

From WWII to the Present – Meeting Your Needs

In Situ Penetration Testing of Darts with 16-Inch Mobile Gas Gun

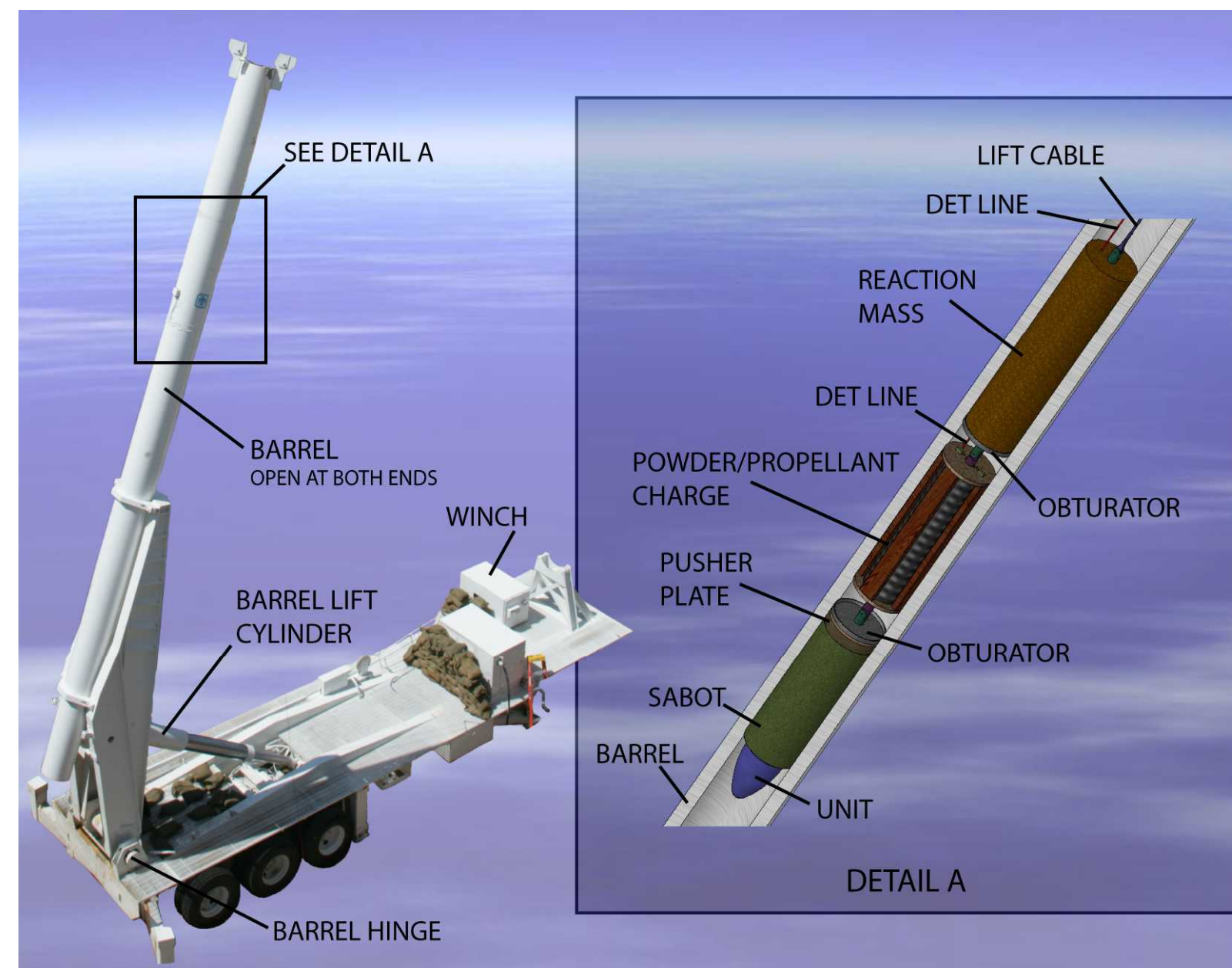
Authors: Douglas A. Dederman, Damon Burnett, John T. Foster, James A. Dykes



“Davis Gun” is a name given to a specific type of recoilless gun, originally designed in 1911 by Commander Cleland Davis. Today, Sandia National Laboratories continues to enhance the capabilities of the Mobile Gun to meet continuing needs.

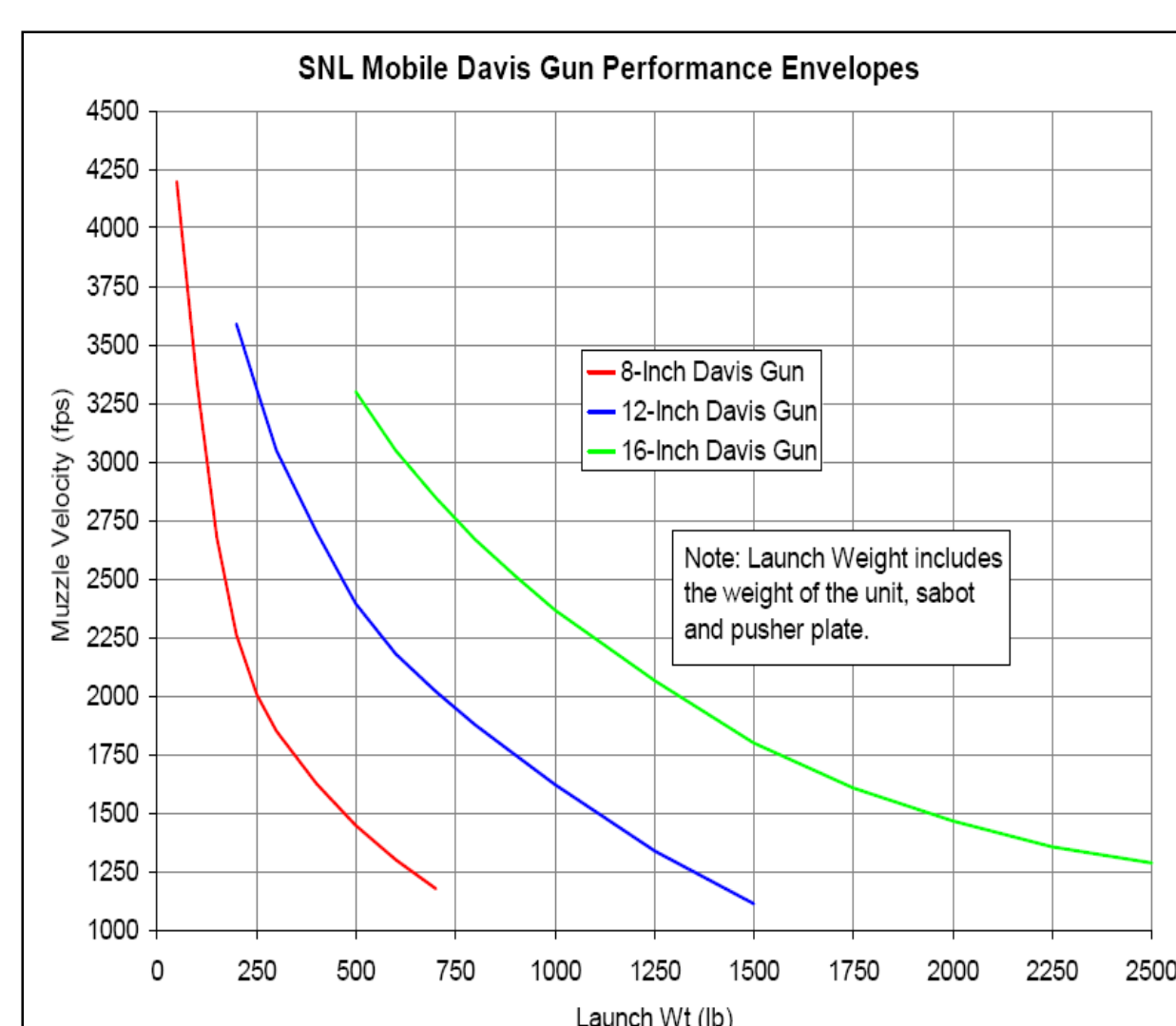
Sandia National Laboratories’ Mobile Gun Complex

For over three decades, Sandia Labs has performed military and non-military experiments using smooth bore: 8, 12 and 16 inch Davis guns; and 6 and 16 inch Gas Guns



Davis Gun Schematic

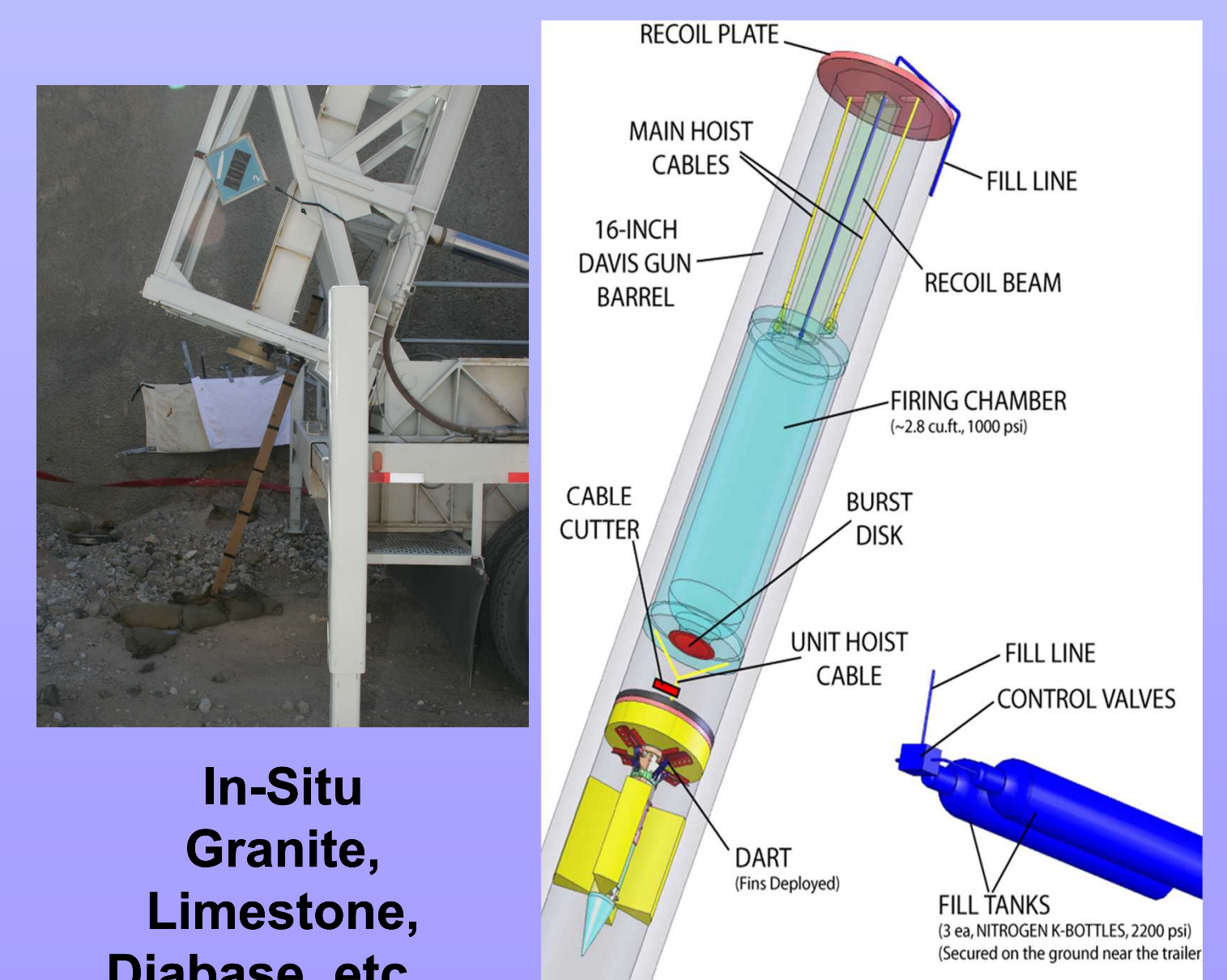
Davis Gun Performance Envelope



Unique Insitu Geology Testing



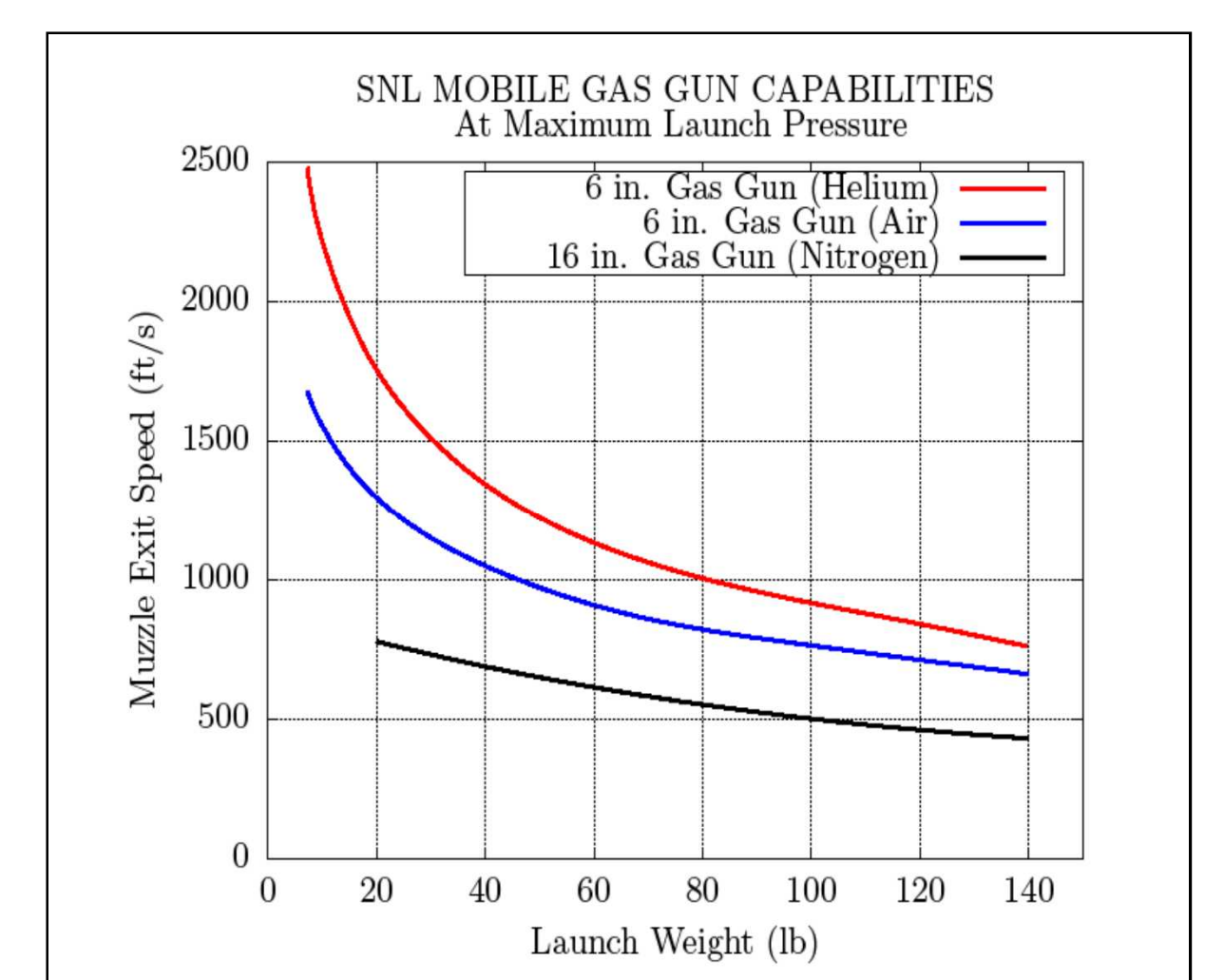
Sandia has performed penetration testing on many different types of surfaces including a simulated lunar surface (right), soils (bottom left), and concrete (top left)



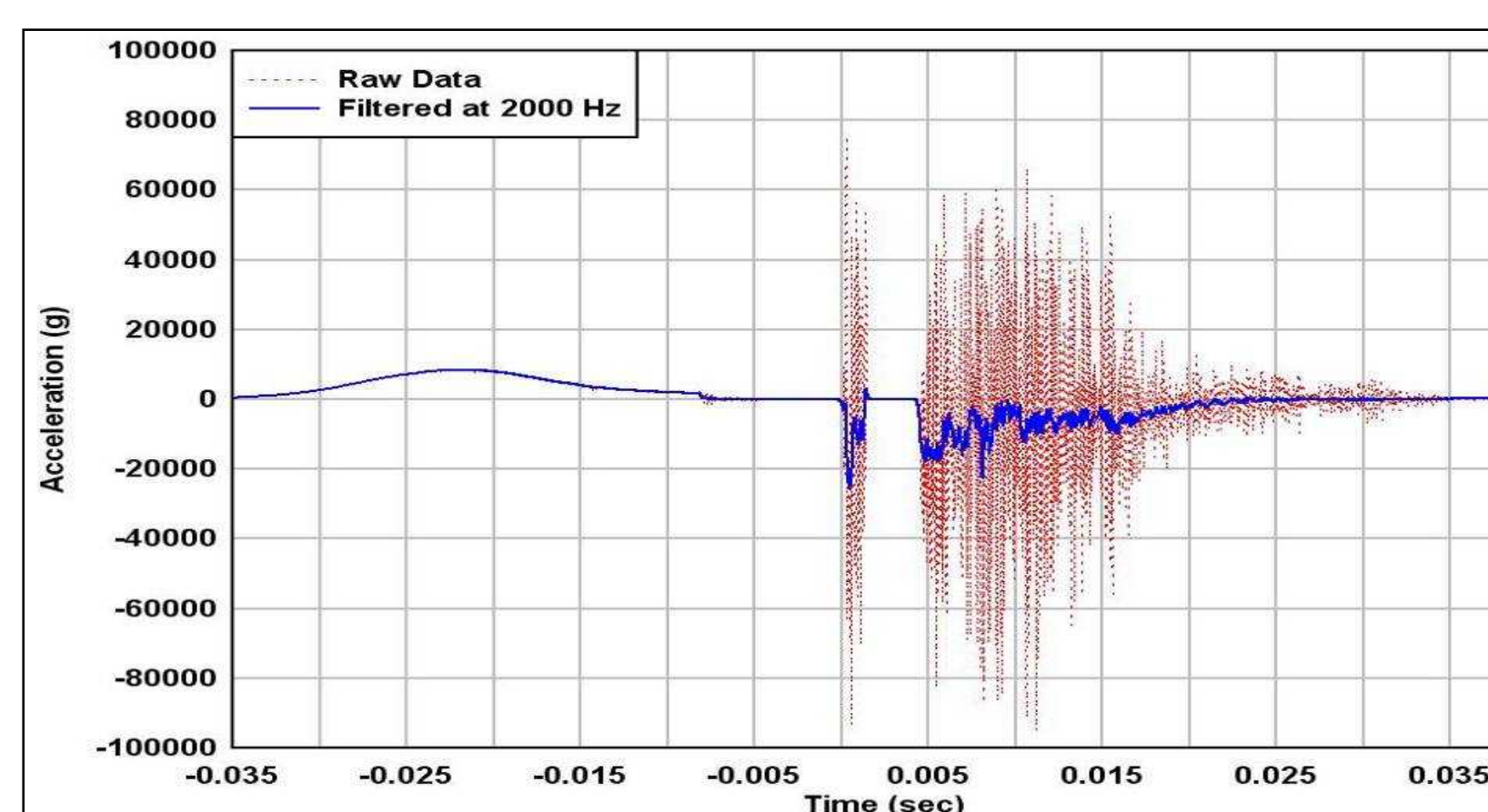
**In-Situ
Granite,
Limestone,
Diabase, etc...**

Mobile Gas Gun Configuration

Gas Gun Performance Envelope



High speed digital video cameras capture quality video of the penetration event



Sandia performs instrumented projectile experiments to characterize loading environments and improve modeling and simulation analyses

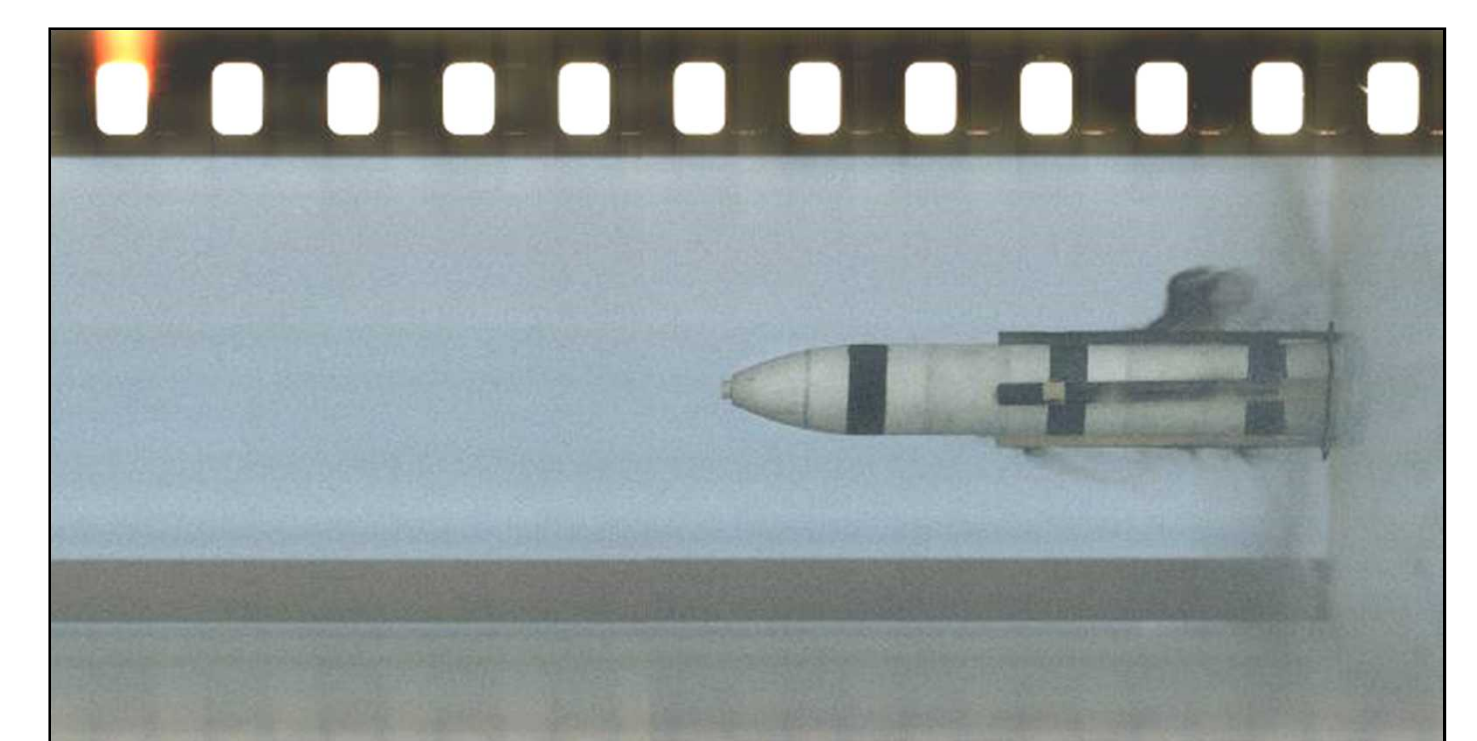


Image motion cameras precisely measure velocity of test article