

Drilling Evaluation Methods

This document provides information on the use of drilling techniques (including the use of equipment such as a John Henry) to evaluate whether blasting is necessary for project construction.

Drilling is an industry-standard method to (1) evaluate the subsurface without removing the top layers and (2) reasonably determine the type of excavation necessary to achieve the desired results. As one example of this technique, an excavator-mounted rock drill (commonly referred to as a John Henry) is used to drill test holes. The test holes are drilled using only the rotary motion of the tool. If the bit is capable of penetrating to the required depth without the use of its vibrating functionality with applied down pressure (mimicking a hammering effect), the rock is suitable to be excavated without blasting (i.e., by ripping or using equipment such as rock trenching machines, rock saws, hydraulic rams, and jack hammers). If the drill must use the vibrating function with applied downward pressure, then the characteristics of the bedrock is of a hard and intact nature indicating the bedrock to be unrippable. The drilling evaluation method may be combined with other evaluation methods, such as excavating test pits, to determine subsurface conditions. The operator will discuss the evaluation with the geotechnical representative for the applicable construction spread. The geotechnical representative will review to ensure blasting is the appropriate excavation method to achieve the desired results.

These techniques have environmental and safety benefits. Because drilling allows the user to evaluate the subsurface without removing the top layers, the soil overburden is in place at the time of blasting. The soil overburden acts as a blast mat by absorbing a significant amount of the blast energy. As a result, the risk of exposure to “fly rock” is reduced. If the soil overburden is removed prior to blasting, then the risk of “fly rock” during the blast increases, which may necessitate the use of blast mats.

Mountain Valley expects to utilize these drilling evaluation techniques to determine whether and where blasting is necessary. This is consistent with Mountain Valley’s approved General Blasting Plan and the Final Environmental Impact Statement.¹

¹ Section 1 of Mountain Valley’s General Blasting Plan contemplates evaluating subsurface conditions, such as using the drilling evaluation techniques described above, to determine the proper excavation method: “Information for blast and rip characteristics of the bedrock may be evaluated, at least in a general sense, and applied toward an appropriate bedrock excavation method. The hard and intact nature of the unweathered sedimentary bedrock (sandstones, limestones, and shales) dictates what blasting methods will be utilized. Soft bedrock, such as weathered sandstones, limestones, and shales may possibly be removed by ripping or mechanical means.” Section 4.1.1.5 of the Final Environmental Impact Statement for the Mountain Valley Pipeline Project contemplates conducting evaluations to determine the proper excavation technique, which is the purpose of the drilling evaluation techniques described above: “Mountain Valley would first attempt to rip bedrock. If unrippable bedrock is encountered, Mountain Valley would consider using rock trenching machines, rock saws, hydraulic rams, jack hammers, and the like. If blasting does become necessary, it typically involves a small scale, controlled, rolling detonation procedure resulting in limited ground upheaval.”