

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 1 of 20
--------------------------	---

Subcontractors	Program Requirements Document	For Additional Info: http://EDMS	Effective Date: 02/27/24
----------------	-------------------------------	--	--------------------------

Manual: Subcontractor Requirements

Change Number: 381890

*The current revision can be verified on EDMS.

1. PURPOSE

This document provides requirements to ensure personnel safety during the transportation, storage, and use of *explosives* (see def.). This document implements requirements from codes and standards along with *contractor* (see def.) requirements. Any applicable regulatory or contractor requirements must be followed, with the most stringent requirement being met.

2. APPLICABILITY

This document applies to all subcontractors who transport, store, or use explosives at the Idaho National Laboratory (INL), as specified in their contract with contractor. Stricter requirements may be imposed by subcontractors upon their employees or subtier contractors. The requirements of this document must be followed by subcontractors; however, the means of implementation may vary as determined by the subcontractor.

The ICP contractor performs explosive work activities only through subcontracting the work scope. All explosive work is conducted using the Cardinal Principle of Explosive safety to limit exposure to a minimum number of personnel, for a minimum amount of time, to a minimum amount of explosives, consistent with safe and efficient explosive operations.

U.S. Department of Energy (DOE) STD-1212-2019, “Explosive Safety,” lists the applicable requirements for use of explosives at DOE sites. Occupational Safety and Health Act (OSHA) 29 CFR 1910.109, “Explosives and Blasting Agents,” applies to use of explosives in general industry, and OSHA 29 CFR 1926, Subpart U, “Blasting and Use of Explosives,” applies to the use of explosives in construction.

When performing commercial blasting activities, such as routine construction or routine tunnel blasting, Sections 3.3, Procurement and Delivery of Explosives, 3.4, “Explosive Transportation,” and Section 3.6, “Explosive Storage,” along with the applicable requirements of 29 CFR 1910.109, “Explosives and Blasting Agents,” and 29 CFR 1926 Subpart U, “Blasting and Use of Explosives,” apply.

3. REQUIREMENTS

3.1 Administrative Activities

- 3.1.1 Transportation, storage, use, and disposal of explosives shall be performed in compliance with applicable sections of the DOE Explosive Safety Standard DOE STD-1212-2019 change notice 1 and applicable sections of 27 CFR, “Alcohol, Tobacco Products, and Firearms,” Part 555, “Commerce in Explosives.”

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 2 of 20

- 3.1.2 Before any explosive operation is conducted, plans and procedures shall be developed and approved and shall be used for the procurement, handling, storage, inspection, inventory, use, security, disposal of explosive materials, and disposal of undetonated explosives. Explosive procedures for operations shall be prepared and controlled per DOE STD-1212-2019 change notice 1, Chapter 9, “Operating Procedures.”
- 3.1.2.1 Any necessary exemptions or waivers for explosive safety requirements must be processed according to DOE STD-1212-2019 change notice 1, Chapter 3, Section 3.2, “Exemptions”; Section 3.3, “Equivalency”; or Section 3.4, “Waivers.”
- 3.1.3 Explosive Safety Site Plans must meet the requirements of DOE STD-1212-2019 change notice 1, Chapter 11, “Quantity Distance,” and Chapter 12, “Level of Protection Criteria.”
- 3.1.4 Explosive Safety Site Plans shall address the following items:
- A. A detailed strategy and description for the specific use of the explosives
 - B. An explosives safety analysis (see Appendix A, Explosives Safety Analysis)
 - C. Access control for entry to explosive areas
 - D. Methods and equipment for transporting explosives and detonators
 - E. Protection of explosives from abnormal stimuli or environments
 - F. Maintaining a work environment with necessary resilient materials and the use and accountability of tools
 - G. Prohibition of flame and spark producing devices
 - H. Potential hazards and hazard mitigation procedures
 - I. Personal protective equipment
 - J. Alternative use and handling procedures or special operating procedures as needed
 - K. The type and location of storage facilities
 - L. The primer assembly procedure and location
 - M. Performing the necessary equipment checks for processing and test equipment
 - N. Employee training requirements
 - O. Provisions for protecting people, structures, and property
 - P. Required notifications prior to firing

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 3 of 20

- Q. Safety signals, post-blast inspection, and misfire procedures
- R. Provisions for developing and distributing a daily blasting plan covering hole diameter, spacing, loading, and delay patterns
- S. Provisions for disposal of explosives, blasting agents, and associated materials
- T. Lightning threat actions
- U. Procedures for removal of leaking, broken or defective explosive packages
- V. Hazardous materials and explosives procurement records, including maintaining a list of explosive and other hazardous material used for the operation
- W. Methods of summoning emergency aid, including development of a site-specific emergency plan as needed for the activity
- X. Safety data sheets
- Y. Explosives test data sheets
- Z. Vendor data
- AA. Explosives storage inventories
- BB. Training records
- CC. Shipping papers.

3.1.5 Hazard analysis will be performed, using a graded approach, before starting any explosive operations.

NOTE: *Hazard analyses are prepared in accordance with PRD-1501, "Work Control."*

3.1.6 Explosive Safety-Site Plans will be reviewed and approved by the contractor's explosives safety authority having jurisdiction.

NOTE: *The contractor obtains the explosive safety authority having jurisdiction through services provided by another 10 CFR 851, "Worker Safety and Health Program," approved contractor with an explosive safety plan meeting DOE STD-1212-2019 change notice 1.*

3.1.7 All Explosive Safety Site Plans and associated hazard analysis shall be reviewed by the contractor's project Hazard Review Board (HRB), including the contractor's explosive safety authority having jurisdiction, packaging and transportation, and the DOE-ID Explosive Safety representative. The HRB must include review of:

- A. The elements of the plan (as listed in Step 3.1.4)
- B. Explosive storage

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 4 of 20

- C. Level-of-protection criteria
- D. Interaction of other safety disciplines supporting explosive operation and activities performed at the site
- E. Hazard analysis (as completed per work control documentation)
- F. Any technical standards involving Hazard Category 1, 2, or 3 nuclear facilities
 - 1. Training and qualifications

NOTE: *The contractors HRB performed per Charter (CTR)-163, “Idaho Cleanup Project Core Hazard Review Board Charter,” meets the functions of explosive safety committees as outlined in DOE STD-1212-2019 change notice 1, Chapter 4, “Explosive Safety Program Requirements,” and the roles and responsibilities in Chapter 5, “Roles and Responsibilities,” Section 8, “Contractor Facility Management.”*

- 3.1.8 The contractor’s project manager will submit, after HRB review and approval, the completed Explosive Safety Site Plan to the DOE-ID field element for approval.
- 3.1.9 Applicable environmental regulations 40 CFR 264, “Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal”; 265.382, “Open Burning; Waste Explosives”; 270, “EPA Administered Permit Programs: The Hazardous Waste Permit Program”; and Resource Conservation and Recovery Act (RCRA) shall be incorporated into any disposal procedures for unused, misfired, or out-of-date explosive materials.
- 3.1.10 The subcontractor will designate a qualified *explosives-use supervisor* (see def.) who will be responsible for the use, transportation, storage, and disposal of explosive materials.
- 3.1.11 FRM-2740, “Explosives Use Permit,” (see Appendix B, Explosives Use Permit [Example]) shall be prepared by the subcontractor and approved by the contractor for explosives operations at contractor-controlled facilities or areas.
- 3.1.12 Explosives-use permits shall address the following items:
 - A. Applicable federal regulations and contractor policies and procedures
 - B. An explosives safety analysis (see Appendix A) or job-specific procedure

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 5 of 20
--------------------------	---

C. A copy of the explosives-use plan or equivalent document for firing explosives or explosive devices

D. Any waivers or exemptions to explosives safety requirements.

3.1.13 Explosives-use permits, and plans shall be submitted to the *contractor's point of contact (POC; see def.)* at least 7 calendar days in advance of proposed explosives use.

NOTE: *For complex explosives-use permits, additional time may be needed for an adequate review of the explosives-use plan.*

3.2 Training

3.2.1 All employees who handle, use, transport, or store explosive materials shall receive the following training:

3.2.1.1 Contractor employees with job functions that provide support of explosives work activities must complete 0ICP1042, "Safely Storing and Handling Explosives," or equivalent.

3.2.1.2 Employees who transport explosives shall be trained and qualified as required by the Department of Transportation (DOT) in 49 CFR, Subchapter C, "Hazardous Materials Regulations," Parts 171, 172, 173, and 177, and Subtitle B, Subchapter B, "Federal Motor Carrier Safety Regulations," Parts 390–397.

3.2.1.3 Employees who perform explosive operations, such as activities under an Explosive Safety Site Plan, shall be qualified in accordance with 29 CFR 1910.109, "Explosives and Blasting Agents," 29 CFR 1926, Subpart U, and DOE STD-1212-2019 change notice 1, Chapter 10, "Training."

3.2.1.4 Employees performing explosive ordnance disposal (EOD) activities will have completed documented training for *EOD qualified personnel* (see def.) and have 18 months of EOD experience.

3.2.1.5 Personnel requiring access to areas known or suspected to contain unexploded ordnance (UXO) must complete UXO awareness training.

NOTE: *Course 0ICP1611, Unexploded Ordnance (UXO) Recognition Training, meets this requirement.*

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 6 of 20

3.3 Procurement and Delivery of Explosives

3.3.1 If subcontractor-purchased explosives are to be delivered to the INL, the subcontractor shall provide contractor with arrival dates and instructions for the disposition of ordered explosives.

NOTE: *The subcontractor or explosive shipper can utilize FRM-2739, “Explosive Shipment Inspection Checklist,” (see Appendix C) for preparation of delivery and to ensure that the necessary documents are available.*

3.3.2 Subcontractors shall contact the contractor’s POC 24 hours in advance of the expected delivery time of any DOT-classified explosives or blasting agents.

3.3.2.1 The contractor’s POC will notify other onsite organizations including Packaging and Transportation Department (P&T), Protective Force, and Warning Communications Center (WCC).

3.3.3 The contractor’s POC shall ensure that the delivered shipment is inspected by the contractor’s P&T personnel trained as hazardous material (HAZMAT) shippers and the subcontractor’s explosive custodian, then document using FRM-2739, “Explosive Shipment Inspection Checklist,” (see Appendix C). FRM-2739 must be retained.

3.3.4 Explosives test data sheets and safety data sheets (SDSs) shall be available for each type of explosive brought to contractor-controlled facilities and areas.

3.4 Explosives Transportation

3.4.1 Drivers of vehicles transporting any class of explosive will possess a valid commercial driver’s license (CDL) with a HAZMAT endorsement and meet all requirements of a DOT HAZMAT employee. This would include training in HM-181 (hazardous material transport training), DOT medical approval, drug screening, and other DOT requirements for a HAZMAT driver.

3.4.1.1 The subcontractor will make available for review the driver qualification files for operators of vehicles transporting any class of explosive.

NOTE: *Drivers maintaining the HazMat driver qualification QCPT0002 in accordance with company documents MCP-2670, “Motor Carrier Operations,” or drivers having equivalent qualification by complying with requirements from PLN-320, “Transport Plan for the Movement of Explosive Materials within the Boundaries of the Idaho National Laboratory,” meet the requirements for Explosive Transportation.*

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 7 of 20

- 3.4.2 Before transporting explosives over public highways within INL boundaries or on INL Site roadways, subcontractors shall contact the contractor's POC and arrange for an escort.
- 3.4.3 All motor vehicles transporting explosives over public highways within INL boundaries or on INL Site roadways shall meet the following regulations:
- A. OSHA regulations—29 CFR 1910.109; and 1926 Subpart U
 - B. DOT regulations—49 CFR 171–173, 177 and 390–397
 - C. The requirements of the DOE STD-1212-2019 change notice 1.
- 3.4.4 Explosives, detonators, electro-explosive devices, and primary explosives shipments will comply with the shipping, placarding, packaging, and segregation requirements of the hazardous materials tables found in 49 CFR, "Transportation."
- 3.4.5 Incompatible explosives must be shipped separately.
- 3.4.6 Explosive packages must be labeled with explosive custodian's name, material name, and class/division /group.
- 3.4.7 Vehicles used for the transportation of any class of explosive will be in good condition and meet the requirements stated in DOT regulations 49 CFR and 29 CFR 1910.109, and the requirements of the Idaho DOT for the transportation of explosives. When one or more regulatory requirements conflict, then the most stringent will apply.
- 3.4.8 Portable explosive magazines must be labeled as to the contents and hazard class.

3.5 Explosives Security

- 3.5.1 Subcontractors shall maintain continuous security and control of explosives.
- 3.5.2 Explosive controls for remote operations must meet DOE STD-1212-2019 change notice 1, Chapter 13, "Remote Operations," Section 13.2, Access and Equipment Controls.
- 3.5.3 *Explosives custodians* (see def.) shall be assigned for accountability of explosives.
- 3.5.4 A custody log shall be maintained when ownership of explosives is transferred.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 8 of 20

3.6 Explosives Storage

- 3.6.1 Storage magazines, storage operations, *quantity distances* (see def.), and *intra-line distances* (see def.) for storage magazines shall meet the applicable requirements of the DOE STD-1212-2019 change notice 1.
- 3.6.2 Portable storage magazines shall comply with 27 CFR, “Bureau of Alcohol, Tobacco, and Firearms (BATF),” Part 555, Subpart K, “Storage.”
- 3.6.3 Explosives shall be stored only in magazines and areas approved by the contractor’s POC. Portable magazines shall be sited per DESR6055.09, Edition 1, “DoD Explosives Safety Standards.”
- 3.6.4 Explosives, time fuses, and detonators shall be stored in accordance with the following requirements:
- A. DOE STD-1212-2019 change notice 1, Chapter 32, “Explosive Storage”
 - B. 29 CFR 1910.109, “Explosives and Blasting Agents,” and 29 CFR 1926, Subpart U
 - C. Recommendations of the explosive’s manufacturer
 - D. Compatibility per DOE STD-1212-2019 change notice 1, Section 32.4. “Storage Compatibility,” and Table 32.1 which meet the principles of DESR 6055.09.
- 3.6.5 Magazines containing detonators shall be separated from magazines containing other explosives or blasting agents by the distances specified in publication Number 2 of the Institute of Makers of Explosives (IME).
- 3.6.6 Explosive materials and accessories shall be removed from the INL within 30 days of the expiration of the associated explosives-use permit, unless approval for up to an additional 90 days to keep the materials on the site is obtained from the contractor’s POC.
- 3.6.7 For extended storage, shelf-life criteria for the stored materials shall be reviewed at least annually.
- 3.6.8 For each type of explosive brought to contractor-controlled facilities and areas, test data sheets and safety data sheets shall be available for review.
- 3.6.9 Explosives magazines shall have “No Smoking or Open Flame Within 50 feet” signs posted.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 9 of 20

- 3.6.10 Explosives magazines shall have fire division classification signs posted in accordance with DESR 6055.09, Edition 1, “DOD Ammunition and Explosives Safety Standards,” visible from the normal approaches to magazine areas.
- 3.6.11 Broken, leaky, or defective packages of explosives shall be disposed of in accordance with approved procedures or methods as soon as possible after detection.
- 3.6.12 Empty boxes and combustible packing materials that contained explosives shall be removed from the INL and shall be disposed of in accordance with 29 CFR 1926.900(1).
- 3.6.13 In the event of a fire in an outside explosive’s magazine, all personnel shall immediately be evacuated and the WCC shall be notified.
- 3.6.13.1 All affected personnel shall be moved to a safe area at least 4,000 feet from the fire, and the fire area shall be guarded against intrusion.
- 3.6.13.2 Subcontractor personnel shall not fight any fire in an explosive’s magazine.
- 3.6.14 Personnel entry, explosives quantity, and material for operations in and around magazines shall be controlled in accordance with 29 CFR 1910.109; 29 CFR 1926, Subpart U; and the DOE STD-1212-2019 change notice 1.
- 3.6.15 Magazines shall always be securely locked, except for inspection or movement of explosives.
- 3.6.16 Each magazine door or lid shall be equipped with two hardened padlocks fastened into separate hasps unless located in a secured or patrolled area and approved in writing by the contractor’s POC.
- 3.6.17 Only authorized personnel shall be allowed in or near explosives magazines.
- 3.6.18 A buddy system shall be used for entrance into any explosives magazine and storage area.
- 3.6.19 Operational limits for each magazine shall be posted on or near the magazine.
- 3.6.20 An auditable inventory shall be kept of all explosive materials.
- 3.6.20.1 The inventory shall use units of measure suitable to the type of explosives being stored.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 10 of 20

- 3.6.20.2 The inventory shall be kept in the explosives storage magazines in accordance with the requirements of the DOE STD-1212-2019 change notice 1 and BATF P5400.7, “ATF Explosives – Laws and Regulations.”
- 3.6.20.3 Inventory data shall be provided to the contractor’s POC.
- 3.6.20.4 Any discrepancy in explosive materials inventories shall be immediately investigated to determine if any explosive materials are actually missing.
- 3.6.20.5 Any actual loss or theft of explosive materials shall be immediately reported to the contractor’s POC, Protective Force manager, the DOE-ID Safeguards & Security manager, and the WCC.

3.7 Handling and Use of Explosives

- 3.7.1 Operational Safety for use of explosives shall meet the applicable requirements listed in DOE STD-1212-2019 change notice 1, Chapter 6, “General Operational Safety.”
- 3.7.2 Explosive limits, personnel limits and limit control shall meet the requirements of DOE STD-1212-2019 change notice 1, Chapter 14, “Limits and Control.”
- 3.7.3 Explosives operations shall be conducted in accordance with the approved explosives-use plan and permit.
- 3.7.4 Only authorized and qualified persons shall be permitted to handle or use explosives.
- 3.7.5 Electrical systems used for explosive work activities must meet the requirements of DOE STD-1212-2019 change notice 1, Chapter 36, “Electrical.”
- 3.7.6 As needed for the explosive work activity, lightning protection shall be in accordance with National Fire Protection Association (NFPA) 780, “Standard for the Installation of Lightning Protections Systems,” and DOE STD-1212-2019 change notice 1, Chapter 42, “Lightning Protection.”
- 3.7.7 An approved lightning detection device shall be used at explosive blasting sites to give warning of impending electrical storms.

NOTE: *The NOAA INL weather center can be used to meet this requirement for work at the INL site.*

- 3.7.8 Explosives operations shall be shut down whenever an electrical storm approaches within 5 miles of the explosives area.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 11 of 20

- 3.7.9 When electromagnetic, magnetic, or electrostatic energy threatens an explosives operation, work shall be stopped, and the area shall be evacuated; but if the charges are ready to be fired, approval may be obtained from the *explosives-use supervisor* (see def.) for a preemptive shot to eliminate the greater hazard.
- 3.7.10 Explosives operations shall be separated from radio transmitters and electromagnetic power sources by the distances specified in IME pamphlet Number 20.
- 3.7.11 Use of personal protective equipment (PPE), including maintenance, inspection, testing and cleaning, shall be in accordance with DOE STD-1212- 2019, Chapter 15, “Personal Protective Equipment.”
- 3.7.12 Decontamination and cleaning shall be performed per the requirements of DOE STD-1212-2019 change notice 1, Chapter 44, “Decontamination and Cleaning.”
- 3.7.13 Waste Disposal shall be conducted as described in DOE STD-1212-2019 change notice 1, Chapter 48, “Waste Disposal.”

3.8 Blasting Operations

- 3.8.1 All blasting operations shall be conducted under the supervision of a qualified explosives-use supervisor, and all loading and firing shall be directed and supervised by the explosives-use supervisor or designated alternate.
- 3.8.2 Blasting operations shall be coordinated with all contractor operations or subcontractors in the affected area.
- 3.8.3 Subcontractors shall contact the contractor’s POC 48 hours, 24 hours, and 2 hours in advance of detonation.
- 3.8.4 Contractor’s POC: Notify the WCC in advance of the detonation both 24 hours prior and 2 hours prior, and request explosive notifications (in accordance with the WCC Explosive Blasting Notification Checklist).
- 3.8.5 Flag persons shall be posted at all access points to danger areas to keep all unauthorized persons out.
- 3.8.6 Blasting signs shall be posted at all access points before each shot.
- 3.8.7 The explosives-use supervisor shall make sure that all employees are out of the blast area before firing a blast. Upon verification of the area being clear, the explosive-use supervisor shall notify the authorized and qualified person before initiation of the blast.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 12 of 20

- 3.8.8 The following loud warning signals (blasts on a warning horn) shall be used during blasting operations:
- A. Blast warning: 1-minute series of long signals 5 minutes before blast signal
 - B. Blast signal: series of short signals one minute before the shot (following the final inspection of the blast area for personnel)
 - C. All clear: prolonged signal following inspection of the blast area for hazards.
- 3.8.9 Electrically fired explosives charges shall be fired with an electric blasting machine or a properly designed and installed power source.
- 3.8.9.1 Only solid copper wire of sufficient current-carrying capacity shall be used for explosives detonation, unless prior approval for the use of multi-strand blasting wire is obtained from the contractor's POC.
- 3.8.10 Electrical power shall be disconnected from the electrical blasting leads as follows:
- 3.8.10.1 The firing lead lines shall be disconnected from the blasting machine and shall be short-circuited (shunted) by twisting the wires together.
 - 3.8.10.2 Locking power switches shall be placed in the open or off position.
- 3.8.11 Blasting machines shall be secured in a manner that prohibits any use.
- 3.8.12 After each use of explosives, the detonation area shall be inspected after a minimum 5-minute waiting period.
- 3.8.12.1 All wires shall be carefully traced to search for unexploded charges and other hazards.
 - 3.8.12.2 The all-clear signal shall be sounded only after a satisfactory inspection of the area.
- 3.8.13 Explosive misfires shall be handled in accordance with DOE 1212-2019, Chapter 3.1. "Test Failures and Misfires," Section 31.1, "Explosive Misfire."
- 3.8.14 Multiple-component explosives (such as kinetics, carbo-ammonium nitrates, and slurries) shall be mixed, used, and stored only by an explosives-use supervisor experienced and qualified for the explosive to be used, and use of such components shall be controlled by a detailed explosives-use permit.

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 13 of 20
--------------------------	--

3.9 Unexploded Ordnance

- 3.9.1 Unexploded ordnance activities in the Mass Detonation Area must be performed in accordance with the contractor’s DOE-ID-approved explosives safety site plan PLN-4402, “Mass Detonation Area Explosives Safety Site Plan.”

4. RECORDS

Records of explosive operations shall be generated and maintained as described below:

Type of Record	Submitted to Contractor’s POC	Retained by Subcontractor for Duration of the Project
Explosives custody logs	Yes	Yes
Explosive use plans	Yes	Yes
FRM-2739, “Explosives shipment Inspection Checklist”	Yes	Yes
FRM-2740, “Explosive Use Permit”	Yes	Yes
Training records, training plans, and qualification requirements per DOE STD-1212-2019 change notice 1	Yes	Yes

5. DEFINITIONS

Contractor. The company with the Department of Energy contract and all its duly authorized representatives acting in their professional capacity, in the performance of work at the Idaho Cleanup Project (ICP) at the Idaho National Lab (INL).

Contractor’s point of contact (POC). Individual identified in the subcontract documents as the duly authorized representative for overseeing subcontractor work activities.

Explosives. Any chemical compound or mechanical mixture that, when subjected to stimuli such as heat, impact, friction, or shock, undergoes a very rapid chemical change that releases large volumes of highly heated gases that exert pressure in the surrounding medium. Components not in themselves classed as explosives are not subject to the provisions of the Contractor explosives safety program until they are transported to a mixing or use site or placed near other components of the explosive.

Explosives custodian. A trained and experienced person who has been assigned responsibility for all explosive materials in an assigned area.

EXPLOSIVES SAFETY

Identifier: PRD-2025

Revision*: 9

Page: 14 of 20

Explosive ordnance disposal (EOD) qualified personnel. EOD personnel who are graduates of the U.S. Army Bomb Disposal program, U.S. Air Force EOD program, or U.S. Naval EOD program. These individuals will have EOD experience that may be a combination of active duty military EOD and contractor UXO experience of at least 18 months. This will include experience in supervisory positions. Note: “UXO Personnel (UXO technicians and supervisors) is the term used for ex-military EOD personnel working as civilians or contractors.

Explosives-use supervisor. A person that meets the requirements for explosives worker and will normally be in charge of the explosive operation. This person has the requisite knowledge and experience of the specific operation to verify workers are adequately trained and capable of performing explosive tasks safely. This person will in most cases be the person with the most knowledge and experience on the specific operation.

Intraline distance. The distance to be maintained between any two operating buildings or sites within an operating line, at least one of which contains or is designed to contain explosives or blasting supplies.

Quantity distance. The distance required for a specific level of protection for a particular hazard class/division of ammunition and explosives.

6. REFERENCES

Source Documents

10 CFR 851, “Worker Safety and Health Program”

27 CFR, “Bureau of Alcohol, Tobacco Products, and Firearms”

27 CFR 555, BATF, “Commerce in Explosives”

29 CFR 1910.109, “Explosives and Blasting Agents”

29 CFR 1926, Subpart U, “Blasting and the Use of Explosives”

29 CFR 1926.900, “Safety and Health Regulations for Construction”

40 CFR 264, 265.382, and 270, Resource Conservation and Recovery Act (RCRA) requirements applicable to disposal of explosives

49 CFR 171, “General Information, Regulations, and Definitions”

49 CFR 172, “Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans

49 CFR 173, “Shippers—General Requirements for Shipments and Packagings”

49 CFR 177, “Carriage by Public Highway”

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 15 of 20
--------------------------	--

- 49 CFR 390, “Federal Motor Carrier Safety Regulations; General”
- 49 CFR 391, “Qualifications of Drivers and Longer Combination Vehicle (LCV) Driver Instructors”
- 49 CFR 392, “Driving of Commercial Motor Vehicles”
- 49 CFR 393, “Parts and Accessories Necessary for Safe Operation”
- 49 CFR 395, “Hours of Service of Drivers”
- 49 CFR 396, Inspection, Repair, and Maintenance”
- 49 CFR 397, “Federal Motor Carrier Safety Regulations”
- BATF P5400.7, “ATF Explosives – Laws and Regulations”
- DESR 6055.09, Edition 1, “DoD Explosives Safety Standards”
- DOE STD-1212-2019 change notice 1 (2021), “Explosives Safety”
- Institute of Makers of Explosives (IME) Safety Library publications, applicable Pamphlets 1-22
- MCP-2670, “Motor Carrier Operations”
- PLN-320, “Transport Plan for the Movement of Explosive Materials within the Boundaries of the Idaho National Laboratory”
- PLN-4402, “Mass Detonation Area Explosives Safety Site Plan” (Contractor document)

6.1 Related Requirements

The following documents may also contain requirements that apply to this activity:

- CTR-163, “Idaho Cleanup Project Core Hazard Review Board Charter”
- PRD-1501, “Work Control”
- PRD-2101, “Hazard Communication”

7. APPENDIXES

- Appendix A, Explosives Safety Analysis
- Appendix B, Explosives-Use Permit (Example)
- Appendix C, Explosives Shipment Inspection Checklist

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 16 of 20
--------------------------	--

Appendix A

Explosives Safety Analysis

This safety analysis details the strategy for the specific use of explosives, describes potential hazards, and outlines hazard mitigation.

The explosives safety analysis should include the following items, as a minimum:

1. A systematic identification of potential hazards
2. Analysis of potential consequences
3. Measures to eliminate or control the hazards
4. Documented management authorization of the operation based on an objective assessment.

The completed explosives safety analysis is attached to the associated explosives-use permit and becomes a part of that permit.

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 17 of 20
--------------------------	--

Appendix B

Explosives-Use Permit (Example) FRM-2740

NOTE: *The current revision of FRM-2740 is available on the document control system and available from the contractor’s POC.*

Idaho Cleanup Project Core

TEM-6 (03/07/18 – Rev. 0)

FRM-2740
05/30/19
Rev. 0
Page 1 of 1
DRF No. 362992
Implementing Document: PRD-2025

EXPLOSIVES USE PERMIT

The following employees have demonstrated a working knowledge of safely handling and using explosives by formal training, and experience. They are authorized to perform explosive work at the _____ area for the period specified.

Designated Explosive Users/Handlers and Custodians meet the training requirement of 29 CFR 1910.109; 29 CFR 1926 Subpart U; and DOE STD-1212 as need to perform the explosive work activity

Designated Explosives User(s)/Handler(s): _____

Explosives Custodian: _____

Type of Explosives: _____ Quantity of Explosives: _____

Hazard Class: _____ Level of Protection: _____

Personnel Limits: _____

Date of Approval: _____

This permit is valid until: _____ To _____ / _____ From _____

The following controlling documents apply to this activity:

1. DOE STD 1212 Explosive Safety (current revision).
2. List all applicable Code of Federal Regulations.
3. List all applicable company policies and procedures.
4. List the job specific safety analysis report or job specific procedures to be used.

Operations shall comply with all applicable limits and procedures as specified in the above documents and those referenced therein.

Special Limitations: _____

Approvals:

_____ Date: _____

Project or Construction Manager Operations
(Name)

_____ Date: _____

Explosives SME
(Name)

_____ Date: _____

Project Safety and Health Manager
(Name)

_____ Date: _____

Industrial Safety and Health Senior Manager
(Name)

Special Provisions: _____

NOTE: Attachments or continuation sheets may be used if more space is needed.

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 18 of 20
--------------------------	--

Appendix C

Explosives Shipment Inspection Checklist (FRM-2739)

NOTE: *The current revision of FRM-2739 is available on the document control system and available from the contractor’s POC.*

Idaho Cleanup Project Core
 FRM-2739
 XX/XX/20
 Rev. 1
 Page 1 of 3
 DRF No. 365235
 Implementing Document: PRD-2025

TEM-6 (03/07/18 – Rev. 0)

EXPLOSIVES SHIPMENT INSPECTION CHECKLIST

Date/Time/Place of Inspection: _____
 Packaging & Transportation
 Inspector(s) Name and S Number: _____
 Explosive Custodian and Company: _____
 Driver(s) Name: _____
 Carrier Name (if applicable): _____
 Vehicle ID/License
 Plate Number: _____ Date of Shipment: _____
 Manifest Number: _____ Point of Origin: _____
 Originator: _____ Planned Destination: _____
 Explosives Class/Hazard Div.: _____

Type/Manufacturer	Quantity	Explosives ID Marking

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 19 of 20
--------------------------	--

Idaho Cleanup Project Core
 FRM-2739
 XX/XX/20
 Rev. 1
 Page 2 of 3

TEM-6 (03/07/18 – Rev. 0)

**EXPLOSIVES SHIPMENT
 INSPECTION CHECKLIST**

DEFINITION	ACCEPT	REJECT	N/A
1. Are SDS, data sheets, and explosive testing data sheets available for each type of explosives shipped? [Source - 49 CFR, Parts 390–397; 29 CFR 1910.1200]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has approval of the explosive shipment been obtained and retained on site? [Source - Company Requirement]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the shipping papers properly filled out? [Source - 49 CFR, Parts 390–397]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are the explosive placards written on a white background, in red lettering, and visible posted on all four (4) sides of the vehicle? [Source - 29 CFR 1926.90 2(h) and 49 CFR 172.50b-51d]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there any visible damage to the vehicle or explosive containers? [Source - 29 CFR 1910.109(d)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the vehicle chocked, brakes set, and the engine shut off, before inspection? [Source - 29 CFR 109 (d)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are any ignition sources or non-explosion proof electricals in the area? If not, the inspection may proceed. [Source - 29 CFR 1910.109 (d)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are there any detonators, EEDs, or primary explosives in the same lading as the secondary explosives? [Source - 29 CFR 1910.109 (d)(1)(iv)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Are there any incompatible explosives stored together? [Source - DOE STD-1212-2019, “Explosive Safety,” Chapter 32]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Does each package/container, containing explosives, produced by a licensed manufacturer, identify the manufacturer, location, date, and phone number of the manufacturer? [Source - 49 CFR, Subpart D]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is each package to be stored at the site labeled with the explosive custodian’s name, material identification, and hazard division? [Source - DOE STD-1212-2019, Chapter 32, Chapter 35, and company requirement]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is there evidence of aging, deterioration, or damage to the explosives or containers? [Source - 49 CFR 171.2 (a)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Does the transport vehicle have the following listed items?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Wheel chocks and emergency brake [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Explosives placards on all sides [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Sides and tailgates or rear doors that are strong and securely fastened for open body vehicles (other than flatbed types) [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Rear view side mirrors on each side of the vehicle [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Two filled fire extinguishers: minimum rating of 2A:10BC; one inside the cab and one outside the vehicle [Source - DOE STD-1212-2019, Chapter 33, and 29 CFR 1910.189 (d)]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. A positive means of securing, tie-down bolts, rings and straps, the explosives in the bed of the vehicle [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. A quick disconnect on the battery if explosives are stored in the vehicle overnight [Source - DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EXPLOSIVES SAFETY	Identifier: PRD-2025 Revision*: 9 Page: 20 of 20
--------------------------	--

Idaho Cleanup Project Core
FRM-2739
XX/XX/20
Rev. 1
Page 3 of 3

TEM-6 (03/07/18 – Rev. 0)

**EXPLOSIVES SHIPMENT
INSPECTION CHECKLIST**

DEFINITION	ACCEPT	REJECT	N/A
h. A cargo area with no sharp projections [Source – DOE STD-1212-2019, Chapter II, Section 16]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Precautions shall be taken to prevent the exhausts of motor vehicles from igniting explosive material. [Source – DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Spark arrestor if the motor is running while loading or unloading. [Source – DOE STD-1212-2019, Chapter 33]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Is each explosive magazine which will be transported on the INL capable of being properly secured to the transport vehicle and capable of being identified as such? [Source - 49 CFR Parts 390–397]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are explosive magazines labeled as to the contents and storage compatibility group? [Source - DOE STD-1212-2019, Chapter 32]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Has a proper escort for the explosives, to be received at or shipped from the INL, been approved and arrangements made? [Source - Company requirement]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DESCRIBE ANY PROBLEMS:

Signature: _____

Date: _____