Transcontinental Gas Pipe Line Company, LLC

Blasting Plan

Southeast Supply Enhancement Project

October 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

ANFO	Ammonium Nitrate and Fuel Oil
EI	Environmental Inspector
PPV	peak particle velocity
Project	Southeast Supply Enhancement Project
Transco	Transcontinental Gas Pipe Line Company, LLC

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1 INTRODUCTION

Transcontinental Gas Pipe Line Company, LLC (Transco) has developed this Blasting Plan to establish procedures for blasting activities during construction of the Southeast Supply Enhancement Project (Project). Blasting may be required to excavate the pipeline trench or grading for aboveground facility construction in areas where bedrock is encountered at depths that interfere with conventional excavation or rock-trenching methods.

Potential blasting locations, areas of shallow bedrock, were identified using available mapping and soils data. These locations will be field-verified prior to construction. Locations of shallow bedrock that could potentially be encountered along the Project are identified in Resource Report 6 – *Geological Resources*.

The purpose of this Blasting Plan is to provide guidelines for the safe use and storage of blasting materials for the Project. This Blasting Plan is intended to promote the safety of personnel and nearby facilities. This Blasting Plan does not relieve the Construction Contractor of the responsibility for developing a Blasting Program that includes Plans and Procedures (see Section 5). A Blasting Program must be prepared by the Construction Contractor and submitted to Transco for review prior to blasting. Transco's approval or adherence to this Blasting Program does not limit, reduce, or release the Construction Contractor or Contractor's agent(s) from liability to Transco or other affected parties for damages or other harmful effects resulting from the blasting activities.

2 GENERAL BLASTING INFORMATION

Blasting-related operations including obtaining, transporting, storing, handling, loading, detonating, and disposing of blasting material, drilling, and ground-motion monitoring will comply with applicable federal, state, and local regulations, permit conditions, and the construction contract.

Transco may specify locations (such as foreign line crossings and nearby structures) where consolidated rock will be removed by approved mechanical equipment, such as rock trenching- machines, rock saws, hydraulic rams, or jack hammers, in lieu of blasting.

Blasting operations must be performed in the presence of a Transco Representative and only after approval to proceed has been provided by an authorized Transco Representative. Transco Representative's approval does not relieve Contractor from responsibility or liability.

Prior to the commencement of blasting operations, Transco's Construction Contractor shall submit an initial Blasting Program that includes proposed plans and procedures to Transco for review and acknowledgement. The Blasting Program must be reviewed by Transco's Engineering Department in order to verify the Contractor's proposed blasting operations do not theoretically adversely impact existing Transco facilities. The Blasting Program reviewed and acknowledged by Engineering will specify when a site-specific plan shall be submitted for acknowledgement by Engineering prior to commencement of blasting operations and when site-specific plans consistent with the previously submitted plans in the Blasting Program may proceed without additional review by Engineering.

Seismograph equipment will be used on every blast until Transco determines it is not necessary (based on similarity of rock and other conditions with previously successful blasts). Continued use of the seismograph equipment will be at Transco's discretion.

When blasting near other in-service pipelines and other underground facilities, the requirements of the third-party operating company take precedence over Transco requirements, if third-party limitations are stricter.

Blasting operations typically last for a few seconds for any given blasting grid, and generally only one to two blasts are completed per day. The noise is subdued because charge materials are placed at the bottom of holes drilled into the rock to be blasted. The holes are then covered with sand or gravel chips, and rubber blasting mats are placed overtop to prevent fly rock (when near sensitive features). Transco's` engineer will review and approve the Contractor's proposed charges, blast grid, and timing sequence to limit vibration impacts to nearby structures.

As further discussed in Section 8.1, where blasting occurs within 150 feet of aboveground structures, the structures will be inspected with the permission of the owner before and after blasting. Additionally, and as further discussed in RR 2, Transco will offer to have a qualified, independent testing service conduct pre-construction testing, and post-construction groundwater testing for comparison, for wells located within 150 feet of the Project workspace.

3 BLASTING CONTRACTOR QUALIFICATIONS

Contractor shall acquire required federal, state, and local permits relating to transportation, storage, handling, loading, and detonation of explosives. Blasting operations shall be conducted by or under the direct and constant supervision of experienced personnel legally licensed and certified to perform blasting operations in the jurisdiction where blasting is required. Prior to starting blasting activities, Contractor shall provide Company with evidence of experience, licenses, certifications, and permits as required from the state in which work is being performed.

4 PRE-BLASTING REQUIREMENTS

Contractor shall be required to perform investigative rock exploration by utilizing rock drilling equipment to validate the presence of rock prior to the commencement of pipeline trenching operations. Once rock has been located by test drilling operations, the Construction Contractor shall complete test digs via mechanical excavation in areas representative of the rock proposed to be blasted. Upon determination of the existence of rock that will require blasting operations for effective removal of material to obtain adequate pipeline trench, Contractor shall communicate the desire to perform blasting operations to Transco's Authorized Construction Representative.

The Construction Contractor will place necessary utility locate requests no less than 72 hours prior to construction, or as required by one-call system(s). The contractor will be responsible for the protection of existing underground facilities. Before performing blasting, the Construction Contractor will verify with Transco that property owners have been notified of the construction schedule. The Construction Contractor will acquire required federal, state, and local permits relating to transportation, storage, handling, loading, and detonation of explosives.

The Construction Contractor will adhere to the approved Blasting Program's plans and procedures or provide a site-specific Blasting Plan prior to proposed blasting-related activity and will obtain Transco approval in writing.

5 BLASTING PLAN

Blasting Plans will include the following:

- Explosive type, product name and size, weight per unit, and density;
- Delay type, sequence, and delay (ms);
- Initiation method (detonating cord, blasting cap, or safety fuse);
- Stemming material and tamping method;
- Hole depth, diameter, pattern and spacing;
- Explosive depth, distribution, and maximum weight per delay;
- Number of holes per delay;
- Sketch detailing conventional bore hole loading details;
- Distance and orientation to nearest aboveground structure;
- Distance and orientation to nearest underground structure, including pipelines;
- Procedures for the following: storing, handling, transporting, loading, and firing explosives; fire prevention; post blast inspections; detailed handling of misfires; fly rock treatment; stray current concerns and accidental-detonation prevention; applicable signage and flagmen requirements; warning signal program prior to each blast; pre-shot notification; and disposal of waste blasting material;
- Seismograph company, names, equipment and sensor location;
- Copies of required federal, state, and local permits;
- Blasting Contractor name, company, copy of license, and statement of qualifications;
- Magazine type and locations for explosives and detonating caps;
- Typical rock type and geology structure (solid, layered, or fractured); and
- Pipeline location (milepost and stationing).

6 BLASTING METHODS RESTRICTIONS

Approval of Blasting Plans by Transco does not limit or reduce the Construction Contractor responsibility for safety, damages, compliance with permits and regulations, and the accuracy and adequacy of the Blasting Plans for achieving adequate rock breakage.

Restrictions on blasting methods/techniques to be considered when developing the Blasting Plans include:

- The blasting agent Ammonium Nitrate and Fuel Oil (ANFO) will not be allowed;
- The minimum time delay between the detonation of charges utilizing non-electric detonation shall not be less than 25 milliseconds; and
- There will be no more than one shot/delay.

7 BLASTING MONITORING

The Blasting Contractor will provide seismograph equipment to measure the peak particle velocity (PPV) of blasts in the vertical, horizontal, and longitudinal directions. Seismic monitoring can only be discontinued if the blasting schedule and blasting performance consistently produce PPVs at the pipeline that are lower than the maximum allowable limit or if Transco authorizes.

The Blasting Contractor will measure the PPV at adjacent pipelines, water wells, potable springs, and at the nearest aboveground structure within 150 feet of the blasting charges. The Blasting Contractor will complete the Blasting Log Record immediately after each blast and submit a copy to Transco.

8 SAFETY

8.1 PROTECTION OF ABOVEGROUND AND UNDERGROUND STRUCTURES

Where blasting occurs within 150 feet of aboveground structures, the structures will be inspected with the permission of the owner before and after blasting. In the unlikely event that damage occurs to an aboveground structure, the owner will be compensated if it is determined that the damage is caused by Transco's blasting activities.

As discussed further in RR 2, Transco will offer to have a qualified, independent testing service conduct pre-construction testing, and post-construction groundwater testing for comparison, for wells located within 150 feet of the Project workspace. In the unlikely event that a well/spring is permanently affected due to construction activities, Transco will repair, replace, or provide alternative sources of potable water.

Blasting will not occur within 10 feet of existing pipelines unless authorized by Transco.

Holes will not be re-drilled that have contained explosive material. Holes will not be drilled where risk exists of intersecting another hole containing explosive material.

Blasting mats or padding may be used on shots where it is necessary to prevent scattering of loose rock onto adjacent property and to prevent damage to nearby structures and overhead utilities.

Blasting will not begin until occupants of nearby buildings, stores, residences, places of business, places of public gathering, and farmers have been notified sufficiently in advance to protect personnel, property, and livestock. Occupants will be notified at least 72 hours prior to blasting.

Blasting in or near environmentally sensitive areas, such as streams and wildlife areas may include additional restrictions.

8.2 PROTECTION OF PERSONNEL

Only authorized, qualified, and experienced personnel will handle explosives. Smoking, firearms, matches, open flames, and heat-and-spark-producing devices will be prohibited in or near explosive magazines or while explosives are being handled, transported, or used. No explosive material will be located where they may be exposed to flame, excessive heat, sparks, or impact.

A code of blasting signals will be established and posted in conspicuous places. Employees will learn and use this code.

Every reasonable precaution including, but not limited to, visual and audible warning signals, warning signs, flag person, and barricades will be used to promote personnel safety.

Warning signs, with lettering a minimum of 4 inches in height on a contrasting background, will be erected and maintained at approaches to the blast area.

Contractor-provided flagmen must be stationed on roadways passing within a distance subject to local, state, and federal requirements of the blast area and shall be responsible for adhering to traffic control requirements of local, state, and federal agencies during the blasting event.

Personnel not involved in the actual detonation shall maintain at least a 1,000 -foot clearance and workers involved in the actual blasting event shall maintain a safe clearance from the time the blasting signal is given until the “All Clear” signal has been issued.

Contractor shall develop a code of audible blasting signals that will be communicated via a siren or air horn. Contractor shall provide Company the code upstream of blasting operations. Contractor and Company personnel must conduct employee training to allow for proper education of Contractor developed code system. At a minimum, Contractor's code system shall incorporate audible signals related to Warning Signal (typically 5 minutes prior to blast), Blast Signal (typically 1 minute prior to blast) and All Clear Signal (indicates blasting event has concluded). Blasting operations will be conducted during daylight hours.

No loaded holes will be left unattended or unprotected. No explosives will be abandoned. No loaded holes will be left overnight.

In the case of a misfire, the blaster will provide proper safeguards for personnel until the misfire has been re-blasted or safely removed.

Loading and blasting activity will 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. Explosive materials and all non-electric initiation systems are susceptible to premature initiation by lightning.

No drilling will commence near a previous blast area until such a blast area has been inspected to verify the absence of misfires. If a misfire occurs adjacent to a hole to be drilled, the misfire is cleared by the blaster using whatever techniques are called for by the situation prior to commencement of drilling. Should a misfire occur 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 evacuated to a place of safety prior to detonation.

Transportation of explosives will be in accordance with applicable federal, state, and local laws and regulations. Vehicles used to transport explosives will 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 as to 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. Loading and unloading of explosives will be done carefully by competent, qualified personnel.

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 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.

No blast will be fired without a positive signal from the person in charge. This person will have made certain that surplus explosives are in a safe place; 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 not be limited to, the following:

- Notification of day and time given to railroads, highway departments, city engineer, etc. Notification must be given no less than 72 hours prior to construction, or as required by one-call systems;
- Notification of homeowners nearby;
- Stopping vehicular and/or pedestrian traffic near the blast site;
- Signal given by an air horn, whistle or similar device using standard warning signals; and

- Only authorized and necessary personnel will be present where explosives are being handled or used.

The 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 charge into the hole. No explosives will be forced into a conventional bore hole past an obstruction. Loading will be done by a blaster holding a valid license or by personnel under his direct supervision.

9 IN-WATER AND WETLAND BLASTING

Blasting may be required at waterbody or wetland crossings with shallow depth to bedrock; however, Transco will attempt to remove rock using mechanical means, where practicable. Prior to blasting in or near waterbodies and wetlands, including potentially sensitive or impaired resources, Transco's Environmental Inspector (EI) will review the site and direct the implementation of protective measures to minimize potential impacts to the resources. Blasting mats or padding may be used on shots where it is necessary to prevent scattering of loose rock into waterbodies or wetlands.

Appropriate resource agency notifications will be made. Prior to construction, Transco will apply for stream blasting permits from the applicable jurisdictional agencies for waterbody crossings.

9.1 PROTECTION OF WATERBODIES

In-stream blasting has the potential to injure or kill aquatic organisms, displace organisms during blast-hole drilling activities, and temporarily increase stream turbidity. Chemical by-products from the blasting materials could also be released and could potentially contaminate the water. Therefore, should blasting be necessary, it would occur after the dam and pump, flume, or cofferdam is installed to thereby allow blasting to occur at a dry crossing location. Conducting blasting at dry crossing locations will minimize potential impacts on sensitive, special, or impaired waterbodies.

In coordination with the EI, the Construction Contractor will develop a site-specific Blasting Plan for in-stream blasting. Holes to be shot at the same time will be loaded immediately prior to blasting. Loading will be by means of a non-sparking metal loading tube or similar device. Work will commence immediately after the initial disturbance (i.e., installation of the dam and pump, flume, or cofferdam) and continue until the crossing is complete and the streambed and flow restored.

9.2 PROTECTION OF WETLANDS

Blasting in wetlands has the potential to disrupt wetland hydrology and disturb or injure wildlife. In coordination with the EI, the Construction Contractor will develop a site-specific Blasting Plan for wetland blasting. Blasting in wetlands will be completed in a manner that avoids effects to the structural integrity of the wetland hydrology to the extent practicable. Low-force charges, which result in lower peak particle velocity, will be utilized to minimize potential impacts from fly rock or noise/vibration. Prior to conducting blasting in or near wetlands, Transco will

evaluate the area for voids, fractures, or other structural signs that may increase dewatering risk. If a void, fracture, or other open channel is exposed during blasting, Transco will stop work in the area, the EI will conduct a remedial assessment, and appropriate mitigation will be implemented. Following completion of blasting in wetlands, rock generated during blasting would be used to backfill the trench only to the top of the existing bedrock profile; excess rock fragments will be removed from the trench.

10 STORAGE REQUIREMENTS

Explosives and initiation devices will be stored in locked magazines that have been located, constructed, approved, and licensed in accordance with local, state, and federal regulations. Magazines will be dry, well ventilated, reasonably cool (the exterior should be painted with a reflective color), bullet and fire-resistant, and kept clean.

Initiation devices will not be stored in the same box, container, or magazine with other explosives. Explosives and initiation devices will not be stored in wet or damp areas; near oil, gasoline, cleaning solvents; near sources of heat radiators, or steam pipes. No metal or metal tools will be stored in the magazine. There will 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 will be done in a business-like manner with no loitering, horseplay, or prank-playing.

Magazines will always be kept locked unless explosives are being delivered or removed by authorized personnel. Admittance will be restricted to the magazine keeper, blasting supervisor, or licensed blaster. Magazine construction will meet the requirements of the Bureau of Alcohol, Tobacco, and Firearms P5400.7 “Explosives Law and Regulations” and be in accordance with local, state, or federal regulations and the Blasters Handbook.

Accurate and current records will be kept of the explosive material inventory to verify that the oldest stocks are utilized first, satisfy regulatory requirements, and for immediate notification of loss or theft. Magazine records will reflect the quantity of explosions removed, the amount returned, and the net quantity used at the blasting site.

When explosive materials are taken from the storage magazine they will be kept in the original containers until used. Small quantities of explosive materials may be placed in day boxes, powder chests, or detonator boxes. Explosive material not used at the blast site will be returned to the storage magazine and replaced in the original container as soon as possible.

Magazine location will be in accordance with local, state, or federal regulations. Where no regulations apply, magazines will be located in accordance with the latest edition of the 175th anniversary edition of the Blaster’s Handbook and the Bureau of Alcohol, Tobacco and Fire Arms P5400-7 “Explosives Law and Regulations.”

Magazines will be marked in minimum 3-inch-high letters with “Danger – Explosives.” Signs will be staked 10 feet away from and at a 45-degree angle to the magazine.

Placement and angle should prevent a bullet fired perpendicular to the face of the sign from penetrating the magazine.

11 GENERAL BLASTING PROCEDURES

The following list of steps will be performed in every case. These steps represent a minimum requirement and give a general order to the blasting procedure:

- A safety meeting will be held prior to blasting activities. Staff involved with the blasting in every capacity must attend. Safety rules and signaling should be reviewed;
- Warning signs will be erected;
- Lightning detectors will be set up;
- Drilled holes will be measured accurately for depth and location;
- Seismic equipment will be set up to measure velocities near the pipeline and structures 150 feet or less from blast;
- Distances to nearby structures (aboveground or belowground) suspected of being less than 300 feet from the blast will be measured;
- Clear the blasting affected zone;
- Give the warning signal;
- Give the blast signal;
- Detonate the blast;
- After blaster has checked for misfires and given the “All Clear” signal, inspectors will inspect aboveground or underground facilities for damage; and
- Blasting Log Record will be completed.