

# **OVERLAND PASS PIPELINE PICEANCE LATERAL**

## **APPENDIX 2**

### **BLASTING RECLAMATION PLAN**

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## 1.0 INTRODUCTION

This Blasting Plan (Plan) identifies measures to be taken by Overland Pass Pipeline Company LLC (OPPC) and its contractors (Contractor) to ensure that blasting operations are carried out in accordance with federal, state, and local regulations and restrictions. Measures identified in this Plan apply to work within the project area defined as the right-of-way, access roads, temporary use areas, and other areas used during construction of the project. OPPC and Contractor personnel are to be thoroughly familiar with this Plan and its contents prior to initiating construction on the project.

### 1.1 Purpose

The project crosses numerous areas of surface and subsurface rock where mechanical equipment may be unable to rip or excavate rock from the right-of-way or trench line to allow construction of the pipeline. In these areas, blasting will be used to shatter the rock to allow grading of the right-of-way for access or excavation of the trench line to provide an adequate depth of cover to protect the pipeline. It is not known in advance of construction if or how often blasting will have to be used. Blasting will be used as a last resort measure when mechanical equipment is unable to excavate as needed for pipeline construction. If blasting is required for any segment of this project, OPPC will employ a certified blasting contractor who will conduct the blasting operations in compliance with applicable state and federal regulations.

This Plan describes safety standards and practices that will be implemented during construction to minimize health, safety, and environmental concerns related to blasting on the project. This Plan was developed as the implementing document for relevant design criteria measures contained in the Environmental Assessment.

## 2.0 BLASTING PROCEDURES

The following procedures will be implemented by the Contractor during blasting operations on the project. This section of the Plan describes pre-blasting requirements, the typical sequence of activities associated with blasting operations, notifications required by the Contractor and OPPC, and areas where blasting is restricted or where special mitigation measures will be required.

### 2.1 Pre-Blasting Requirements

#### 2.1.1 Regulations and Restrictions

The Contractor will obtain necessary permits for, and will comply with, the rules and regulations of the Occupational Safety and Health Administration (OSHA) and federal, state, county, and local regulations and permits for the use, storage, transportation, and handling of explosive materials. The Contractor will provide OPPC with copies of required permits prior to commencing blasting operations.

Federal regulations that apply include, but are not limited to the following:

- Bureau of Alcohol, Tobacco and Firearms Publication P5400.7 (1990) Organized Crime Control Act of 1970, Title XI (Public Law 91-452)
- 27 CFR 55-Storage of Explosives
- 27 CFR 181-Commerce in Explosives
- 49 CFR 177-Carriage by Public Highway
- 29 CFR 1926.900 et seq. Sub-Part U-Safety and Health Regulations for Construction-Blasting and Use of Explosives
- 29 CFR 1910.109-Explosives and Blasting Agents OSHA

### 2.1.2 Explosives Storage

The Contractor will obtain necessary permits and comply with conditions of 27 CFR 55 governing the storage of explosives. Powder magazines will be located in a secure remote area and will be kept locked. Powder and detonators will never be stored together in the magazine, and any vehicle used to transport explosives from the magazine to the blast site will conform to applicable federal and state regulations. As required by federal statutes, the Contractor will maintain an inventory and use record for explosives and detonating caps that will be reconciled at the end of each working day, and will include the number of misfires and their disposition. The inventory and use record will be available for inspection by OPPC and jurisdictional authorities at all times.

### 2.1.3 Contractor Blasting Procedure Qualification

Only workmen thoroughly experienced in handling explosives will be permitted to supervise, handle, haul, or detonate explosives. In jurisdictions where the licensing of blasters is mandatory, the Contractor will provide OPPC with proof of the required certification for every person directing or conducting blasting operations. In no instance will the Contractor allow a person to conduct or direct a blasting operation unless that person is the holder of a valid Blaster's Certificate, where required by the authority having jurisdiction.

The Contractor will utilize a qualified engineer to assist in the preparation of site-specific blasting procedures and to provide an engineering report showing recommended charges and blasting methods to be used at specific locations. Contractor's written blasting procedures must be submitted and approved by OPPC before commencing blasting.

The Contractor will qualify its blasting procedure with OPPC prior to commencing blasting operations. The procedure qualification will include a minimum of five test shots not exceeding 20 feet each in length, monitored with three-channel seismographs. Data from the test shots will be used by the Contractor to establish standard shot in terms of pounds of explosive per delay. Test shots are required for each major change in geology, explosive manufacturer, or explosive grade, as determined by OPPC. Production shot procedures and delays will be identical to the test shot procedures and delays.

### 2.1.4 Notifications

The Contractor must notify OPPC and appropriate federal, state, county, and local agencies at least 48 hours prior to storing or using explosives on the right-of-way. In addition, the following notifications will be needed throughout the project:

Prior to any detonation of explosives in the vicinity of existing facilities (such as pipelines, dwellings, structures, overhead or underground utilities, farm operations, or public crossings), a minimum of 48 hours notice will be given to OPPC, the appropriate authorities, and the owners or operators of any facilities that may be affected by the blasting. The Contractor will also comply with the "One Call" notification requirements, if available.

Nearby fee-landowners will be notified by OPPC 24 hours (the Contractor will give OPPC 48 hours' notice) in advance of blasting to ensure that persons, livestock and equipment are out of the danger zone. Blasting will not be used where there are identifiable risks due to the proximity of residences or other structures.

## 2.2 *Blasting Process*

The following section provides a brief overview of the typical sequence of activities associated with blasting operations:

**Trench line Stripping** - The trench line or right-of-way where blasting will be required, is stripped of soil to expose the rock that cannot be excavated.

**Drilling** - Holes are drilled in the rock with pneumatic drills to allow insertion of the explosive charge. Holes are drilled in a pre-determined pattern in order to control the blast and fly-rock as appropriate. Signs are installed at the limits of the blast area noting blasting signals, access, and radio restrictions.

**Loading** - The holes are loaded with explosives and are filled with sand or soil to contain the blast within the trench line. (Previously conducted tests on charges and drill patterns determine the appropriate combination of explosive charge and drill pattern for a particular geologic area that will provide adequate fracturing of the rock, and appropriate control of air blast, vibrations, and fly-rock.)

**Padding/Matting** - Soil padding or blasting mats will be placed over the blast area to control fly-rock/debris when in close proximity to structures. The Contractor's blasting procedure and test shots will adequately address and confirm acceptable fly-rock parameters. Topsoil will not be used as padding.

**Warning** - The blaster examines the blast area to ensure that vehicles and personnel have withdrawn to a safe distance. Access through the area is restricted and a series of "blast imminent" warning signals are sounded.

**Blast** - Following the warning signals, the explosives will be detonated.

**Clearance** - The Contractor's blasting foreman or blaster will conduct a thorough post-blast inspection of the blast area for cut-offs or misfires and will ensure that any undetonated explosives are properly destroyed by detonation prior to any other work proceeding. Once the area is verified clear of unexploded charges and hazards such as falling rock, the "all clear" signal is given.

## 2.3 *Restrictions*

No blasting will be done without prior approval of OPPC. The Contractor will be liable for any and all damages resulting from blasting operations.

Special blasting controls will be required in the vicinity of power lines, telephone lines, fiber optic lines, existing pipeline facilities, structures, water wells, springs, or buildings or where directed by GEC to preclude the possibility of damage due to fly-rock, shock waves, vibrations, or changes to hydraulic conductivity of the bedrock near important springs and wells. This will be accomplished by a combination of blast design, adequate collaring, and matting. Matting to control fly-rock includes, but is not limited to, fabricated mats, overburden, and sand-pad matting.

Fly-rock leaving the right-of-way will be collected immediately and either returned to the right-of-way or disposed of at disposal sites approved by OPPC, BLM, or fee-landowners.

Blasting will be restricted during periods of high fire danger as directed by OPPC.

### 3.0 SAFETY MEASURES

Standard safety measures will be employed during blasting operations to prevent damage to adjacent resources, residences, utilities, and roadways. As discussed above, these measures will include blasting controls to limit fly-rock, air blast, and vibrations near sensitive areas. Warning signals, signage, and procedures to protect human health and safety are discussed below.

#### 3.1 *General Safety Requirements*

The Contractor will at all times protect its workers and the public from any injury or harm that might arise from drilling dust and the use of explosives. Only workers thoroughly experienced in handling explosives will be permitted to supervise, handle, haul, load, or shoot explosives. In those jurisdictions where the licensing of blasters is mandatory, the Contractor will provide OPPC, before any crew assignment, proof of the necessary certification for every person so required.

The Contractor will not leave loaded holes overnight, unattended, or unprotected. Explosives will only be primed immediately before use. Loading and blasting will be concluded by 4:00 p.m. each work day, unless prior approval is received from OPPC. No explosives or blasting agents will be abandoned on the right-of-way.

During the blasting procedure, all personnel not involved in the actual detonation will stand back at least 1,000 feet and workers involved with the detonation will stand back at least 650 feet from the time the "blast imminent" signal is given until the "all clear" has been sounded. The Contractor will post flagmen on roadways passing within 1,000 feet of the blast area to stop traffic during blasting operations.

#### 3.2 *Warning Signs and Signals*

##### 3.2.1 Signs and Access Control

The Contractor will post warning signs and guards at points of access to the blasting area, including trails. The warning signs will comply with the requirements of the jurisdictional authorities and will have lettering a minimum of 4 inches in height on a contrasting background. Signs will be installed at the limits of the blast area noting warning signals and access and radio restrictions.

All access roads to blasting sites will be blocked off and signed while blasting operations are taking place. Flagmen and/or guards will be posted at roadways, trails, construction roads, or other access points to the blast area within 1,000 feet from the blast site in every direction.

##### 3.2.2 Blast Site Clearance

Prior to initiating the blast warning system, the blaster will:

- complete the blast inspection,
- clear personnel not involved with blasting operations from the blast area for a distance of at least 1,000 feet,
- ensure that right-of-way traffic and, if applicable, road and access road traffic is halted,
- confirm that the guards are posted and the controlled area is secure, and
- retreat to a safe firing distance.

### 3.3 *Blast Signals*

The Contractor will use an acceptable air horn or siren to give the proper blasting warning and "all clear" signals. The warning system used for blast signals will produce a sound (air horn or siren) that is distinct from any other signals used on construction. Use of vehicle horns as blast signals is not permitted. The following audible blast warning system will be employed:

**Blast Imminent**-Three minutes before the blast is to be detonated, the blaster will give three short blasts of the air horn or siren. If there is an interruption to the blast routine once the "Blast Imminent" signal has been given, the entire blast signal procedure will begin again.

**Blast Signal**-Three minutes after the "blast imminent" signal has been given, the blaster will give one short blast of his air horn or siren, followed by detonation of the explosives.

**All Clear Signal**-The blaster will check the blast site to ensure that all charges have detonated. Once this assessment has been confirmed, the blaster will give one long blast of the air horn or siren.

### 3.4 *Fire Safety*

The presence of explosive materials on the project site could potentially increase the risk of fire during construction. To reduce this risk, the Contractor will strictly adhere to requirements of the Fire Prevention and Suppression Plan. In addition, special precautions related to blasting operations include:

- Prohibit ignition devices or sources within 50 feet of an explosives storage area.
- Maintain magazine sites so that they are clear of fuels and combustible materials, and that the structures are well-ventilated and fire resistant.
- Protect magazines from wildfires that could occur in the immediate area (this will be accomplished by removing vegetation within 50 feet of the storage container).
- Remove empty explosive storage boxes from the right-of-way and dispose of at a project approved disposal site.