opinions by or for an agency regardless of form or format'' (44 U.S.C. 3502(3)(A)).

The new paperwork requirement, contained in proposed paragraph (f)(1)(iv), requires employers to document approval from the utility prior to blasting operations that are being conducted in close proximity to gas, electric, water, telephone, or other similar utilities. Documentation may be in the form of a fax, email, or record of a conversation.

The title, summary, description of the need for and proposed use of the collection of information requirement, description of respondents, and the frequency of response of the information collection requirement are described below with an estimate of the annual cost and reporting burden as required by § 1320.5(a)(1)(iv) and § 1320.8(d)(2). The reporting burden includes the time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the collection of information.

OSHA has a particular interest in comments on the following issues:

- Whether the proposed collection of information requirement is necessary for the proper performance of the Agency's functions to protect workers, including whether the information is useful;
- The accuracy of OSHA's estimate of the burden (time and costs) of the collection of information requirement, including the validity of the methodology and assumptions used;
- The quality, utility, and clarity of the information collected; and
- Ways to minimize the burden on employers who must comply; for example, by using automated or other technological information-collection and transmission techniques.

Title: Explosives (29 CFR 1910.109).

Summary: Proposed paragraph (f)(1)(iv) would require that whenever blasting operations are being conducted in close proximity to gas, electric, water, telephone, or other similar utilities, the employer will not commence such blasting operations until receiving and documenting approval from the appropriate utility representatives.

Description: The current Standard does not require a response from the

utility prior to the employer beginning blasting; this could lead to the endangerment of employees working in blasting operations near utility lines. Obtaining and documenting approval from the utility prior to blasting will better ensure employee safety during these operations.

Respondents: Employers in general industry who conduct blasting operations near utilities.

Frequency: On occasion. Employer will contact the utility prior to blasting near gas, electric, water, telephone, or other utilities.

Average Time per Response: OSHA estimates on average, the employer will spend 3 minutes (.05 hour) to document and maintain written approval that the utility representative has approved the blasting operation.

Total Burden Hours: 25.

Costs (purchase of capital/startup costs): None.

The Agency has submitted an information collection request (ICR) for the proposed standard to OMB for review and approval of the collection of information contained in proposed paragraph (f)(1)(iv).

Other proposed paragraphs reviewed for paperwork are not new; or, are not collection of information requirements for the following reasons: (1) The paperwork requirements are contained in existing standards; (2) the requirements are exempt from the definition of a collection of information, since the Government provides specific language for signs/labels for public disclosure (5 CFR 1320.3(c)(2)); (3) the requirements are usual and customary business activities that impose no new burden hours or costs on employers (5 CFR 1320.3(b)(2)); and, (4) the training provisions are performance-oriented, and are not considered collections of information.

Proposed paragraphs containing paperwork requirements that are in existing standards include: § 1910.109(c)(5) *Labels,* § 1910.109(d)(3) *Storage of ammonium nitrate in bags and containers,* and § 1910.109(e)(2) *Vehicles.* Proposed paragraphs that provide specific language for labels and/or signs include: again, § 1910.109(c)(5) *Labels,* § 1910.109(d)(4) *Storage of bulk ammonium nitrate,* and § 1910.109(f)(1) and (3) *Use of explosives for blasting.* Proposed paragraph § 1910.109(e)(1) *Transportation of explosives,* contains a notification requirement that is the same as the notification requirement in paragraph 7.1.7 of the 2001 edition of NFPA 495 (Ex. 2–5). Since employers routinely follow the NFPA Codes, the notification is a usual and customary business practice. Finally, paragraphs § 1910.109(f)(3) *Use of explosives for blasting,* § 1910.109(g)(3) *Bulk delivery vehicles,* and § 1910.109(j) *Training,* contain training requirements that are not counted since these provisions provide the employer a ''performance-oriented'' approach.

Interested parties who wish to comment on OSHA's ICR seeking OMB approval for paragraph (f)(1)(iv), or OSHA's determination that proposed paragraphs in the preceding paragraph impose no new burden hours or costs on employers must send their written comments to the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for OSHA, Office of Management and Budget, Room 10235, 726 Jackson Place, NW., Washington, DC 20503. The Agency also encourages commenters to submit their comments on this paperwork determination to OSHA along with their other comments on the proposed rule. To read or download the complete ICR, go to *http://www.regulations.gov* (Docket No. OSHA–S031–2006–0665) or *http://dockets.osha.gov* (Docket No. S–031). You also may obtain an electronic copy of the complete ICR at *http://www.reginfo.gov.* Click on ''Inventory of Approved Information Collections, Collections Under Review, Recently Approved/ Expired,'' then scroll under ''Currently Under Review'' to Department of Labor (DOL) to view all of the DOL's ICRs, including those ICRs submitted for proposed rulemakings. To make inquiries, or to request other information, contact Mr. Todd Owen, OSHA, Directorate of Standards and Guidance, Room N–3609, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–2222.

VII. Federalism

OSHA has reviewed this proposed rule in accordance with the Executive Order on Federalism (Executive Order 13132, 64 FR 43255, August 10, 1999), which requires that agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when there is clear constitutional authority and the presence of a problem of national scope. Executive Order 13132 provides for preemption of State law only if there is a clear congressional intent for the Agency to do so. Any such preemption is to be limited to the extent possible.

Section 18 of the OSH Act (29 U.S.C. 651 *et seq.*) expresses Congress's intent to preempt State laws where OSHA has promulgated occupational safety and health standards. Under the OSH Act, a State can avoid preemption on issues covered by Federal standards only if it submits, and obtains Federal approval of, a plan for the development of such standards and their enforcement (State-Plan State). 29 U.S.C. 667. Occupational safety and health standards developed by such State-Plan States must, among other things, be at least as effective in providing safe and healthful employment and places of employment as the Federal standards. Subject to these requirements, State-Plan States are free to develop and enforce under State law their own requirements for safety and health standards.

This proposed rule complies with Executive Order 13132. As Congress has expressed a clear intent for OSHA standards to preempt State job safety and health rules in areas addressed by OSHA standards in States without OSHA-approved State Plans, this proposed rule would limit State policy options in the same manner as all OSHA standards. In States with OSHA-approved State Plans, this action does not significantly limit State policy options.

State comments are invited on this proposal and will be fully considered prior to promulgation of a final rule.

VIII. State Plan Standards

When Federal OSHA promulgates a new standard or more stringent amendment to an existing standard, the 26 States and U.S. Territories with their own OSHA-approved occupational safety and health plans must revise their standards to reflect the new standard or amendment, or show OSHA why there is no need for action, e.g., because an existing State standard covering this area is already ''at least as effective'' as the new Federal standard or amendment. 29 CFR 1953.5(a). The State standard must be at least as effective as the final Federal rule, must be applicable to both the private and public (State and local government employees) sectors, and must be completed within six months of the publication date of the final Federal rule. When OSHA promulgates a new standard or amendment to a standard which does not impose additional or more stringent requirements than an existing standard, States are not required to revise their standards, although OSHA may encourage them to do so. The 26 States and territories with OSHA-approved State Plans are: Alaska, Arizona, California, Connecticut (plan covers only State and local government employees), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New Jersey (plan covers only State and local

government employees), New York (plan covers only State and local government employees), North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands (plan covers only State and local government employees), Washington, and Wyoming.

IX. Unfunded Mandates

OSHA reviewed this proposed rule according to the Unfunded Mandates Reform Act of 1995 (UMRA) (2 U.S.C. 1501 *et seq.*) and Executive Order 12875 and determined that this rule does not include any Federal mandate that may result in increased expenditures by State, local, and tribal governments, or increased expenditures by the private sector of more than $100 million in any year.

X. Public Participation

Submission of Comments and Access to Docket

OSHA invites comments on all aspects of the proposed rule. Throughout this document OSHA has invited comment on specific issues and requested information and data about practices at your establishment and in your industry. OSHA will carefully review and evaluate these comments, information and data, as well as all other information in the rulemaking record, to determine how to proceed.

You may submit comments in response to this document (1) electronically at *http://www.regulations.gov,* which is the Federal eRulemaking Portal; (2) by facsimile (FAX); or (3) by hard copy. All comments, attachments and other material must identify the Agency name and the OSHA docket number for this rulemaking (Docket No. OSHA–2007–0032). You may supplement electronic submissions by uploading document files electronically. If, instead, you wish to mail additional materials in reference to an electronic or fax submission, you must submit three copies to the OSHA Docket Office (see **ADDRESSES** section). The additional materials must clearly identify your electronic comments by name, date, and docket number so OSHA can attach them to your comments.

Because of security-related procedures, the use of regular mail may cause a significant delay in the receipt of comments. For information about security procedures concerning the delivery of materials by hand, express delivery, messenger or courier service, please contact the OSHA Docket Office at (202) 693–2350 (TTY (877) 889–5627).

Comments and submissions in response to this **Federal Register** notice are posted without change at *http://www.regulations.gov* (Docket No. OSHA–2007–0032). Therefore, OSHA cautions commenters about submitting personal information such as social security numbers and date of birth.

Exhibits referenced in this **Federal Register** document are posted in both Docket No. OSHA–S031–2006–0665 (which is available at *http://www.regulations.gov*) and OSHA Docket No. S–031 (which is available at *http://dockets.osha.gov.*

Although all submissions in response to this **Federal Register** notice and exhibits referenced in this notice are listed in the *http://www.regulations.gov* and *http://dockets.osha.gov* indexes, some information (e.g., copyrighted material) is not publicly available to read or download from those Web pages. All submissions and exhibits, including copyrighted material, are available for inspection and copying at the OSHA Docket Office (see **ADDRESSES** section). Information on using the *http://www.regulations.gov* Web page to submit comments and access dockets is available at the Web page's User Tips link. Contact the OSHA Docket Office for information about materials not available through the Web pages and for assistance in using the internet to locate docket submissions.

Electronic copies of this **Federal Register** document are available at *http://regulations.gov.* This document, as well as news releases and other relevant information, also are available at OSHA's Web page at *http://www.osha.gov.*

Requests for Informal Public Hearings

Under section 6(b)(3) of the OSH Act and 29 CFR 1911.11, members of the public may request an informal hearing by following the instructions under the section of this **Federal Register** notice titled **ADDRESSES**. These requests must include the objections to the proposal that warrant a hearing. The hearing requests must:

- Include the name and address of the party requesting the hearing;
- Ensure that the request is sent or postmarked no later than June 12, 2007;
- Number each objection separately;
- Specify with particularity the grounds for each objection;
- Include a detailed summary of the evidence supporting each objection which the requester plans to offer at the requested hearing.

XI. List of Subjects in 29 CFR Part 1910

Blasting agents, Explosives, Health, Occupational safety and health, Pyrotechnics, Safety.

XII. Authority and Signature

This document was prepared under the authority of Edwin G. Foulke, Jr., Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210. Pursuant to Sections 4, 6, and 8 of the OSH Act of 1970 (29 U.S.C. 653, 655, 657), Secretary of Labor's Order No. 5–2002 (67 FR 65008), and 29 CFR part 1911, it is hereby amending subpart H of 29 CFR part 1910 as set forth below.

Signed at Washington, DC on April 4, 2007.

Edwin G. Foulke, Jr.,

Assistant Secretary of Labor for Occupational Safety and Health.

XIII. Amendments to Standards

For the reasons set forth in the preamble, OSHA proposes to amend Part 1910 of Title 29 of the Code of Federal Regulations as follows:

PART 1910—[AMENDED]

Subpart A—General

1. The authority citation for Subpart A of part 1910 is revised to read as follows:

Authority: Secs. 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), or 5–2002 (67 FR 65008), as applicable.

Sections 1910.7 and 1910.8 also issued under 29 CFR part 1911. Section 1910.7(f) also issued under 31 U.S.C. 9701, 29 U.S.C. 9a, 5 U.S.C. 553; Pub. L. 106–113 (113 Stat. 1501A–222); and OMB Circular A–25 (dated July 8, 1993) (58 FR 38142, July 15, 1993).

2. Section 1910.6 is amended by removing and reserving paragraphs (k)(9), (q)(17), and (q)(25).

Subpart H—Hazardous Materials

3. The authority citation for subpart H of part 1910 is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

Sections 1910.103, 1910.106 through 1910.111, and 1910.119, 1910.120, and 1910.122 through 126 also issued under 29 CFR part 1911.

Section 1910.119 also issued under section 304, Clean Air Act Amendments of 1990 (Pub. L. 101–549), reprinted at 29 U.S.C. 655 Note.

Section 1910.120 also issued under section 126, Superfund Amendments and Reauthorization Act of 1986 as amended (29 U.S.C. 655 Note), and 5 U.S.C. 553.

4. Section 1910.109 of subpart H is revised to read as follows:

§ 1910.109 Explosives.

(a) *Scope.* (1) This section applies to the manufacture, storage, sale, transportation, handling, and use of explosives, including blasting agents and pyrotechnics.

(2) The employer also shall comply with § 1910.119, Process Safety Management, for operations involving the manufacture of explosives as defined in paragraph (b) of this section. However, blasting agents as defined in paragraph (b) of this section, including water gels, slurries, and emulsions classified as Division 1.5 explosives, are not covered by § 1910.119.

(3) This section does not apply to:

(i) Construction work covered by 29 CFR part 1926;

(ii) The use of explosives in medicines and medicinal agents in the forms prescribed by the official *United States Pharmacopeia and the National Formulary* (USP–NF); or

(iii) The sale and use of consumer and public display pyrotechnics.

(b) *Definitions applicable to this section. Blast area* means the area of a blast within the influence of flying rock or other debris, gases, and concussion.

Blast site means the area where explosives are handled during the preparation and loading of drill holes, including 50 feet (15.2 m) in all directions from the perimeter formed by loaded holes. The 50 foot distance requirement applies in all directions along the full depth of the drill hole.

Blaster-in-charge means the person in charge of the handling, loading, and firing of explosives within the blast site and blast area.

Blasting agent means any material or mixture intended for blasting that is classified as a Division 1.5 explosive.

Bulk delivery vehicle means any vehicle that transports blasting agents or their ingredients in bulk form including bulk delivery vehicles that are capable of mixing the ingredients to form blasting agents and loading the blasting agents directly into drill holes.

Competent person means an employee designated by the employer who, by way of training and experience, is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to explosives, and has authority to take appropriate corrective actions to control such hazards.

Detonator means any device containing an initiating or primary explosive that is used for initiating detonation in another explosive material. A detonator may not contain more than .35 ounces (10 g) of total explosives by weight, excluding ignition or delay charges. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, electronic detonators, blasting caps for use with safety fuse, detonating cord delay connectors, and nonelectric instantaneous and delay blasting caps which use detonating cord, shock tube, or any other replacement for electric leg wires.

Electric detonator means a detonator designed for, and capable of, initiation by means of an electric current.

Electronic detonator means a detonator that utilizes stored electrical energy as a means of powering an electronic timing delay element/module and that provides initiation energy for firing the base charge.

Emulsion means an explosive that either contains substantial amounts of oxidizer dissolved in water droplets that are surrounded by an immiscible fuel, or contains droplets of an immiscible fuel that are surrounded by water containing substantial amounts of oxidizer. Emulsions, depending on their properties, are classified as Division 1.1 explosives or Division 1.5 blasting agents.

Explosive means any device, or liquid or solid chemical compound or mixture, the primary or common purpose of which is to function by explosion.

(i) The term ''explosive'' includes all material included as a Class 1 explosive by DOT in accordance with 49 CFR chapter I. The term includes, but is not limited to, dynamite, black powder, pellet powders, detonators, blasting agents, initiating explosives, blasting caps, safety fuse, fuse lighters, fuse igniters, squibs, cordeau detonant fuse, instantaneous fuse, igniter cord, igniters, pyrotechnics, special industrial explosive materials, small arms ammunition, small arms ammunition primers, smokeless propellant, cartridges for propellant-actuated power devices, and cartridges for industrial guns.

(ii) Explosives are classified using the same classification system as used by DOT (see 49 CFR 173.50). Explosives are classified into the following divisions:

(A) *Division 1.1* consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

(B) *Division 1.2* consists of explosives that have a projection hazard but not a mass explosion hazard.

(C) *Division 1.3* consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

(D) *Division 1.4* consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

(E) *Division 1.5* consists of very insensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions. (The probability of transition from burning to detonation is greater when large quantities are involved.)

(F) *Division 1.6* consists of extremely insensitive articles which do not have a mass explosive hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. (The risk from articles of Division 1.6 is limited to the explosion of a single article.)

CLASSIFICATION CONVERSION TABLE

Current OSHA/DOT classification	Prior OSHA classification
Division 1.1	Class A explosives.
Division 1.2	Class A or Class B explosives.
Division 1.3	Class B explosives.
Division 1.4	Class C explosives.
Division 1.5	Blasting agents.
Division 1.6	No applicable hazard class.

Hot work means any work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.

Magazine means any building or structure, other than an explosives manufacturing building, used for the storage of explosives.

Propellant-actuated power device means any tool or special mechanized device or gas generator system which is actuated by a propellant or which releases and directs work through a smokeless propellant charge.

Pyrotechnics means combustible or explosive compositions or manufactured articles designed and prepared for the purpose of producing audible or visible effects by combustion, deflagration, or detonation. They are commonly referred to as fireworks.

Semiconductive hose means a hose with an electrical resistance high enough to limit flow of stray electric currents to safe levels, yet not so high as to prevent drainage of static electric charges to ground; or a hose of not more than two megohms resistance over its entire length and of not less than 1,000 ohms per foot.

Small arms ammunition means any shotgun, rifle, pistol, or revolver cartridge, and cartridges for propellant-actuated power devices and industrial guns. Military-type ammunition containing explosive-bursting charges, or incendiary, tracer, spotting, or pyrotechnic projectiles are excluded from this definition.

Small arms ammunition primers mean small percussion-sensitive explosive charges, encased in a cap, and used to ignite propellant powder.

Smokeless propellants mean solid propellants, commonly called smokeless powders, used in small arms ammunition, cannons, rockets, and propellant-actuated power devices.

Special industrial explosive materials mean shaped materials and sheet forms and various other extrusions, pellets, and packages of high explosives, which include dynamite, trinitrotoluene (TNT), pentaerythritol tetranitrate (PETN), hexahydro-1,3,5-trinitro-s-triazine (RDX), and other similar compounds used for high-energy-rate forming, expanding, and shaping in metal fabrication, and for dismemberment and quick reduction of scrap metal.

Vehicle means any motor vehicle, machine, tractor, trailer, or semi-trailer propelled or drawn by mechanical power and used in the transportation of explosives.

Water gels or slurries mean explosives that contain substantial proportions of water, oxidizers, and fuel with a cross-linking agent, a gelling, or a thickening agent added. Water gels or slurries, depending on their properties, are classified as Division 1.1 explosives or Division 1.5 blasting agents.

(c) *General provisions.* (1) *Explosives hazards.* The employer shall ensure the following:

(i) Explosives are manufactured, stored, sold, transported, handled, and used in a safe manner;

(ii) Only persons trained in accordance with paragraph (j) of this section handle or use explosives;

(iii) Blasting equipment or explosives that are unsafe due to deterioration, damage, or other causes are not used, and are disposed of by an experienced person as soon as possible in accordance with manufacturers' recommendations;

(iv) Proper housekeeping is performed to prevent hazardous accumulations of explosives, oxidizers, or fuels and other sensitizers in, on, or in close proximity to facilities and equipment containing explosives;

(v) All equipment is maintained in good working condition;

(vi) A program of systematic maintenance of equipment is conducted on a regular schedule;

(vii) No person is allowed to enter facilities containing explosives, or to transport, handle, or use explosives while under the influence of intoxicating liquors, narcotics, or other drugs that may cause the person to act in an unsafe manner in the workplace;

(viii) No person enters a facility containing explosives or a blast site unless authorized to do so by the employer; and

(ix) No flammable cleaning solvents are permitted in facilities containing explosives except where authorized by the employer who determines that their presence does not endanger the safety of employees.

(2) *Electrical hazards.* (i) The employer shall ensure that the primary electrical supply to a facility containing explosives can be disconnected at a safe remote location away from the facility.

(ii) During the approach and progress of an electrical storm, the employer shall ensure that:

(A) All explosive manufacturing and blasting operations are suspended; and

(B) Employees located in or near facilities containing explosives or in blast sites are withdrawn immediately to a safe remote location.

(3) *Fire and Explosion Prevention.* (i) The employer shall ensure that explosives are handled in a manner that minimizes their spillage and jarring, the generation of explosive dust, and the creation of friction in or in close proximity to explosives.

(ii) When a fire is in imminent danger of contact with explosives, the employer shall ensure that:

(A) Employees do not fight the fire;

(B) All employees are immediately removed to a safe area; and

(C) The fire area is guarded against intruders.

(iii) The employer shall ensure that:

(A) No open flames, matches, or spark-producing devices are located within 50 feet (15.2 m) of explosives or facilities containing explosives;

(B) Smoking is only permitted in authorized smoking areas located a safe distance from explosives;

(C) No person carries firearms, ammunition, or similar articles in facilities containing explosives or blast sites except as required for work duties; and

(D) Vehicles are not refueled within 50 feet (15.25 m) of a facility containing explosives or a blast site.

(4) *Maintenance and Repairs.* The employer shall ensure the following:

(i) Before maintenance or repairs are started in or in close proximity to any facility containing explosives or in a blast site, the immediate area surrounding the maintenance or repair work is free of explosives, including residues and dusts containing explosives; and

(ii) The fire prevention and protection requirements in § 1910.252(a) and paragraph (c)(3)(iii) of this section are implemented prior to beginning hot work operations.

(5) *Labels.* (i) The employer shall communicate hazards associated with explosives in accordance with the requirements of the Hazard Communication Standard, § 1910.1200. Where labeling of explosives is required under § 1910.1200, Globally Harmonized System (GHS) labels shall be used as shown in the figure below for different divisions of explosives. The labels shall have a signal word, a hazard statement, and either a division designation or a pictogram as shown in the figure below. The pictogram shall be black on a white background with a red frame sufficiently large to be clearly visible.

BILLING CODE 4510–26–P

GHS Labels for Explosives

Unstable explosives	Division 1.1	Division 1.2	Division 1.3	Division 1.4	Division 1.5	Division 1.6
					1.5 (on orange background)	1.6 (on orange background)
Danger	Danger	Danger	Danger	Warning	Danger	
Unstable explosives	Explosive; mass explosion hazard	Explosive; severe projection hazard	Explosive; fire, blast or projection hazard	Fire or projection hazard	May mass explode in fire	

Source: Globally Harmonized System of Classification and Labelling of Chemicals (GHS), ST/SG/AC.10/30, copyright United Nations, 2003.

BILLING CODE 4510–26–C

(ii) The employer shall ensure that DOT markings, placards, and labels are retained in accordance with § 1910.1201.

(d) *Storage of ammonium nitrate.* (1) *Applicability.* (i) Paragraph (d) of this section applies to the storage of ammonium nitrate in quantities of 1,000 pounds (454 kg) or more to be used in the manufacture of explosives.

(ii) Paragraph (d) of this section does not apply to ammonium nitrate that can be classified as an explosive as defined in paragraph (b) of this section.

(2) *Storage buildings.* (i) Buildings or structures constructed and used to store ammonium nitrate since before August 27, 1971, and that do not meet the requirements of paragraph (d)(2) of this section, shall be deemed to be acceptable for continued storage use when such use does not endanger the safety of employees.

(ii) The employer shall ensure the following:

(A) Ammonium nitrate is stored in a manner that minimizes as far as possible fire and explosion hazards, including exposure to toxic vapors from burning or decomposing ammonium nitrate;

(B) Storage buildings are not over one story in height above ground level;

(C) Storage buildings do not have basements unless the basements are open on at least one side;

(D) Storage buildings are adequately ventilated to prevent unsafe heat or fume accumulations;

(E) Storage building walls are constructed to meet a four-hour fire resistant rating whenever they face and are within 50 feet (15.2 m) of a combustible building, forest, pile of combustible materials, or other similar hazards. In lieu of a four-hour fire resistant wall, other equivalent means of exposure protection may be used;

(F) At a minimum, the roof coverings afford a light degree of fire protection to the roof deck, do not slip from position, and do not present a flying brand hazard;

(G) Storage buildings do not exceed a height of 40 feet unless constructed of noncombustible material or adequate facilities for fighting a roof fire are available;

(H) All flooring is of noncombustible material;

(I) All flooring is protected against impregnation by ammonium nitrate;

(J) Flooring has no drains or piping into which any molten ammonium nitrate could flow and be confined in the event of fire;

(K) Storage buildings are dry and free from water seepage;

(L) Unauthorized persons do not enter an ammonium nitrate storage area;

(M) Ammonium nitrate and storage buildings containing ammonium nitrate are located at a safe distance from readily combustible fuels; and

(N) In areas where lightning storms are prevalent, lightning protection systems are provided. Lightning protection systems meeting the safety requirements found in Appendix K of National Fire Protection Association (NFPA) 780–2004, *Standard for the Installation of Lightning Protection Systems*, or other equally protective criteria would meet the requirements of this provision.

(3) *Storage of ammonium nitrate in bags and containers.* The employer shall ensure that:

(i) Bags and containers used for ammonium nitrate storage are:

(A) Constructed in accordance with DOT regulations (49 CFR chapter I); and

(B) Labeled in accordance with DOT regulations (49 CFR chapter I) or § 1910.1200, as applicable;

(ii) Bags and containers of ammonium nitrate are not placed into storage when the temperature of the ammonium nitrate exceeds 130 F° (54 °C);

(iii) Bags and containers of ammonium nitrate are not stored within 30 inches (76.2 cm) of storage building walls and partitions;

(iv) Stacks of bags or containers of ammonium nitrate do not exceed 20 feet (6.1 m) in height or 20 feet (6.1 m) in width;

(v) Stacks of bags or containers of ammonium nitrate are limited to 50 feet (15.2 m) in length unless located in a building of non-combustible construction or protected by an automatic sprinkler system;

(vi) Bags or containers of ammonium nitrate are not stacked within 36 inches (91.4 cm) of the roof or overhead supporting structure of the storage building;

(vii) Aisles at least 3-feet (91.4 cm) wide are provided to separate stacks of bags or containers of ammonium nitrate; and

(viii) At least one main aisle separating stacks of bags or containers of ammonium nitrate in the storage area is at least 4-feet (1.2 m) wide.

(4) *Storage of bulk ammonium nitrate.* The employer shall ensure the following:

(i) Bulk storage bins used to store ammonium nitrate are clean and free of materials which may contaminate ammonium nitrate;

(ii) Galvanized iron, copper, lead, and zinc are not used in the construction of ammonium nitrate bulk storage bins, unless suitably protected against the corrosive and reactive properties of ammonium nitrate, to avoid contamination of the ammonium nitrate by these metals;

(iii) Aluminum and wooden bulk storage bins used to store ammonium nitrate are protected against ammonium nitrate impregnation;

(iv) The partitions dividing stored ammonium nitrate from other products are constructed to prevent contamination of the ammonium nitrate with these other products;

(v) Ammonium nitrate bulk storage bins or piles are clearly identified by signs reading ''Ammonium Nitrate'' with letters at least 2 inches (5.1 cm) high;

(vi) Ammonium nitrate in piles or in bulk storage bins is loosened or moved periodically to minimize caking;

(vii) Explosives are not used to break up or loosen caked ammonium nitrate;

(viii) The top of an ammonium nitrate pile is no closer than 36 inches (91.4 cm) below the roof or supporting structure of the storage building; and

(ix) Bulk ammonium nitrate is not placed into storage when its temperature exceeds 130 °F (54 °C);

(5) *Contaminants.* The employer shall ensure that:

(i) Ammonium nitrate is kept in a separate building or is separated from flammable, combustible, corrosive, explosive, or contaminating materials or processes by a wall with at least a 1-hour fire-resistant rating. This separation wall shall extend at least to the underside of the roof. In lieu of separation walls, ammonium nitrate may be separated from these materials or processes by a space of at least 30 feet (9.1 m) with means to prevent mixing, such as sills or curbs;

(ii) Flammable liquids are not placed or stored in buildings used for the storage of ammonium nitrate except in accordance with § 1910.106, and paragraph (d)(5)(i) of this section;

(iii) No liquefied petroleum gas is placed or stored in the storage building except in accordance with § 1910.110; and

(iv) Sulfur and finely divided metals are not stored in the same building with ammonium nitrate.

(6) *Fire protection.* The employer shall ensure the following:

(i) Buildings in which greater than 2500 tons (2268 metric tons) of ammonium nitrate is stored are equipped with an automatic sprinkler system that complies with § 1910.159; and

(ii) All fire protection equipment and systems in ammonium nitrate storage buildings meet the requirements of subpart L of this part.

(e) *Transportation of explosives.* (1) *General provisions.* The employer shall ensure that:

(i) No employee smokes, carries matches or any other flame-producing device, or carries any firearms or

cartridges (except firearms and cartridges required to be carried by guards) while in, or within 25 feet (7.63m) of, a vehicle containing explosives;

(ii) No employee drives, loads, or unloads a vehicle containing explosives in an unsafe manner;

(iii) Explosives are not transferred from one vehicle to another without informing local fire and police departments. A competent person shall supervise the transfer of explosives. In the event of breakdown or collision, the local fire and police departments shall be promptly notified;

(iv) No repair work, other than emergency repairs that do not present a source of ignition, is performed on a vehicle containing explosives;

(v) Detonators are not transported with other explosives on the same vehicle, unless packaged, segregated, and transported in accordance with the regulations of DOT (49 CFR 177.835(g));

(vi) When explosives are transported on a railway car utilizing private railroad tracks, the car, its contents, and method of loading are in accordance with the regulations of DOT (49 CFR chapter I);

(vii) Explosives at a railway facility, truck terminal, pier, harbor facility, or airport terminal, whether for delivery to a consignee or forwarded to some other destination, are kept in a manner that minimizes risk to employees; and

(viii) The driver or other employee attending the vehicle is knowledgeable about the nature and hazards of the explosives contained in the vehicle and the procedures for handling emergency situations.

(2) *Vehicles.* (i) The employer shall ensure that any vehicle used to carry explosives:

(A) Is able to safely carry the designated load;

(B) Has close-fitting floors; and

(C) Has wood or other non-sparking materials covering any exposed spark-producing metal on the inside of the vehicle body.

(ii) The employer shall ensure that any vehicle containing explosives or oxidizers located at a private facility or blast site has exterior markings or placards designed and displayed in accordance with the regulations of DOT (49 CFR chapter I).

(iii) For all open-bodied vehicles containing explosives, the employer shall ensure that:

(A) The explosives are protected with a flameproof and moisture-proof tarpaulin or other effective means of protection from fire, sparks, and moisture; and

(B) The explosives are not loaded above the sides of the vehicle.

(iv) For each vehicle used to carry explosives, the employer shall ensure that:

(A) The vehicle is equipped with at least two fire extinguishers filled and in good working order, each having a rating of at least 4–A:40–B:C;

(B) One of the fire extinguishers on the vehicle is located in close proximity to the driver's seat; and

(C) The fire extinguishers on the vehicle are listed or approved by a nationally recognized testing laboratory (refer to § 1910.155(c)(3)(iv)(A) for definition of listed fire extinguishers, and § 1910.7 for nationally recognized testing laboratories).

(v) For each vehicle used for carrying explosives, the employer shall ensure the following:

(A) Fire extinguishers are used, maintained, and tested in accordance with § 1910.157;

(B) Fire extinguishers are used only to fight non-explosive fires; i.e., tire fires, battery fires, engine fires, cab fires, etc., where the fire has not yet reached the explosive cargo; and

(C) The explosive cargo cannot shift, spill, or become damaged during transit.

(vi) The employer shall ensure that any vehicle containing explosives is maintained in good and safe working condition for transporting explosives.

(3) *Operation of vehicles.* (i) The employer shall ensure that:

(A) Only employees designated by the employer ride in or drive a vehicle containing explosives;

(B) Vehicles containing explosives are only driven by and are in the charge of a driver who is familiar with relevant traffic regulations and the provisions of paragraph (e) of this section, and possesses a valid driver's license appropriate for the vehicle;

(C) Except under emergency conditions, no vehicle containing explosives is parked before reaching its destination on any public street adjacent to or in close proximity to any place of employment;

(D) No spark-producing metal, spark-producing tools, oils, matches, firearms, electric storage batteries, flammable substances, acids, oxidizers, or corrosive compounds are carried in the body of any vehicle containing explosives, unless the carrying of such dangerous articles and the explosives complies with DOT regulations (49 CFR chapter I); and

(E) Deliveries of explosives are received only by employees authorized by the employer to receive such explosives.

(ii) The employer shall ensure that every vehicle containing Division 1.1, 1.2, or 1.3 explosives at the employer's worksite or facility is attended at all times by the driver or other responsible person authorized by the employer.

(A) For the purposes of this section, the vehicle shall be considered ''attended'' only when the driver or other responsible person authorized by the employer is physically on or in the vehicle, or can see and reach the vehicle quickly and without any interference. ''Attended'' also means that the driver or other employee is awake, alert, and not engaged in other duties or activities which may divert attention from the vehicle; and

(B) The driver or other employee attending the vehicle shall be authorized, capable, and have the necessary means to drive the assigned vehicle safely.

(f) *Use of explosives for blasting.* (1) *General provisions.* (i) The employer shall ensure that the blaster-in-charge:

(A) Is trained, knowledgeable, and experienced in the storage, transportation, handling, and use of explosives;

(B) Is knowledgeable about relevant federal, state, and local regulations pertaining to explosives;

(C) Is trained, knowledgeable, and experienced in the use of each type of blasting method being used;

(D) Is in control of the blasting operations, blast site, and blast area; and

(E) Evaluates each blast site and blast area for which he or she is responsible and implements the measures that will ensure the safety of employees and the security of those areas.

(ii) The employer shall ensure the following: (A) Explosives are used in accordance with manufacturers' recommendations;

(B) All employees involved in blasting operations work only under the supervision of the blaster-in-charge;

(C) Only Type 3 magazines or the original containers are used to transport detonators and other explosives from magazines to the blast site;

(D) Employees are protected from flying fragments produced during blasting operations by removing employees to a safe distance, using protective barricades, or utilizing other equivalent means to protect employees;

(E) Adequate precautions are taken to prevent sources of induced current, such as lightning, adjacent power lines, dust storms, snow storms, radar, radio transmitters, cellular phones, or other sources of extraneous electricity, from causing the accidental ignition of electric blasting caps; and

(F) Signs are posted warning against the use of mobile radio transmitters or cellular phones on all roads within 350

feet (106.7 m) of the blasting operations. The signs shall read:

WARNING

EXPLOSIVES HAZARD

DO NOT USE MOBILE RADIO TRANSMITTERS OR CELLULAR PHONES

(iii) (A) The employer shall ensure that all surface blasting operations are conducted only during daylight hours; except as provided in (f)(1)(iii)(B) of this section.

(B) Unusual blasting operations associated with industrial processes, such as blasting slag pockets and dustcatchers, that are performed indoors are permitted at any time of day when a minimum illumination density of 20 lumens per square foot is provided within a 5-foot (1.5 m) radius of locations where explosives are being assembled, placed, or attached to detonators.

(iv) Whenever blasting operations are being conducted in close proximity to gas, electric, water, telephone, or other similar utilities, the employer shall not commence such blasting operations until receiving and documenting approval from the appropriate utility representatives.

(2) *Explosives at blast sites.* The employer shall ensure that:

(i) Empty containers and paper and fiber packing materials which previously contained explosives are disposed of in a safe manner, or reused in accordance with DOT regulations (49 CFR chapter I);

(ii) Only non-sparking tools shall be used to open containers of explosives;

(iii) No explosives are abandoned; and

(iv) All unused explosives are immediately returned to appropriate magazines.

(3) *Loading of explosives in drill holes.* The employer shall ensure that:

(i) All drill holes are of sufficient size to permit the free insertion of explosives;

(ii) Tamping of explosives is performed:

(A) Only with non-sparking tools; and

(B) In a manner that does not degrade or otherwise damage the explosives or cause the explosives to detonate;

(iii) Pneumatic loading of explosives into drill holes primed with electric detonators or other static electricity-sensitive initiation systems conforms to the following requirements:

(A) Equipment is bonded and grounded;

(B) A semi-conductive hose is used; and

(C) The blaster-in-charge evaluates all systems to assure that they will safely dissipate static electricity under potential field conditions;

(iv) No employee drills into explosives or any portion of a hole that at any time contained explosives;

(v) After loading for a blast is completed but before detonation, all remaining explosives, including detonators, are immediately returned to the appropriate magazines;

(vi) During the time that drill holes are loaded or are being loaded, only personnel who are engaged in drilling or loading operations, or are otherwise authorized by the employer, may enter the blast site; and

(vii) After the loaded drill holes are connected but prior to them being connected to a source of initiation:

(A) The blast area shall be barricaded and posted, guarded, or both. If barricaded and posted, the posted sign shall read ''DANGER—EXPLOSIVES HAZARD—DO NOT ENTER'' or equivalent language; and

(B) All personnel shall be removed from the blast area.

(4) *Initiation of explosive charges.* The employer shall ensure that:

(i) Where sources of extraneous electricity in excess of fifty (50) milliamperes (flowing through a one-ohm resistor) are present, electric detonators are used only if sufficient measures are taken to ensure that the detonators will not inadvertently activate;

(ii) The blaster-in-charge supervises selection and installation of the initiation system;

(iii) The initiation system is used in accordance with the manufacturer's recommendations;

(iv) The blaster-in-charge checks the initiation system visually after blast hookup;

(v) The blaster-in-charge tests the blast layout for continuity as recommended by the manufacturer;

(vi) Where deemed necessary by the blaster-in-charge, a double trunk line or closed-loop hookup is used in the initiation system;

(vii) When a safety fuse is used, only a crimper approved by the detonator manufacturer or the safety fuse manufacturer is used to connect the detonator to the safety fuse;

(viii) All primers are assembled at least 50 feet (15.25 m) away from any magazine;

(ix) Primers are made up only as needed for immediate use;

(x) When an explosives cartridge that does not have a detonator well is used as a primer, a hole large enough to accommodate the detonator is made in the cartridge with a spark-resistant powder punch approved either by the explosives manufacturer or by the blaster-in-charge;

(xi) When testing electric circuits that lead to loaded drill holes, only blasting galvanometers or other instruments specifically designed for this purpose are used; and

(xii) In electrical firing:

(A) Only the person making the lead line connections or the blaster-in-charge shall fire the shot; and

(B) Blasting lead lines shall remain shunted (shorted) and not connected to the blasting machine or other source of current until the charge is to be fired.

(5) *Warning signal.* The employer shall ensure that, before a blast is fired, all persons and vehicles are at a safe distance outside the blast area or under sufficient cover, and that an adequate warning signal is given.

(6) *Post blast procedures.* After a blast, the employer shall ensure that:

(i) No other person enters the blast area until it is inspected by the blaster-in-charge and found to be free of misfires and other safety hazards and the blaster-in-charge has given an all-clear signal; and

(ii) The blaster-in-charge does not enter the blast site until sufficient time has passed to allow smoke and fumes to dissipate and dust to settle.

(7) *Misfires.* The employer shall ensure that:

(i) Whenever there is a misfire while using blasting cap and fuse or electronic detonators, all employees remain outside the blast area for at least 1 hour. If electric detonators or nonelectric detonators (other than cap and fuse) are used and a misfire occurs, this waiting period may be reduced to 30 minutes;

(ii) Whenever explosives remain in a misfired hole, a new primer is inserted and the hole is reblasted. Where reblasting presents a hazard, the remaining explosives shall be washed out with water, or, where the misfire is underwater, blown out with air;

(iii) Misfires are handled under the direction of the blaster-in-charge and all initiation paths are carefully traced and a thorough search made for unexploded charges;

(iv) Explosives recovered from blasting misfires are placed in a magazine that is used only for the storage of misfired explosives and are then disposed of as soon as possible in accordance with the manufacturers' recommendations; and

(v) Detonators recovered from blasting misfires are not reused and are disposed of as soon as possible in accordance with the manufacturers' recommendations.

(g) *Blasting agents, water gels, slurries, and emulsions.* (1) *General provisions.*

(i) Unless otherwise set forth in this paragraph (g):

(A) Blasting agents, water gels, slurries, and emulsions shall be stored, transported, handled, and used in the same manner as other explosives; and

(B) Water gels, slurries, and emulsions classified as Division 1.1 or Division 1.5 shall meet the same requirements as blasting agents in paragraph (g). However, the manufacture of water gels, slurries, and emulsions classified as Division 1.1 explosives also shall comply with § 1910.119 Process Safety Management.

(ii) The employer shall ensure the following:

(A) Caked oxidizers, either in bags or in bulk, are not loosened by blasting;

(B) Equipment used for mixing and packaging of blasting agents is constructed of materials compatible with the blasting agent composition;

(C) Spills or leaks which may contaminate combustible materials are cleaned up immediately;

(D) Ingredients are not kept with incompatible materials; and

(E) Water gels, slurries, and emulsions, or their liquid ingredients maintain their liquid or water content.

(iii) If a Type 5 magazine is used as a bulk storage container for blasting agents, the employer shall ensure that any electrically driven conveyors used for loading or unloading the magazine are designed to minimize damage from corrosion.

(2) *Fixed location mixing.* (i) In a building used for the mixing of blasting agents, the employer shall ensure the following:

(A) The building is of noncombustible construction or constructed of sheet metal on wood studs;

(B) Floors are constructed of concrete or other minimally absorbent material and have no drains or piping into which molten materials could flow and be confined during a fire;

(C) The building is ventilated to prevent unsafe heat or fume accumulations;

(D) Heating, if supplied for the building, is provided in a manner that does not create a fire or ignition hazard;

(E) All direct sources of building heat shall be provided exclusively from units located outside the building;

(F) Heating units which do not depend on combustion processes may be used in the building if they do not create a fire or ignition hazard;

(G) All internal-combustion engines are located outside the building, or are safely ventilated and isolated by a fire barrier wall with at least a 1-hour rating;

(H) The exhaust systems on all internal-combustion engines are located so that no sparks or other ignition sources create a hazard to any materials in or in close proximity to the building;

(I) All electric equipment located in the mixing room is in accordance with the requirements in subpart S of this part for Class II, Division 2 locations;

(J) All fuel-oil storage facilities are separated from the mixing building and located in such a manner that in case of tank rupture, the oil will drain away from the building and other facilities containing explosives or employees. Alternatively, tanks may be diked in a manner that will contain the entire tank contents in case of rupture; and

(K) The land surrounding the building is kept clear of all combustible materials for a distance of at least 25 feet (7.63 m).

(ii) *Equipment used for mixing blasting agents.* The employer shall ensure that:

(A) The mixing equipment minimizes the possibility of frictional heating, compaction, and confinement;

(B) All surfaces of the mixing equipment are accessible for cleaning;

(C) All bearings and drive assemblies are mounted outside the mixer and protected against dust accumulation;

(D) Suitable means are provided to prevent the flow of fuel oil to the mixer in case of fire. In gravity-flow systems, an automatic spring-loaded shutoff valve with a fusible link shall be installed;

(E) Both equipment and handling procedures prevent the inadvertent introduction of foreign objects or materials into the mixing process; and

(F) Mixers, pumps, valves, and related equipment are regularly and periodically flushed, cleaned, dismantled, and inspected.

(iii) *Blasting agent compositions.* The employer shall ensure that:

(A) Oxidizers of small particle size, such as crushed ammonium nitrate prills or fines, which may be more sensitive than coarser products, are handled with additional care compared to the coarser products;

(B) No hydrocarbon liquid fuel with a flashpoint lower than 125 °F (51.7 °C) is used except at ambient air temperatures below 45 °F (7.2 °C) where fuel oils with flashpoints as low as 100 °F (37.8 °C) are used;

(C) Crude oil and crankcase oil are not used as a blasting agent ingredient;

(D) Metal powders such as aluminum are kept dry and stored in moisture-resistant or weather tight containers;

(E) Solid fuels are used in a manner that minimizes dust explosion hazards as far as possible; and

(F) Peroxides and chlorates are not used.

(iv) *Mixing operations.* The employer shall ensure the following:

(A) Empty ammonium nitrate bags are disposed of daily in a safe manner;

(B) No hot work or open flames are permitted in or around the mixing building unless the equipment and surrounding area have been completely washed down and all oxidizers and fuels removed;

(C) Before welding or repairing hollow shafts of mixing equipment, all blasting agents and their ingredients are removed from the outside and inside of the shaft, and the shaft is vented through an opening at least one-half inch in diameter; and

(D) No explosives other than blasting agents are located inside or within 50 feet (15.25 m) of any building used for the mixing of blasting agents.

(3) *Bulk delivery vehicles.* (i) *Applicability.* The provisions of paragraph (e) of this section also apply to bulk delivery vehicles transporting blasting agents or their ingredients in bulk form.

(ii) *Bulk delivery vehicle construction.* The employer shall ensure that the following requirements are met for bulk delivery vehicles:

(A) The vehicle body is constructed of noncombustible materials;

(B) Vehicles have enclosed bodies;

(C) All moving parts of the mixing system are designed to prevent heat buildup;

(D) Shafts or axles which contact the blasting agent or blasting agent ingredients have outboard bearings with a 1-inch (2.54 cm) minimum clearance between the bearings and the outside of the product container;

(E) When electrical power is supplied by a self-contained generator located on the vehicle, the generator is located where it will not create a fire or ignition hazard;

(F) The vehicle is able to safely carry the designated load;

(G) The vehicle's processing equipment, including its mixing and conveying equipment, is compatible with the relative sensitivity of the materials being handled;

(H) All hollow shafts of the vehicle's processing equipment are constructed to permit venting through an opening at least one-half inch in diameter; and

(I) Means are provided on the vehicle to prevent the flow of fuel to the mixer in case of fire. In gravity flow systems, an automatic spring-loaded shut-off valve with fusible link shall be installed;

(iii) *Bulk delivery vehicle operation.* The employer shall ensure the following requirements are met for bulk delivery vehicle operation:

(A) The driver of the vehicle is trained and capable of safely operating the vehicle;

(B) The operator, whether the driver or another employee, is trained and capable of safely operating the mixing, conveying, and related equipment on the vehicle;

(C) Smoking, matches, open flames, spark-producing devices, and firearms (except firearms required to be carried by guards) are not permitted within 25 feet (7.63 m) of the vehicle;

(D) The transfer of blasting agents or their ingredients from one bulk delivery vehicle to another vehicle is performed at a safe distance away from any blast site where drill holes are loaded or in the process of being loaded;

(E) While the bulk delivery vehicle is in a blast site, caution is exercised to avoid driving the vehicle over hoses or dragging hoses over firing lines, detonating cords, detonator wires or tubes, or explosives;

(F) To ensure the safe movement of the bulk delivery vehicle in the blast site, the driver has the assistance of a second person to guide the vehicle's movements;

(G) Blasting agent ingredients are not mixed while the bulk delivery vehicle is in transit.

(H) A positive action parking brake, which will set the wheel brakes on at least one axle, is used during bulk delivery operations;

(I) At least two wheels are chocked whenever necessary to prevent vehicle movement; and

(J) The vehicle is maintained in good mechanical condition.

(iv) *Pneumatic loading from bulk delivery vehicles.* When drill holes, primed with electric detonators or other static-electricity sensitive systems, are pneumatically loaded from bulk delivery vehicles, the employer shall ensure that:

(A) The blaster-in-charge evaluates all systems to determine that they will adequately dissipate static electricity under potential field conditions;

(B) A grounding device is used to prevent the accumulation of static electricity; and

(C) A discharge hose is used that has a resistance range that will prevent conducting stray currents, but that is conductive enough to bleed off static buildup.

(v) *Repairs to bulk delivery vehicles.* The employer shall ensure that:

(A) No hot work is performed or open flames used on or around any part of the bulk delivery vehicle until all blasting agents and their ingredients have been removed and the vehicle has been completely washed down; and

(B) Before welding or repairing hollow shafts of equipment, all blasting agents and their ingredients are removed from the outside and inside of the shaft and the shaft is vented through an opening at least one-half inch in diameter.

(h) *Small arms ammunition, small arms primers, and smokeless propellants.*

(1) *Applicability.* This paragraph does not apply to temporary in-process storage during the manufacture of small arms ammunition, small arms primers, or smokeless propellants.

(2) *Small arms ammunition.* The employer shall ensure that small arms ammunition is separated from flammable liquids, flammable solids, and oxidizing materials, by a fire barrier wall with at least a 1-hour rating or by a distance of at least 25 feet (7.6 m).

(3) *Smokeless propellants.* (i) The employer shall ensure that:

(A) All smokeless propellants are stored in shipping containers in accordance with DOT regulations at 49 CFR part 173 for smokeless propellants; and

(B) No more than 20 pounds (9.1 kg) of smokeless propellants, in containers not to exceed 1 pound (.45 kg), are displayed in a commercial establishment.

(ii) For commercial stocks of smokeless propellants, the employer shall ensure the following:

(A) Quantities over 20 pounds (9.1 kg) and not exceeding 100 pounds (45.4 kg) are stored in portable wooden boxes having walls at least 1-inch (2.54 cm) thick;

(B) Quantities over 100 pounds (45.4 kg) and not exceeding 750 pounds (340.5 kg) are stored in non-portable cabinets having walls at least 1-inch (2.54 cm) thick, and:

(*1*) Not more than 400 pounds (181.6 kg) shall be permitted to be stored in any one non-portable cabinet; and

(*2*) The non-portable cabinets shall be separated by a distance of at least 25 feet (7.6 m) or by a fire barrier wall with at least a 1-hour rating; and

(C) Quantities over 750 pounds (340.5 kg) and not exceeding 5,000 pounds (2270 kg) are not stored in a building unless the following requirements are met:

(*1*) The warehouse or storage room shall not be accessible to unauthorized personnel;

(*2*) Smokeless propellants shall be stored in non-portable storage cabinets having wood walls at least 1-inch (2.54 cm) thick and having shelves with no more than 3 feet (0.91 m) of separation between shelves;

(*3*) No more than 400 pounds (181.6 kg) shall be stored in any one cabinet;

(*4*) Cabinets shall be located against the walls of the storage room or warehouse;

(*5*) Cabinets shall be separated by at least 40 feet (12.2 m). The separation between cabinets shall be permitted to be reduced to 20 feet (6.1) where barricades twice the height of the cabinets are attached to the wall midway between each cabinet. The barricades shall extend at least 10 feet (3.0 m) outward and be constructed of either ¼-inch (6.35 mm) boiler plate, 2-inch (5.1 cm) thick wood, brick, or concrete block;

(*6*) Smokeless propellant shall be separated from flammable liquids, flammable solids, and oxidizing materials by a distance of at least 25 feet (7.6 m) or by a fire barrier wall with at least a 1-hour rating; and

(*7*) The building shall be protected by an automatic sprinkler system installed in accordance with § 1910.159.

(iii) The employer shall ensure that smokeless propellants exceeding 5,000 pounds (2270 kg) or not stored in accordance with paragraph (h)(3)(ii) of this section are stored in a Type 4 magazine in accordance with ATF regulations for the storage of explosives (27 CFR 555.203 and 555.210).

(4) *Small arms ammunition primers.* (i) The employer shall ensure that:

(A) Small arms ammunition primers are stored in shipping containers in accordance with the applicable regulations of DOT (49 CFR chapter I);

(B) Small arms ammunition primers are separated from flammable liquids, flammable solids, and oxidizing materials by a fire barrier wall with at least a 1-hour rating or by a distance of at least 25 feet (7.6 m); and

(C) No more than 10,000 small arms primers are displayed in a commercial establishment.

(ii) For commercial stocks of small arms primers, the employer shall ensure the following:

(A) When quantities of 750,000 or less are stored in a building:

(1) Not more than 100,000 shall be stored in any one pile; and

(2) Piles shall be at least 15 feet (4.6 m) apart; and

(B) When quantities in excess of 750,000 are stored in a building:

(*1*) The warehouse or storage room shall not be accessible to unauthorized personnel;

(*2*) Primers shall be stored in cabinets with no more than 200,000 primers stored in any one cabinet;

(*3*) Shelves in cabinets shall have a vertical separation of at least 2 feet (0.6 m);

(*4*) Cabinets shall be located against the walls of the warehouse or storage room;

(*5*) Cabinets shall be separated by at least 40 feet (12.2 m). The separation between cabinets shall be permitted to be reduced to 20 feet (6.1 m) where barricades twice the height of the cabinets are firmly attached to the wall, midway between each cabinet. The barricades shall extend at least 10 feet (3.0 m) outward and shall be constructed of either ¼-inch (6.35 mm) boiler plate, 2-inch (5t.2cm) thick wood, brick, or concrete block;

(*6*) Primers shall be separated from materials classified by the U.S. Department of Transportation as flammable liquids, flammable solids, and oxidizing materials by a distance of at least 25 feet (7.6 m) or by a fire barrier wall with at least a 1-hour rating; and

(*7*) The building shall be protected by an automatic sprinkler system installed in accordance with § 1910.159.

(iii) The employer shall ensure that small arms primers that are not stored in accordance with paragraph (h)(4)(ii) are stored in a Type 4 magazine in accordance with ATF regulations for the storage of explosives (27 CFR 555.203 and 555.210).

(i) *Pyrotechnics.* [Reserved]

(j) *Training.* (1) The employer shall provide information and training on safe work practices for each employee prior to or at the time of the employee's initial job assignment involving the manufacture, storage, sale, transportation, handling, or use of explosives, including repair or maintenance of related facilities and equipment.

(2) The employer shall ensure that the training provided under paragraph (j) of this section is specific to each employee's unique work duties.

(3) In addition to the information and training requirements of § 1910.1200, Hazard Communication, the employer shall inform each employee of the requirements in § 1910.109 that apply to the employee's work duties and make a copy of the § 1910.109 standard available to the employee.

(4) Employers shall train employees in all safety practices, including applicable emergency procedures, that relate to their work and are necessary for their safety.

(5) Whenever there are workplace changes, such as the institution of new or modified procedures or products, employees shall be retrained as necessary to ensure that each employee has the requisite proficiency in the relevant safe work practices.

(6) The employer shall conduct retraining whenever the employer has reason to believe that there are inadequacies in the employee's knowledge of or performance of safe work practices.

(7) The employer shall provide information and training in a manner that is understandable to each employee.

(8) The employer shall determine that each employee has demonstrated proficiency in all aspects of the training required by paragraph (j) of this section.

(9) An employer is deemed to be in compliance with an employee training provision in paragraph (j) of this section if an identical training provision has been satisfied for that employee under § 1910.1200, Hazard Communication or DOT training requirements (49 CFR part 172).

5. Paragraph (a)(1)(iii) of § 1910.119 is added to read as follows:

§ 1910.119 Process safety management of highly hazardous chemicals.

(a) * * *

(1) * * *

(iii) The manufacture of explosives as defined in § 1910.109(b), but does not apply to the manufacture of blasting agents, as defined in § 1910.109(b), including water gels, slurries, and emulsions classified as Division 1.5 explosives by the U.S. Department of Transportation (49 CFR Chapter I).

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Subpart Z—Toxic and Hazardous Substances

6. The authority citation for subpart Z of part 1910 is revised to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008), as applicable, and 29 CFR part 1911.

All of subpart Z issued under section 6(b) of the Occupational Safety and Health Act of 1970, except those substances that have exposure limits in Tables Z–1, Z–2, and Z–3 of 29 CFR 1910.1000. The latter were issued under section (6)(a) of the Act (29 U.S.C. 655(a)).

Section 1910.1000, Tables Z–1, Z–2, and Z–3 also issued under 5 U.S.C. 553, but not under 29 CFR part 1911, except for the inorganic arsenic, benzene, and cotton dust listings, and chromium (VI) listings.

Section 1910.1001 also issued under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704) and 5 U.S.C. 553.

Section 1910.1002 also issued under 5 U.S.C. 553, but not under 29 U.S.C. 655 or 29 CFR part 1911.

Sections 1910.1018, 1910.1029, and 1910.1200 also issued under 29 U.S.C. 653. Section 1910.1030 also issued under Pub. L. 106–430, 114 Stat. 1901.

7. The definition of ''explosive'' in paragraph (c) of § 1910.1200 is revised to read as follows:

§ 1910.1200 Hazard communication.

* * * * *

(c) * * *

Explosive means any device, or liquid or solid chemical compound or mixture, the primary or common purpose of which is to function by explosion.

(i) The term ''explosive'' includes all material included as a Class 1 explosive by DOT in accordance with 49 CFR chapter I. The term includes, but is not limited to, dynamite, black powder, pellet powders, detonators, blasting agents, initiating explosives, blasting caps, safety fuse, fuse lighters, fuse igniters, squibs, cordeau detonant fuse, instantaneous fuse, igniter cord, igniters, pyrotechnics, special industrial explosive materials, small arms ammunition, small arms ammunition primers, smokeless propellant, cartridges for propellant-actuated power devices, and cartridges for industrial guns.

(ii) Explosives are classified using the same classification system as used by DOT (see 49 CFR § 173.50). Explosives are classified into the following divisions:

(A) *Division 1.1* consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

(B) *Division 1.2* consists of explosives that have a projection hazard but not a mass explosion hazard.

(C) *Division 1.3* consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

(D) *Division 1.4* consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

(E) *Division 1.5* consists of very insensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions. (The probability of transition from burning to detonation is greater when large quantities are involved.)

(F) *Division 1.6* consists of extremely insensitive articles which do not have a

mass explosive hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. (The risk from articles of Division 1.6 is limited to the explosion of a single article.)

CLASSIFICATION CONVERSION TABLE

Current OSHA/DOT classification	Prior OSHA classification
Division 1.1	Class A explosives.
Division 1.2	Class A or Class B explosives.
Division 1.3	Class B explosives.
Division 1.4	Class C explosives.
Division 1.5	Blasting agents.

CLASSIFICATION CONVERSION TABLE—Continued

Current OSHA/DOT classification	Prior OSHA classification
Division 1.6	No applicable hazard class.

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