

# CASE STUDY

## ACCURACY TESTING OF EZSHOT FOR CLOSE PROXIMITY BLASTING

### BACKGROUND

#### USING ELECTRONIC INITIATIONS FOR CLOSE PROXIMITY BLASTING TO AN EXISTING PIPELINE

A drill and blast company located in Canada was blasting near an existing pipeline and was subject to a set of vibration limits that could not be exceeded. The prime contractor for the company mandated the use of electronic initiations to prevent any potential damage to the pipeline by ensuring that the maximum vibration set forth by the project was not exceeded. For this spread of the pipeline, EZshot/EZDets were chosen because the application is the same for conventional pyrotechnic EZDets, so no additional training would be required.



*EZshot*

### PROJECT GOALS

#### PROVING ELECTRONIC INITIATION ACCURACY

While blasting, seismograph readings showed that the waveforms recorded by geophones had either shorter or longer duration than the actual timed patterns specified by EZshot. This brought the accuracy of the detonators into question, which needed to be verified before the prime contractor could allow them to be used as the initiation of choice by the drill and blast company. The goal for this project was to assess the accuracy of the timed patterns for the electronic initiations and, if necessary, troubleshoot potential issues.

### TECHNOLOGY APPLIED

#### VELOCITY OF DETONATION (VOD) AND SEISMOGRAPHS

In order to assess the accuracy of the detonators, downhole delays were measured by attaching a few detonators to high-resistance cable and measuring the “break in the line.” Normally, a VOD machine would measure distance (charge of explosive) over time. In this case, only time was considered.

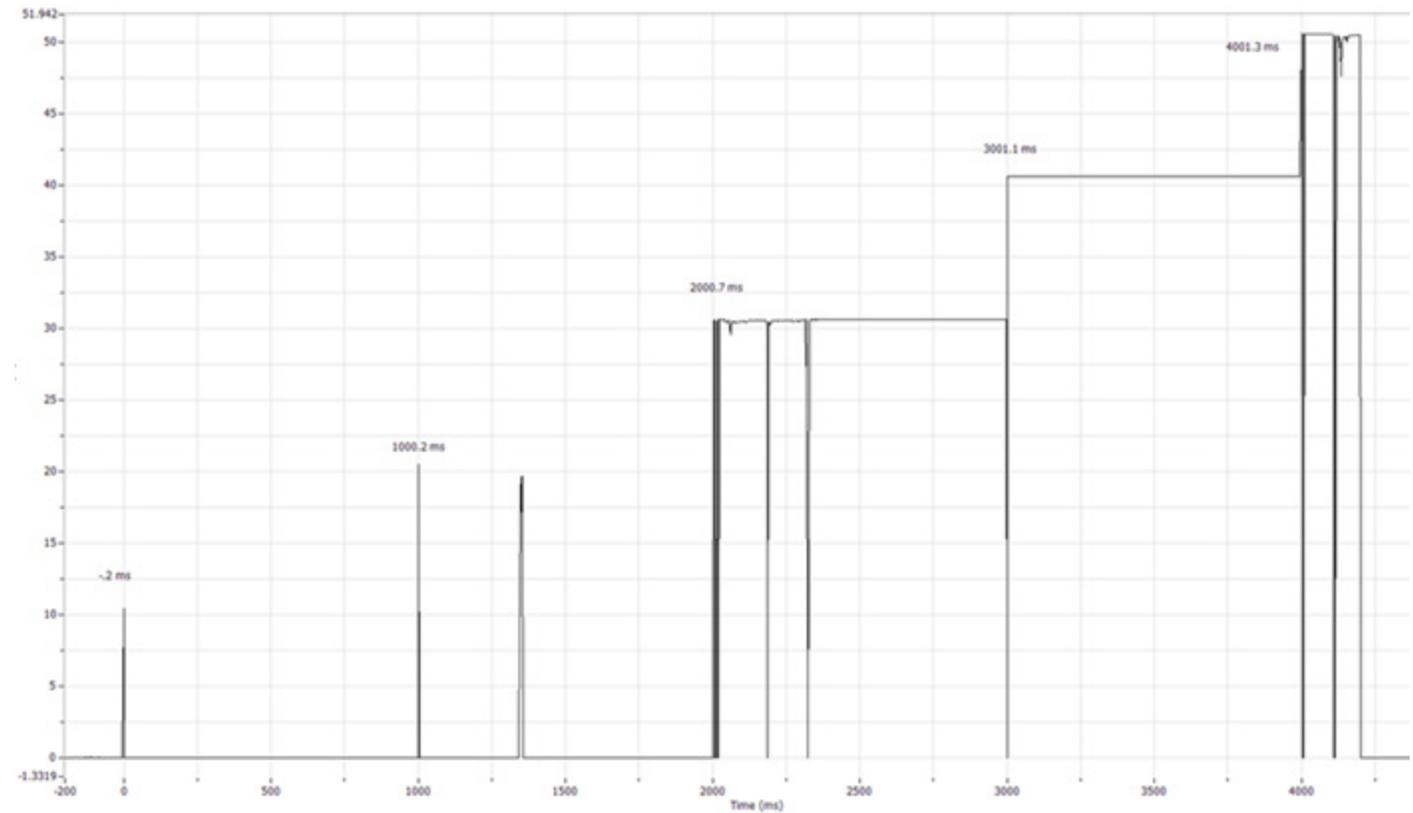


### VALUE ADDED

#### ACCURACY OF DETONATORS PROVEN

The detonators were initiated and proved that the downhole delays did, in fact, shoot at 1000 milliseconds as indicated on the technical data sheet. Satisfied with the findings and technical support, the prime contractor allowed the electronics back onto the pipeline project. The prime contractor insists that the drill and blast company continue to use Dyno Nobel for technical support moving forward.

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Micro Trap data showing the detonators triggering an event. All detonators triggered within 0.5 ms of the target of 1000 ms.



Seismograph data showing the sound produced from shooting 5 detonators sequentially. Each detonator triggered within the target of 1000 ms.