Mountain Valley Pipeline, LLC
MVP Southgate Amendment Project
Docket No. CP25-60-000

Responses to FERC Office of Energy Projects Environmental Information Request 2
Dated June 25, 2025

ATTACHMENT 1-4 – UPDATED CONSTRUCTION PLANS (APPENDIX 1-G)

MVP Southgate Amendment Project

General Blasting Plan

Revised July 2025

TABLE OF CONTENTS

1.0 INTRODUCTION

The Mountain Valley Southgate Amendment Project ("Amendment Project") *General Blasting Plan* ("Plan") outlines the procedures and safety measures that the Contractor (s) will adhere to while implementing blasting activities during the construction of the Amendment Project. This Plan addresses blasting for the proposed pipeline route alignment. The Amendment Project will be located in Pittsylvania County, Virginia, and Rockingham County, North Carolina.

This plan includes a brief description of the pipeline alignment and overall physio geographic setting and bedrock geology in the vicinity of the Amendment Project. Information on shallow bedrock soils and bedrock outcroppings is taken from the Amendment Project's Resource Report 6. A map that depicts the location of the Amendment Project's route is provided in Figure 1.2-1 in Resource Report 1.

Information for blast and rip characteristics of the bedrock may be elevated, at least in a general sense, and applied toward an appropriate bedrock excavating method. The hard and intact nature of the unweathered bedrock may possibly be removed by ripping or mechanical means.

Other geologic features may control the effects of blasting, rock fabric, or the arrangement of minerals, determine intrinsic rock stressing, and thus influence rock excavation. Joint spacing, bedding, and foliation also influence rock excavation.

2.0 PROJECT ALIGNMENT

The proposed FERC jurisdictional facilities described in this plan will consist of approximately 31.3 miles of 30-inch diameter pipeline; aboveground sites for interconnections; mainline block valves; launchers and receivers; control systems; and other facilities, as further described in Resource Report 1.

The proposed pipeline and interconnect facilities are summarized below:

Pipeline – Installation of approximately 31.3 miles of 30-inch diameter pipeline with 1,440 pounds per square inch gauge ("psig") maximum allowable operating pressure ("MAOP"), with portions of the pipeline paralleling existing buried natural gas pipelines. The pipeline will be located in the Virginia County of Pittsylvania and the North Carolina County of Rockingham. The proposed pipeline will extend from the existing Mountain Valley Pipeline in Pittsylvania County, Virginia, to its terminal at the Dan River Interconnects #1 and #2.

- **Interconnections –** The Amendment Project will have a total of four (4) interconnects at Lambert Interconnect in Pittsylvania County, Virginia; LN 3600 Interconnect in Rockingham County, North Carolina; Dan River Interconnect #1 in Rockingham County, North Carolina; and Dan River #2 Interconnect in Rockingham County, North Carolina.

3.0 GEOLOGIC SETTING

The proposed Amendment Project route begins in Pittsylvania County, Virginia and proceeds in a southeasterly direction through one Virginia county into Rockingham County, North Carolina. Along the proposed project route, the topography ranges from 484 to 728 feet above mean sea level ("amsl") and crosses over several synclines and anticlines, as well as mineral resources that are discussed in detail by Resource Report 6.

3.1 Regional Physiographic Setting

The proposed Amendment Project is located within the Piedmont Uploads Section of the Piedmont Physiographic Province. The Amendment Project's physiographic settings are discussed in detail in Resource Report 6, Section 6.2.1 and the Final Environmental Impact Statement issued by FERC on February 14, 2020.

3.2 Regional Geology

The Amendment Project will traverse the geology of numerous timeframes and rock types, as discussed in detail in Resource Report 6 – Geological Resources.

3.3 Active Faults

The Amendment Project alignment was evaluated for the presence of Quaternary-age faulting and the potential for ground movement and failure. The findings of the evaluation are discussed in detail in Resource Report 6.

3.4 Areas of Shallow Bedrock

The pipeline will be installed to allow a minimum cover of 36 inches in areas of shallow bedrock. Therefore, the proposed Amendment Project area was evaluated for areas where bedrock might be encountered above a depth of 60 inches (Resource Report 6 – Appendix A).

Areas where shallow bedrock may be encountered are discussed in detail in Resource Report 6 and Resource Report 7.

Where unrippable subsurface rock is encountered, approved alternative methods of excavation will first be explored, including rock trenching machines, rock saws, hydraulic rams, jackhammers, blasting, etc. The alternative method to be used will be dependent on the proximity to structures, pipelines, wells, cables, water resources, etc., and the capabilities of the alternative excavation method. Should blasting for pipeline grade or trench excavation or site development be necessary, care will be taken to prevent damage to underground structures (e.g., cables, conduits, and pipelines) or to springs, water wells, or other water sources. Blasting mats or padding will be used as necessary to prevent the scattering of loose rock (fly-rock). All blasting will be conducted during daylight hours and will not begin until occupants of nearby buildings, stores, residences, places of business, and farms have been notified. Where competent bedrock occurs in the stream bed, blasting may be used to reduce bedrock so the trench can be excavated. Specific locations requiring blasting will be determined in the field based on the limitations of the mechanical excavation equipment.

3.5 Mineral Resources

Mineral resources, quarries, and other mineral extraction along and within the proposed route of the pipeline and its related facilities are discussed in detail in Resource Report 6.

No blasting is foreseen to occur within the limits of active mining areas or past mining areas, both surface and deep.

4.0 BLASTING SPECIFICATIONS

Blasting for pipeline facilities grade or trench excavation and interconnect site development will be considered only after all other reasonable means of excavation have been evaluated and determined to be unlikely to achieve the required results. Mountain Valley may specify locations (foreign line crossings, nearby structures, etc.) where consolidated rock will be removed by approved mechanical equipment, such as rock trenching machines, rock saws, hydraulic rams, or jackhammers, instead of blasting. Areas where blasting may be required will be surveyed for features such as karst terrain, structures, utilities, and wells. The preconstruction condition of human-occupied buildings will be documented. Occupied buildings and their condition within 250 feet of the construction workspaces will be documented as to their pre-blast condition, as set forth in the Pre-Blast Survey, and their condition after blasting, as set forth the Post-Blast Survey.

The Contractor will provide verbal notification, followed by written documentation, to the buildings' occupant(s) of any blasting activity during both preconstruction and post-construction within 250 feet of a blast location.

Mountain Valley will offer water supply testing to property owners who have wells, springs, surface water intakes, and/or livestock water sources located within 150 feet of a construction workspace, including locations where blasting may occur. Water supply testing will be offered preconstruction (baseline) and post-construction. Property owner contact and water supply testing procedures will be conducted in accordance with the Amendment Project Water Resources Identification and Testing Plan. Wells within 150 feet of proposed Project work areas are tabulated in Resource Report 2.

The Contractor will evaluate, on a timely basis, landowner complaints regarding damage resulting from blasting to wells, homes, or outbuildings. If the damage is substantiated, the Contractor will negotiate a settlement with the landowner that may include repair or replacement. Mountain Valley will monitor these negotiations.

Before any blasting occurs, the Contractor will complete a project/site-specific blasting plan and provide it to Mountain Valley for review. No blasting shall be done without prior approval of Mountain Valley. In no event shall explosives be used where, in the opinion of Mountain Valley, such use will endanger existing facilities and/or structures. The Contractor shall obtain Mountain Valley approval and provide forty-eight (48) hours' notice prior to the use of any explosives. Contractor will provide at least a 48-hour notice to occupants of nearby (within 250 feet of blasting area) buildings, stores, residences, businesses, farms, and other occupied areas prior to initiating blasting operations. These notices will be verbal, followed by written documentation of the 48-hour notice.

4.1 Specifications

Blasting shall adhere to the following federal, state, county, township, local, and Mountain Valley standards and regulations. These standards and regulations are to be considered as the minimum requirements. Should there be a conflict between jurisdictions, standards, and regulations, the most stringent jurisdictions, standards, and regulations shall be followed.

These blasting requirements for the Amendment Project are as follows:

- Amendment Project, Resource Report 6, Docket No. CP25-XX-000.
- Mountain Valley, Design and Construction Manual, Design Standard, Pipeline, 4.11 Blasting Proximate to Buried Pipelines.
- Mountain Valley, Design and Construction Manual, Design Standard, Pipeline, 4.17 Blasting Activities During Construction.
- ATF P5400.7 – Federal Explosives Laws and Regulations
- 29 CFR 1926 Subpart U – Blasting and the Use of Explosives.
- 29 CFR Part 1910.109 – Explosives and Blasting Agents (Occupational Safety and Health Administration)
- 27 CFR 555 Subpart K, U.S. Bureau of Alcohol, Tobacco, and Firearms.
- 27 CFR Part 181 – Commerce in Explosives
- 30 CFR 816.68 Mine Safety and Health Administration ("MSHA").
- 49 CFR Part 192 USDOT.
- 49 CFR Part 177 – Carriage by Public Highway
- 27 CFR Part 55.
- 30 CFR '715.19.
- 18th or later version of the International Society of Explosives Engineers ("ISEE") – Blaster's Handbook
- National Fire Protection Association 495.
- U.S. Bureau of Mines Report of Investigations 8507.
- Virginia 4 VAC25-130-816.11, 4 VAC25-130-816.64, 4 VAC25-110-210, and 3 VAC25-150-250.
- North Carolina Chapter 33 Explosives and Fireworks 2006 North Carolina State Fire Prevention Code (Fire Code).

Additionally, this plan is intended to address the environmental aspects of blasting activities and identify areas of concern along the proposed pipeline segments and related facilities.

5.0 PRE-BLAST INSPECTIONS

As required by Resource Report 6, the Contractor shall conduct pre-blast surveys, with landowner permission, to assess the conditions of structures within 250 feet and wells, springs, and utilities within 150 feet of the proposed construction right-of-way. Should local or state ordinances require inspections more than 150 feet from the work, the local or state ordinances shall prevail. The survey will include, at a minimum:

- Informal discussions to familiarize the adjacent property owners with blasting effects and planned precautions to be taken on this project;
- Determination of the existence and location of site-specific structures, utilities, septic systems, and wells;
- Detailed examination, photographs, and/or video records of adjacent structures and utilities; and
- Detailed mapping and measurement of large cracks, crack patterns, and other evidence of structural distress.

The results will be summarized in a Pre-Blast Condition Report that will include photographs and be completed prior to the commencement of blasting. The pre-blast conditions will be documented with the

information outlined by "Pre-Blast Survey, Amendment Project." This Pre-Blast Survey Form is considered the minimum information needed. The completion of the Pre-Blast Survey Form is in addition to all other local, county, township, state, or federal reporting/survey data collection and reports.

6.0 MONITORING OF BLASTING ACTIVITIES

During blasting, Mountain Valley contractors will take precautions to minimize damage to adjacent areas and structures. Precautions include:

- Dissemination of blast warning signals in the area of blasting.
- Backfilling with subsoil (no topsoil to be used), blasting mats, or other approved methods.
- Blast warning in congested areas, in shallow water bodies, or near structures that could be damaged by fly-rock.
- Use of matting or other suitable cover, as necessary, to prevent fly-rock from damaging adjacent protected natural resources.
- Posting warning signals, flags, and/or barricades.
- Following federal, state, local, and Mountain Valley procedures and regulations for safe storage, handling, loading, firing, and disposal of explosive materials.
- Manning adjacent pipelines at valves for emergency response, as appropriate.
- Posting of portable signage, portable barricades, and visual survey of the blast area access ways to prevent unauthorized entrance into the blast zone by spectators and/or intruders.
- Maintain communications between all persons involved for the security of the blast zone during all blasting/firing.

Excessive vibration will be controlled by limiting the size of charges and by using charge delays, which stagger each charge in a series of explosions.

If the Contractor must blast near buildings, structures, or wells, a qualified independent Contractor will inspect structures within 250 feet or wells within 150 feet, or farther if required by local or state regulations, of the construction right-of-way prior to blasting and with landowner permission. Post-blast inspections by the Company's representative will also be performed, as warranted. All blasting will be performed by registered blasters and monitored by experienced blasting inspectors or Mountain Valley designated representatives. Recording seismographs will be installed by the Contractor at selected monitoring stations under the observation of Mountain Valley personnel. During construction, the Contractor will submit blast reports for each blast and keep detailed records as described in Section 7.10.

As appropriate, the effects of each discharge will be monitored at the outer limits of the construction right of way and closest adjacent facilities by seismographs.

If a charge greater than eight pounds per delay is used, the distance of monitoring will be in accordance with the U.S. Bureau of Mines Report of Investigations 8507.

To maximize its responsiveness to the concerns of affected landowners, Mountain Valley will evaluate all complaints of well or structural damage associated with construction activities, including blasting. A toll-free landowner hotline will be established by Mountain Valley for landowners to use in reporting complaints or concerns. In the unlikely event that blasting activities temporarily impair a water well, Mountain Valley will provide alternative sources of water or otherwise compensate the owner. If well or

structural damage is substantiated, Mountain Valley will either compensate the owner for damages to the structure and well or arrange for a new well to be drilled.

6.1 Site-Specific Blasting Plans

For each area determined to require blasting, a site-specific Blasting Specification Plan will be created. The Contractor's Blasting Specification Plan shall include, at a minimum, the following information:

- Blaster's name, Company, copy of the license, and statement of qualifications; seismograph company, names, equipment and sensor location
- Site location (milepost and stationing), applicable alignment sheet numbers, and associated rock type and geological structure (solid, layered, or fractured)
- Copies of all required federal, state, and local permits
- Methods and materials including explosive type, product name, and size, weight per unit, and density; stemming material; tamping method; blasting sequence; use of non-electrical initiation systems for all blasting operations; magazine type and locations and security for storage of explosives and detonating caps
- Site dimensions including explosive depth, distribution, and maximum charge and weight per delay; hole depth, diameter, pattern, and number of holes per delay
- Dates and hours of conducting blasting, distance, and orientation to nearest aboveground and underground structures; schedule identifying when blasting would occur within each waterbody greater than 10 feet wide or within any wetlands or designated sensitive waterways
- Blasting procedures for:
    - Storing, handling, transporting, loading, and firing explosives
    - Prevention of misfires, flying rock, fire prevention, noise, and stray current accidental detonation of Signs, flagmen, and warning signals prior to each blast
    - Those locations where the pipeline route:
        - Parallels or crosses an electrical transmission corridor, cable, or pipeline
        - Parallels or crosses a highway or road
        - Is within or adjacent to forested areas
        - Approaches within 150 feet of a water well or spring
    - Approaches within 1,000 feet of any residence, building, or occupied structure
        - Local notification
        - Pre-blast inspections
        - Inspections after each blast of Disposal of waste blasting material

7.0 BLASTING REQUIREMENTS

Mountain Valley has standard practices for blasting operations, as outlined by Sections 1.0 and 4.0 of this Blasting Plan. The potential for blasting along the pipeline to affect any wetland, municipal water supply, waste disposal site, well, septic system, spring, or pipeline will be minimized by controlled blasting techniques and by using mechanical methods for rock excavation as much as possible. Controlled blasting techniques have been effectively employed by Mountain Valley and other companies to protect active gas pipelines within 15 feet of trench excavation. The following text presents details of procedures for powder blasting.

7.1 General Provisions

- The Contractor will provide all personnel, labor, and equipment to perform necessary blasting operations related to the work. The Contractor will provide a permitted blaster possessing all permits required by the local, county, township, and states in which blasting is required during construction, and having a working knowledge of state and local laws and regulations that pertain to explosives.
- Amendment Project blasting will be done in accordance with 27 CFR Part 55, 30 CFR 715.19, National Fire Protection Association 495 – Explosive Materials Code; the above-referenced Specification; and all other state and local laws, when required; and regulations applicable to obtaining, transporting, storing, handling, blast initiation, ground motion monitoring, and disposal of explosive materials and/or blasting agents.
- The Contractor shall be responsible for supplying explosives and blasting materials that are perchlorate-free to eliminate the potential for perchlorate contamination of groundwater. Further, the use of ammonium nitrate is prohibited. However, the use of emulsion-type explosives, including those having ammonium nitrate as a constituent, such as Dyna 1062 Bulk Emulsion, shall be permitted, as these types of explosives are considered the industry standard for area blasting related to large-scale earthwork construction. In addition, detonators containing small amounts of perchlorate, such as Dyno Nobel NONEL EZ Dets, are an industry standard and shall be permitted.
- The Contractor shall be responsible for securing and complying with all necessary permits required for the transportation, storage, and use of explosives. The Contractor shall be responsible for all damages or liabilities occurring on or off the right-of-way resulting from the use of explosives. When the use of explosives is necessary to perform the work, the Contractor shall use utmost care not to endanger life or adjacent property and shall comply with all applicable laws, rules, and regulations governing the storage, handling, and use of such explosives. Mountain Valley will conduct a pre- and post-surficial leak survey along the centerline of each adjacent live pipeline to the planned blast area. The surficial leak survey will be conducted by Mountain Valley's employees and/or designated representatives, with the surficial leak survey extending a minimum of 100 feet (in both directions) past the limits of the planned blast area.
- Blasting activities will strictly adhere to all Mountain Valley, local, state, and federal regulations and requirements applying to controlled blasting and blast vibration limits regarding structures, underground gas pipelines, and underground utilities. In addition to following state and federal blasting guidelines, Mountain Valley will contact each governmental agency (if project is not undertaken within twelve months as of the date of this Blasting Plan) along the proposed route to determine local ordinances or guidelines for blasting (refer to Table 7.1.1).
- Special blasting controls will be required if blasting is needed for waterbody crossings. The type of explosive, size of charges, sequence of firing, etc., will be selected to minimize shock wave stresses on aquatic life adjacent to the blasting area. If dry crossings are needed, matting will be used to control fly rock. In addition, where specified, the Contractor will furnish the necessary labor and equipment to employ air bubble curtains to protect nearby aquatic life from blasting shock waves. Air bubble curtains could be specified for both wet and dry crossings, depending on the aquatic life present. For wet crossings the air bubble curtains would be placed upstream and downstream of the blasting area. For dry crossings, the air bubble curtains would be in the dammed-off areas on either side of the pipe ditch.

Table 1 Amendment Project Contacts and Related Permitting Prior to Blasting			
Jurisdiction	**Contact**	**Agency**	**Permit/Regulation**
Virginia	Tarah Kesterson 276.523.8146	Virginia Department of Mines, Minerals, and Energy	Permit and Notification
Virginia	Region 2 Forest Office 434.525.7522	DWR Virginia Department of Wildlife Resources	Notification: 48-hour notice
Virginia	Billy Hux State Fire Marshal 540.270.6617 Billy.hux@vdfp.virginia.gov	SFMO Virginia State Fire Marshal's Office	Permit and Notification: 48-hour notice
North Carolina	Raleigh Regional Office 877.623.6748	NC DEQ	Permit and Notification Notice
North Carolina	Stacie Julian Central Permitting Administrator 336.342.8130 rcpermits@rockinghamcountync.gov	Rockingham County, NC	Permit and Notification Notice

Drilling and blasting shall be performed with a Company Construction Inspector present. Approval is required to proceed prior to each blast. Approval does not relieve the Contractor from responsibility or full liability.

The Construction Contractor will be made aware of all applicable procedures and local requirements, and it will ultimately be the Contractor's responsibility to notify officials and receive appropriate blasting permits and authorization.

Typically, local regulations require copies of the blasting Contractor's Certificate of Insurance and License. In some jurisdictions, a Certificate of Bond will also be required, as well as a qualified person hired to oversee the blasting procedure. This qualified person is described in this document as Mountain Valley's designated representative or Mountain Valley representative.

The Mountain Valley designated representative shall have the opportunity to witness all rock excavations or other use of explosives. The Contractor shall conduct all blasting operations in a safe manner that will not cause harm to the existing pipelines and structures in the vicinity. If the Mountain Valley representative determines that any project blasting operations have been conducted in an unsafe manner, the Mountain Valley representative will notify the Contractor of the unsafe activity. If any further unsafe actions occur on the part of the blasting firm, the Mountain Valley representative will request the Contractor terminate the Contract of the blasting firm and hire another blasting company.

Any failure to comply with the appropriate law and/or regulations is the sole liability of the Contractor. The Contractor and the Contractor's permitted blaster shall be responsible for the conduct of all blasting operations, which shall be subject to inspection requirements.

A Blasting Fact Sheet will be distributed to landowners where blasting is proposed, and affected landowners will be contacted prior to any blasting activities.

7.2 Storage Use at Sites

Explosives and related materials shall be stored in approved facilities required under the applicable provisions contained in 27 CFR Part 55, Commerce in Explosives. The handling of explosives may be performed by the person holding a permit to use explosives or by other employees under their direct supervision, provided that such employees are at least 21 years of age. While explosives are being handled or used, smoking shall not be permitted, and no one near the explosives shall possess matches, open light, or other fire or flame within 50 feet of the explosives, in accordance with OSHA requirements. Suitable devices or lighting safety fuses are exempt from this requirement. No person shall handle explosives while under the influence of intoxicating liquors or narcotics at any time during the construction of the Amendment Project.

Original containers or Class II magazines shall be used for taking detonators and other explosives from storage magazines to the blasting area. Partial reels of detonating cord do not need to be in closed containers unless transported over public highways. Containers of explosives shall not be opened in any magazine or within 50 feet of any magazine. In opening kegs or wooden cases, no sparking metal tools shall be used; wooden wedges and either wood, fiber, or rubber mallets shall be used. Non-sparking metallic slitters may be used for opening fiberboard cases.

No explosive materials shall be located or stored where they may be exposed to flame, excessive heat, sparks, or impact.

Explosives or blasting equipment that are obviously deteriorated or damaged shall not be used. Explosive materials shall be protected from unauthorized possession and shall not be abandoned.

No attempt shall be made to fight a fire if it is determined the fire cannot be contained or controlled before it reaches explosive materials. In such cases, all personnel shall be immediately evacuated to a safe location, and the area shall be guarded from entry by spectators or intruders.

No firearms shall be discharged into or near a vehicle containing explosive materials or into or near a location where explosive material is being handled, used, or stored.

The Contractor shall maintain a daily blast inventory record of all explosive materials transported (to and from the blast area), used, and returned to off-site storage when no storage is located on the blast site.

7.3 Pre-Blast Operations

The Contractor is required to submit a planned schedule of blasting operations to the Mountain Valley representative for approval prior to the commencement of any blasting or pre-blast operation, which indicates the maximum charge weight per delay, hole size, spacing, depth, and blast layout. If blasting is to be conducted adjacent to an existing pipeline, approval must be received from the pipeline's Engineering Department. The Contractor shall provide this schedule to the Mountain Valley representative at least five working days prior to any pre-blast operation for approval and use. Where residences or other structures are within 250 feet of the blasting operation, the Mountain Valley representative may require notification in excess of five days. The blasting schedule is to include the blast geometry, drill hole dimensions, type and size of charges, stemming, and delay patterns and should also include a location survey of any dwelling or structures that may be affected by the proposed operation. Face material shall be carefully examined before drilling to determine the possible presence of unfired explosive material. Drilling shall not be started

until all remaining butts of old holes are examined for unexploded charges, and if any are found, they shall be refired before work proceeds. No person shall be allowed to deepen the drill holes that have contained explosives.

Drill holes shall be large enough to permit the free insertion of cartridges of explosive materials. Drill holes shall not be collared in bootlegs or in holes that have previously contained explosive materials. Holes shall not be drilled where there is a danger of intersecting another hole containing explosive material. Charge loading shall be spread throughout the depth of the drill hole or at the depths of rock concentration in order to obtain the optimum breakage of rock.

Loading and firing shall be performed or supervised only by a person possessing an appropriate blasting permit and license. All drill holes shall be inspected and cleared of any obstruction before loading. No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives shall be immediately returned to an authorized magazine.

A maximum loading factor of 4.0 pounds of explosive per cubic yard of rock shall not be exceeded. However, should this loading fail to effectively break up the rock, a higher loading factor shall be allowed if the charge weight per delay is reduced by a proportional amount and approved by the Mountain Valley representative. The minimum safe distance from the blasting area to a live buried pipeline is placed at 10 feet, measured horizontally from the edge of the blasting area to the outer edge of the affected pipeline. The site-by-site minimum safe distance between blasting areas and adjacent live natural gas pipelines will be calculated each time blasting is to occur using PIPEBLAST computer modeling program or other recognized industrial standards and applying the measured site conditions. The minimum safe distance and supporting calculations and site measurements are to be submitted for approval to Mountain Valley's representative at least 48 hours before blasting is to occur.

All blasts will be monitored (Seismograph Monitoring-Transverse, Vertical, Longitudinal, PPV, and Acoustic) to ensure the peak particle velocity does not exceed the following specified maximum velocities:

- Four (4) inches per second for underground, welded steel pipeline.
- Two (2) inches per second for underground, coupled, steel pipelines, aboveground and underground structures, or water wells.
- The Contractor shall provide seismographic equipment to measure the peak particle velocity ("PPV") of all blasts in the vertical, horizontal, and longitudinal directions.
- The Contractor shall measure the PPV at any adjacent pipelines, at any water wells, potable springs and at any aboveground structures within 150 feet of the blasting. The Mountain Valley Engineering Department may approve higher peak particle velocities in writing, given site-specific conditions.
- For all aboveground facilities within 150 feet of the blasting, the Contractor shall provide additional seismograph equipment to determine the PPV at the aboveground facility. If the measured PPV at an existing pipeline or other structure exceeds the above limits, the Contractor shall stop blasting activities immediately and notify the Company Representative. The Blasting Plan must be modified to reduce the PPV prior to any further blasting.
- The frequency caused by the detonation of the explosive charge shall not drop below 25 hertz without the review and approval of the designated Company Representative.
- The minimum time delay between the detonations of charges shall be 8 milliseconds.

- Limits on PPV for surface structures are based on studies that established the limits at which plaster in homes will crack. The primary purpose of the limit is to prevent damage to homes. The Company may increase the limit for other structures, such as steel transmission line towers, as appropriate.
- The designated Mountain Valley representative may approve higher velocities for given site-specific conditions in advance.

The type of explosive and initiation system to be used is as follows:

7.3.1 Dyno Nobel Unimax TM (or equivalent)

An extra-gelatin dynamite with a specific gravity of 1.51 g/cc, a detonation rate of 17,400 f/s (unconfined), and a calculated energy of 1,055 c/g. The cartridge size will generally be 2" x 8" (1.25 lbs/cartridge) or 2" x 16" (2.50 lbs/cartridge).

7.3.2 Dyno Nobel Unigel TM (or equivalent)

A semi-gelatin dynamite with a specific gravity of 1.30 g/cc, a detonation rate of 14,200 f/s (unconfined), and a calculated energy of 955 c/g. The cartridge size will generally be 2" x 8" (1.15 lbs/cartridge) or 2" x 26" (2.30 lbs/cartridge).

7.3.3 Dyno Nobel Dynomax ProTM (or equivalent)

A propagation-resistant dynamite with a specific gravity of 1.45 g/cc, a detonation rate of 19,700 f/s (unconfined), and a calculated energy of 1,055 c/g. The cartridge size will generally be 2" x 8" (1.225 lbs/cartridge) or 2" x 16" (24.45 lbs/cartridge).

7.3.4 Dyno Nobel NONEL TM 17 or 25 Millisecond Delay Connectors or Dyno Nobel NONEL EZ Det TM (or equivalent)

A nonelectric delay detonator with a 25/350, 25/500, or 25/700-millisecond delay.

7.3.5 Dyno Nobel NONEL TM Nonelectric Shock Tube System Detonator (or equivalent)

The Shock Tube will be used to initiate all shots. The Shock Tube will be attached at one point only for the initiation of the entire shot and will not be used for downhole priming.

7.3.6 Dyno Nobel 1062 Bulk Emulsion (or equivalent)

An emulsion/gel product commonly used for area blasting, such as road alignments or large pads. It contains the following major components: ammonium nitrate (30 to 80% w/w, calcium nitrate, sodium nitrate, and No. 2 diesel fuel (1 to 8% w/w).

Each borehole shall be primed with NONEL EZ DefTM system. The total grains of the detonator system should be limited to prevent blowing stemming out of the drill hole. Boreholes shall be delayed with a minimum of 25 milliseconds ("ms"). Slightly longer delays may be used over steep hills with prior approval of the Mountain Valley designated representative. Primers shall not be assembled closer than 50 feet (15.25 m) from any magazine. Primers shall be made up only when and as required for immediate needs.

Blasting shall not be permitted if any part of the live pipeline lies within the perimeter of the crater zone, regardless of the size of the blast/shot. Crater zone shall be defined as a circle created by turning a radius along the ground surface equal to the length of the depth below the surfaces where the shot is placed.

Tamping shall be done only with wood rods without exposed metal parts, but non-sparking metal connectors may be used for jointed poles. Plastic tamping poles may be used, provided the authority having jurisdiction has approved them. Violent tamping shall be avoided.

Recommended stemming material shall consist of clean crushed stone with d50 – 3/8 inch, which will not bridge over like dirt and will completely fill voids in the hole.

When a safety fuse is used, the burning rate shall be determined, and in no case shall fuse lengths less than 120 seconds be used. The blasting cap shall be securely attached to the safety fuse with a standard ring-type cap crimper.

Pneumatic loading of blasting agents in blast holes primed with electric blasting caps or other static-sensitive initiation systems shall comply with the following requirements:

- •A positive grounding device shall be used for the equipment to prevent the accumulation of static electricity;
- •A semi-conductive discharge hose shall be used, and a Mountain Valley designated representative shall evaluate all systems to ensure they will adequately dissipate static charges under field conditions.
- No blasting caps or other detonators shall be inserted in the explosives without first making a hole in the cartridge for the cap with a wooden punch of proper size or standard cap crimper.
- After loading for a blast is completed, all excess blasting caps or electric blasting caps and other explosives shall immediately be removed from the area and returned to their separate storage magazines.

7.4 Protection of Aboveground and Underground Structures

The Contractor will exercise control to prevent damage to aboveground and underground structures, including buildings, pipelines, utilities, springs, and water wells. The Contractor will implement the following procedures:

- If blasting occurs within 150 feet of identified water well or potable springs, water flow performance and water quality testing will be conducted before blasting. If the water well or spring is damaged, the well or spring will be repaired or otherwise restored, or the well owner will be compensated for damages. The Company will provide an alternative potable water supply to the landowner at the Contractor's expense until repairs occur. Locations of known water wells or systems within 150 feet of the construction work area are indicated on the Company's construction alignment sheets or in other project-related documentation.
- If blasting occurs within 250 feet of any aboveground structures, the Contractor and the Company representative will inspect structures before and after blasting. In the unlikely event that damage occurs to the aboveground structure, the owner will be compensated by the Contractor.
- The Contractor shall be responsible for the ultimate resolution of all damage claims resulting from blasting. Such liability is not restricted by the 150-foot inspection requirement cited above.

- Blasting will not be allowed within 15 feet of an existing pipeline unless specifically authorized by the Company.
- Holes that have contained explosive material shall not be re-drilled. Holes shall not be drilled where danger exists of intersecting another hole containing explosive material.
- Blasting mats or padding shall be used on all shots where necessary to prevent the scattering of loose rock outside of the approved construction workspace areas and to prevent damage to nearby structures and overhead utilities.
- Blasting shall not begin until occupants of nearby buildings, residences, places of business, places of public gathering, and farmers/ranchers have been notified by the Contractor sufficiently in advance to protect personnel, property, and livestock. The Contractor shall notify all such parties at least 48 hours (2 normal working days M to F, non-holiday) prior to blasting. The Company shall work with ranchers to relocate livestock and other animals to safe areas away from the blast zone to prevent injury to the livestock or to prevent stampeding of the livestock as a result of the blast.

The Contractor shall take sole liability for property damage, injury, or fatalities to people and livestock caused by blasting operations.

- Only authorized, qualified, and experienced personnel shall handle explosives.
- No explosive materials shall be located where they may be exposed to flame, excessive heat, sparks, or impact. Smoking, firearms, matches, open flames, and heat and spark-producing devices shall be prohibited in or near explosive magazines or while explosives are being handled, transported, or used.
- A code of blasting signals shall be established, posted in conspicuous places, and utilized during blasting operations. Contractor training, including those directly involved in the blasting operations and all other persons involved in the project (e.g., the Company and their authorized representatives and other Contractor personnel), shall be conducted on the use and implementation of the code.
- The Contractor shall use every reasonable precaution including, but not limited to, visual and audible warning signals, warning signs, flag person, and barricades to ensure personnel safety.
- Warning signs, with lettering a minimum of four inches in height on a contrasting background, will be erected and maintained at all approaches to the blast area. Contractor personnel may need to be in place at these locations just prior to the blast through the "ALL CLEAR" if there is a high likelihood of people entering the blast area.
- Flaggers will be stationed on all roadways passing within 1,000 feet of the blast area to stop all traffic during blasting operations.
- All personnel not involved in the actual detonation shall stand back at least 1,000 feet, and workers involved in the actual detonation shall stand back at least 650 feet from the time the blast signal is given until the "ALL CLEAR" has been sounded.
- No loaded holes shall be left unattended or unprotected at any time, including overnight.
- No explosives or blasting agent shall be abandoned.
- In the case of a misfire, the blaster shall provide proper safeguards for personnel until the misfire has been re-blasted or safely removed.
- The exposed areas of the blast will be matted wherever practicable. In cases where such a procedure is not deemed to be feasible, the Contractor will submit an alternative procedure for review by the

Company, and the site in question must be visited and examined by the designated Mountain Valley representative before any approval is granted.

- The Company may employ two-way radios for communication between vehicles and office facilities. The Contractor shall advise the Company and other pipeline contractors of any need to cease the use of such equipment during blasting activities.
- All loading and blasting activity shall cease, and personnel in and around the blast area will retreat to a position of safety during the approach and progress of an electrical storm, irrespective of the type of explosives or initiation system used. **THIS IS A MAJOR SAFETY PRECAUTION AND WILL ALWAYS BE OBSERVED.** All explosive materials, all electrical initiation systems, and all nonelectric initiation systems are susceptible to premature initiation by lightning.
- Previous blast areas must be inspected to verify the absence of misfires. No drilling may commence until such inspection occurs. If a misfire occurs adjacent to a hole to be drilled, the misfire will be cleared by the blaster using whatever techniques are called for by the situation prior to the commencement of drilling. If a misfire occurs at some distance from the drilling area, drilling may be stopped while clearing preparations are underway. When the misfire is to be cleared by re-shooting, drilling will be shut down, and personnel will be evacuated to a place of safety prior to detonation.
- All transportation of explosives will be conducted in accordance with applicable federal, state, and local laws and regulations. Vehicles used to transport explosives shall be in proper working condition and equipped with tight wooden or non-sparking metal floor and sides. If explosives are carried in an open-bodied truck, they will be covered with a waterproof and flame-resistant tarpaulin. Wiring will be fully insulated to prevent short-circuiting, and at least two fire extinguishers will be carried. The truck will be plainly marked to identify its cargo so that the public may be adequately warned. Metal, flammable, or corrosive substances will not be transported in the same vehicle with explosives. There will be no smoking, and unauthorized or unnecessary personnel will not be allowed in the vehicle. Competent, qualified personnel will load and unload explosives into or from the vehicle.
- No sparking metal tools will be used to open kegs or wooden cases of explosives. Metallic slitters will be used to open fiberboard cases, provided the metallic slitter does not come in contact with the metallic fasteners of the case. There will be no smoking, no matches, no open lights, or other fire or flame (including welding) nearby while handling or using explosives. Explosives will not be placed where they are subject to flame, excessive heat, sparks, or impact. Partial cases or packages of explosives will be re-closed after use. No explosives will be carried in the pockets or clothing of personnel. The wires of an electric blasting cap shall not be tampered with in any way. Wires will not be uncoiled. The use of electric blasting caps will not be permitted during dust storms or near any other source of large charges of static electricity. Uncoiling of the wires or use of electric caps will not be permitted near radio-frequency transmitters. The firing circuit will be completely insulated from the ground or other conductors.
- No blast will be fired without a positive signal from the person in charge. This person will have made certain that all surplus explosives are in a safe place, all persons, vehicles, and/or boats are at a safe distance, and adequate warning has been given. Adequate warning of a blast will consist of, but is not limited to, the following:
    - Notification to nearby homeowners and local agencies, if necessary
    - Stop vehicular and/or pedestrian traffic near the blast site

- Signal given by an air horn, whistle, or similar device using standard warning signals
- Only authorized and necessary personnel will be present where explosives are being handled or used.
- Condition of the hole will be checked with a wooden tamping pole prior to loading. Surplus explosives will not be stacked near working areas during loading. Detonating fans will be cut from spool before loading the balance of the charge into the hole. No explosives will be forced into a bore hole past an obstruction. Loading will be done by a blaster holding a valid license or by personnel under his direct supervision.
- A risk of accidental detonation caused by lightning strikes exists at any time the workplace is experiencing an electrical storm, and there are loaded holes on site. If this hazard is judged to exist by the Company representative, work shall discontinue at all operations, and workers will be moved to secure positions away from the loaded holes. Furthermore, workers shall not return to the work site until the storm has passed and the Company representative has indicated it is clear to return.
- The Company's Contractor shall have on-site and use approved lightning detectors capable of measuring the degree of electrical activity as a storm approaches and the distance to the storm front from the instrument on the ROW, such as:
- SD-2508 manufactured by Electronics Division
- S.D.I. International Model 350 manufactured by Thomas Instruments Inc.
- Skyscan Lighting Detector manufactured by Skyscan Technologies
- Or approved equivalent

7.5 Waterbody Crossing Blasting Procedures

Blasting should not be conducted within or near a stream channel without prior consultation and approval from the appropriate federal, state, and local authorities having jurisdiction to determine what protective measures must be taken to minimize damage to the environment and aquatic life of the stream. At a minimum, a five-work day notice must be provided to the appropriate federal, state, and/or local authorities. In addition to the blasting permits, a separate permit and approvals are required for blasting within the waters of the states of Virginia and North Carolina.

Rock drill or test excavation will occur within the limits of a flowing stream only after the streamflow has been redirected and maintained via dam and pump or flume crossing, as presented in Resource Report 2 – Appendix 2A. For those streams that have no flow at the time of rock drill or test excavation activities, the rock testing will be conducted in the streambed and the streambed disturbance created by the rock testing will be restored within the same day of disturbance.

Rock drill or test excavation and resulting blasting will only occur once the streamflow has been redirected and maintained via dam and pump or flume crossing method. For these crossings of flowing streams, work will commence immediately after the initial disturbance and continue until the stream crossing is completely installed and the streambed restored. Stream crossing methods and crossing mitigation measures are presented in Resource Report 2 – Section 2.3.

To facilitate planning for blasting activities for waterbody crossings, rock drilled, or test excavations may be used in waterbodies to test the ditch-line during mainline blasting operations to evaluate the presence of rock in the trench-line. The excavation of the test pit or rock drilling is not included in the time window

requirements for completing the crossing. For testing and any subsequent blasting operations, streamflow will be maintained through the site.

When blasting is required, the FERC timeframes for completing in-stream construction begin when the removal of blast rock from the waterbody is started. If, after removing the blast rock, additional blasting is required, a new timing window will be determined in consultation with the Environmental Inspector. If blasting impedes the flow of the waterbody, the Contractor can use a backhoe to restore the stream flow without triggering the timing window. The complete waterbody crossing procedures are included in Mountain Valley's Erosion Sediment Control Plan.

Mountain Valley will immediately halt all construction activities if the loss of streamflow occurs after a blasting event. The construction contractor and Mountain Valley's Environmental Inspector will immediately evaluate the loss of water and develop a Contingency Plan to restore streamflow. This Contingency Plan will be provided to the local, state, and federal agencies having jurisdiction over the stream impacted for their review and approval. Congruent with the contractor's and Mountain Valley's Environmental Inspector's evaluation, temporary emergency contingency measures will be employed to halt the loss of streamflow. Immediately upon the agencies' approval of the Contingency Plan, the Contractor will implement the measures outlined in the agency-approved Contingency Plan.

The temporary emergency contingency measures and the agency-approved Contingency Plan measures will be implemented in accordance with Resource Report 2 – Section 2.4.1).

7.6 Karst Terrain Blasting Procedures

Mountain Valley evaluated karst topography areas and determined that there is negligible potential for karst hazards to be present within 0.25 mile of the Amendment Project pipeline. Mountain Valley's Karst Specialist ("KS") previously assessed areas of potential karst terrain and determined that no impacts on karst formations were anticipated during construction and operation.

In the event that areas of karst are identified during construction, blasting in a Karst Terrain will only be considered after all other reasonable means of excavating have been evaluated and determined to be unlikely to achieve the required grade.

Blasting should not be conducted within or near a karst Area without Mountain Valley's KS review and the Karst Blasting Plan obtaining approval from the appropriate federal, state, and local authorities having jurisdiction to determine protective measures that must be taken to minimize damage to the karst Terrain. At a minimum, the individual Karst Terrain Blasting Plan will be provided to the appropriate federal, state, and local authorities for review and approval five working days prior to conducting the blasting.

Blasting will be conducted in a manner that will not compromise the structural integrity of the karst hydrology of known karst structures. If rock is required to be blasted to achieve grade, then the following parameters will be adhered to:

- The excavation will be carefully inspected for any voids, openings or other tell-tale signs of solution activity by Mountain Valley's KS.
- If the rock removal intercepts an open void, channel, or cave, the work in that area will be stopped until a remedial assessment can be carried out by Mountain Valley's KS.

- All use of explosives will be limited to low-force charges that are designed to transfer the explosive force only to the rock that is designated for removal (e.g., maximum charge of 2 inches per second ground acceleration).

7.7 Wetland Crossing Blasting Procedures

Blasting for trench excavation crossing a wetland will only be considered after all other reasonable means of excavating have been evaluated and determined to be unlikely to achieve the required trench grade.

Blasting should not be conducted within or near a wetland without Mountain Valley's Environmental Inspector review and development of a Wetland Crossing Blasting Plan that includes protective measures to minimize damage to wetlands. At a minimum, the individual Wetland Crossing Blasting Plan will be provided to the appropriate federal, state, and local authorities for review and approval five working days prior to conducting the blasting.

Blasting will be conducted in a manner that will not compromise the structural integrity of the wetland hydrology of known wetlands. If rock is required to be blasted to achieve trench grade, then the following parameters will be adhered to:

- The excavation will be carefully inspected for any voids, openings, fractures, or other tell-tale signs of dewatering activity by Mountain Valley's Environmental Inspector.
- If the rock removal intercepts an open void, channel, or fracture, the work in that area will be stopped until a remedial assessment can be carried out by Mountain Valley's Environmental Inspector.
- All use of explosives will be limited to low-force charges that are designed to transfer the explosive force only to the rock that is designated for removal (e.g., maximum charge of 2 inches per second ground acceleration).

7.8 Rock Disposal Due to Blasting

During the course of blasting for grade and trench excavation, excess rock fragments that are deemed unacceptable for trench backfill may be incurred. This excess rock may be used in the restoration of the disturbed right-of-way limits, with the rock buried within the reclamation limits of the right-of-way in the location from which it originated. With the acceptance, approval and signed individual landowner agreements for the placement of this excess rock, the rock placement will be to a depth that will help stabilize the right-of-way restoration and will be below the root zones of the cover vegetation.

Excess rock fragments not suitable for reburial at the point of origin will be considered construction debris and disposed of in accordance with the Mountain Valley Southgate Amendment Project Upland Erosion Control, Revegetation, and Maintenance Plan (Mountain Valley Plan) at Sections III.E and V.A.3, incorporated below for reference.

Mountain Valley Plan Section III.E (Disposal Planning) – Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings, and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

Mountain Valley Plan Section V.A.3 (Cleanup) – Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or some other use on the construction work areas by the landowner or land managing agency.

If the excess rock is to be removed from the construction area, it is to be hauled to an approved local- and state-permitted disposal site. This disposal facility will need to demonstrate that it is permitted to accept and dispose of the excess rock from the blasting operations. Mountain Valley will obtain a copy of the disposal facility's permit, as issued by the local jurisdiction having authority over the disposal facility and the disposal site within.

7.9 Disposal of Explosive Materials

All explosive materials that are obviously deteriorated or damaged shall not be used and shall be destroyed according to applicable local, state, and federal requirements.

Empty containers and packages and paper or fiberboard packing materials that have previously contained explosive materials shall not be reused for any purpose. Such packaging materials shall be destroyed by burning (outside of the construction right-of-way) at an approved outdoor location or by other approved methods. All personnel shall remain at a safe distance from the disposal area.

All other explosive materials will be transported from the job site in approved magazines per local and/or state regulations.

7.10 Blasting Records

A record of each blast shall be made and submitted, along with seismograph reports, to Mountain Valley's designated representative. The record shall contain the following minimum data for each blast:

- Name of Company or Contractor;
- Location, date, and time of blast;
- Name, signature, and license number of Contractor and blaster in charge;
- Blast location referenced to the pipeline station/milepost;
- Picture record of the blast area disturbance and of the blasted trench;
- Type of material blasted;
- Number of holes, depth of burden and stemming, and spacing;
- Diameter and depth of holes;
- Volume of rock in shot;
- Types of explosives used, specific gravity, energy release, pounds of explosive per delay, and total pounds of explosive per shot;
- Delay type, interval, total number of delays and holes per delay;
- Maximum amount of explosives per delay period of 17 milliseconds or greater;
- Power factor;
- Method of firing and type of circuit;
- Direction and distance in feet to nearest structure and utility neither owned or leased by the person conducting the blasting;

- Weather conditions;
- Type and height or length of stemming;
- If mats or other protection were used; and
- Type of detonators used and delay periods used.

Within 48 hours following a blast, a Blast Report is to be provided to the Mountain Valley's designated representative. The Blast Report shall provide the information outlined by "Blast Report Amendment Project." This Blast Report form is considered the minimum information needed. In addition to the completed Blast Report, the blast design is to be attached and made part of the Blast Report. The Blast Report Amendment Project is in addition to all other local, county, township, state, or federal reporting requirements. Copies of these Blast Reports are to be provided to the Mountain Valley designated representative.

At the conclusion of each blasting event, the Blasting Contractor is to conduct and inventory blasting/explosive materials with a written inventory report attached to the Blast Report. All blasting/explosive materials are to be accounted for. Any discrepancies are to be immediately reported to the governing agencies and the Mountain Valley's designated representative.

The person taking the seismograph reading shall accurately indicate the exact location of the seismograph, if used, and shall also show the distance of the seismograph from the blast.

Seismograph records should include:

- Name of person and firm operating and analyzing the seismograph record;
- Seismograph serial number;
- Seismograph reading; and
- Maximum number of holes per delay period of 17 milliseconds or greater.

Within 72 hours following a blast, at sites monitored by a seismograph, a Seismograph Report is to be provided to the Mountain Valley's designated representative. In addition to the completed Seismograph Report, the seismograph readings and written interpretations are to be attached to the report. This reporting is in addition to all other local, county, township, state, or federal reporting requirements. Copies of these Seismograph Reports are to be provided to the Mountain Valley designated representative.

8.0 POST-BLASTING INSPECTION

An approved independent contractor, with landowner permission, will examine the condition of structures within 150 feet, or as required by state or local ordinances, of the construction area after completion of blasting operations to identify any changes in the conditions of these properties or confirm any damages noted by the landowner. The independent Contractor, with landowner approval, will conduct a resampling of wells within 150 feet, or as required by state or local ordinances, of the construction area. Should any damage or change occur during the blasting operations, an additional survey of the affected property may be made.

Upon receiving notice that a structure or other damages have possibly occurred due to the blasting operations, the blasting contractor is to conduct a post-blast conditions survey. The post-blast conditions survey shall be conducted within 48 hours after being notified or at the landowner's schedule and

permission. The post-blast conditions will be documented with the information outlined in the "Post-Blast Survey for the Amendment Project." This post-blast form is considered the minimum information needed.

9.0 STORAGE REQUIREMENTS

All explosives, blasting agents, and initiation devices shall be stored in locked magazines that have been located, constructed, approved, and licensed in accordance with local, state, and federal regulations.

- The storage of explosives, blasting agents and initiation devices is not permitted on the ROW and will only be stored at approved staging areas or construction yards.
- Magazines shall be dry, well-ventilated, reasonably cool (painting of the exterior with a reflective color), bullet and fire-resistant, and kept clean.
- Initiation devices shall not be stored in the same box, container, or magazine with other explosives. Explosives, blasting agents, or initiation devices shall not be stored in wet or damp areas, near oil, gasoline, cleaning solvents, near sources of heat radiators, steam pipes, stoves, etc. No metal or metal tools shall be stored in the magazine. There shall be no smoking, matches, open lights, or other fire or flame inside or within 50 feet of storage magazines or explosive materials. The loading and unloading of explosive materials into or out of the magazine shall be done in a business-like manner with no loitering, horseplay, or prank-playing.
- Magazines shall be kept locked at all times unless explosives are being delivered or removed by authorized personnel. Admittance shall be restricted to the magazine keeper, blasting supervisor, or licensed blaster. Magazine construction shall meet the requirements of Bureau of Alcohol, Tobacco and Fire Arms P5400.7 "Explosives Law and Regulations" and be in accordance with local, state, or federal regulations and the ISEE Blaster's Handbook.
- Accurate and current records shall be kept of the explosive material inventory to ensure that the oldest stocks are utilized first, satisfy regulatory requirements, and for immediate notification of any loss or theft. Magazine records shall reflect the quantity of explosions removed, the amount returned, and the net quantity used at the blasting site. Copies of these records are to be supplied at the end of the project or at any time requested by the Company throughout the project.
- When explosive materials are taken from the storage magazine, they shall be kept in the original containers until used. Small quantities of explosive materials may be placed in day boxes, powder chests, or detonator boxes. Any explosive material not used at the blast site shall be returned to the storage magazine and replaced in the original container as soon as possible, but in any case, before the end of the workday.
- Magazine locations shall be in accordance with local, state, or federal regulations. Where no regulations apply, magazines shall be located in accordance with the latest edition of the 18th Anniversary Edition of the Blaster's Handbook and ATF P5400-7 Explosives Law and Regulations. Magazines shall be marked in minimum three-inch high letters with the words "DANGER – EXPLOSIVES" prominently displayed on all sides and roof.