

A large, yellow, cylindrical impact gun is mounted on a multi-wheeled trailer. The gun is positioned horizontally and is the central focus of the image. The background is a light, overcast sky. The text is overlaid on the image in a large, black, sans-serif font.

An Introduction to VERA: A Large Bore, Low Acceleration Transonic Impact Gun

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distribution is unlimited

Birth of an Idea



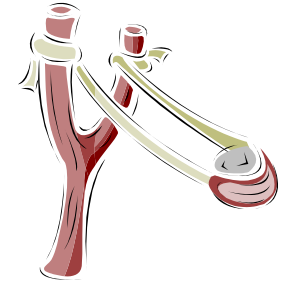
SNORT rarely runs for “small” programs....

WHY?



COST





Next question:

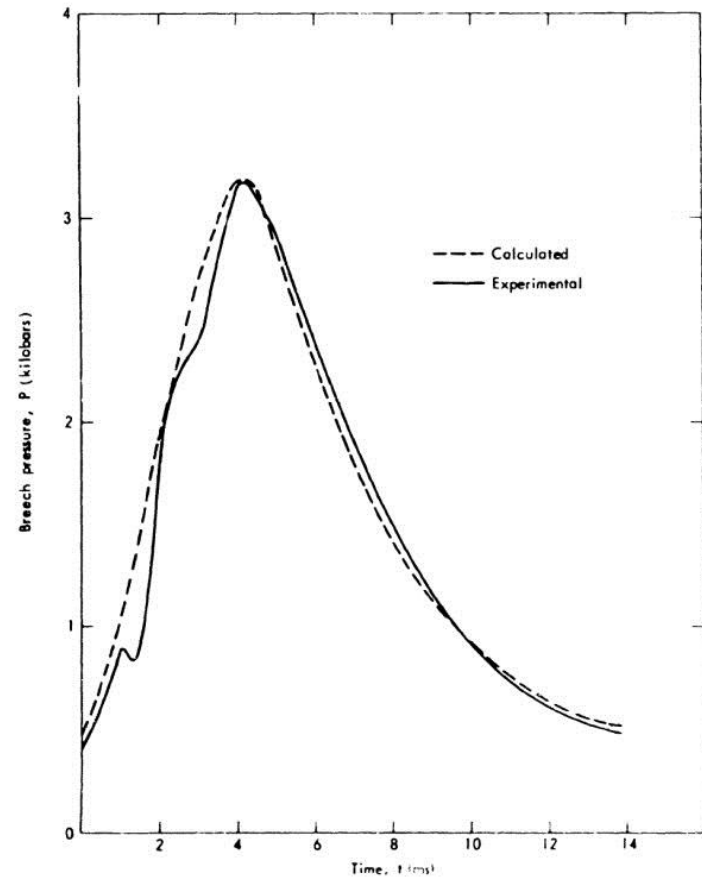
Is there a low cost way to accelerate “small” payloads to useful velocities?



GUNS!

Problems...

- Acceleration profiles of traditional gun systems trend to the violent (payload reliability suffers).
- Procurement costs for large laboratory guns are high.
- Difficult to modify existing guns for unique test requirements.



What about a REALLY BIG “Potato Gun?”

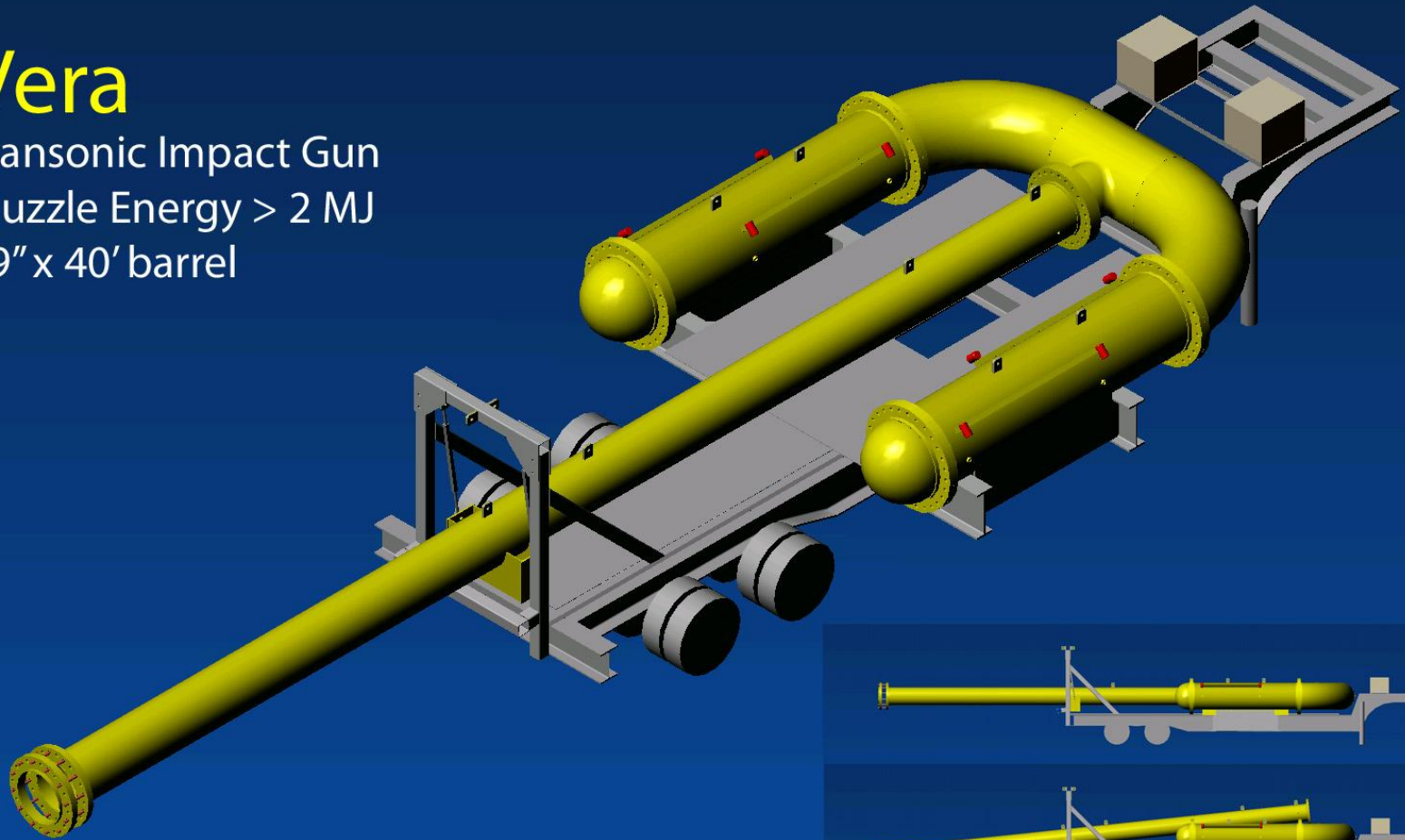


Vera

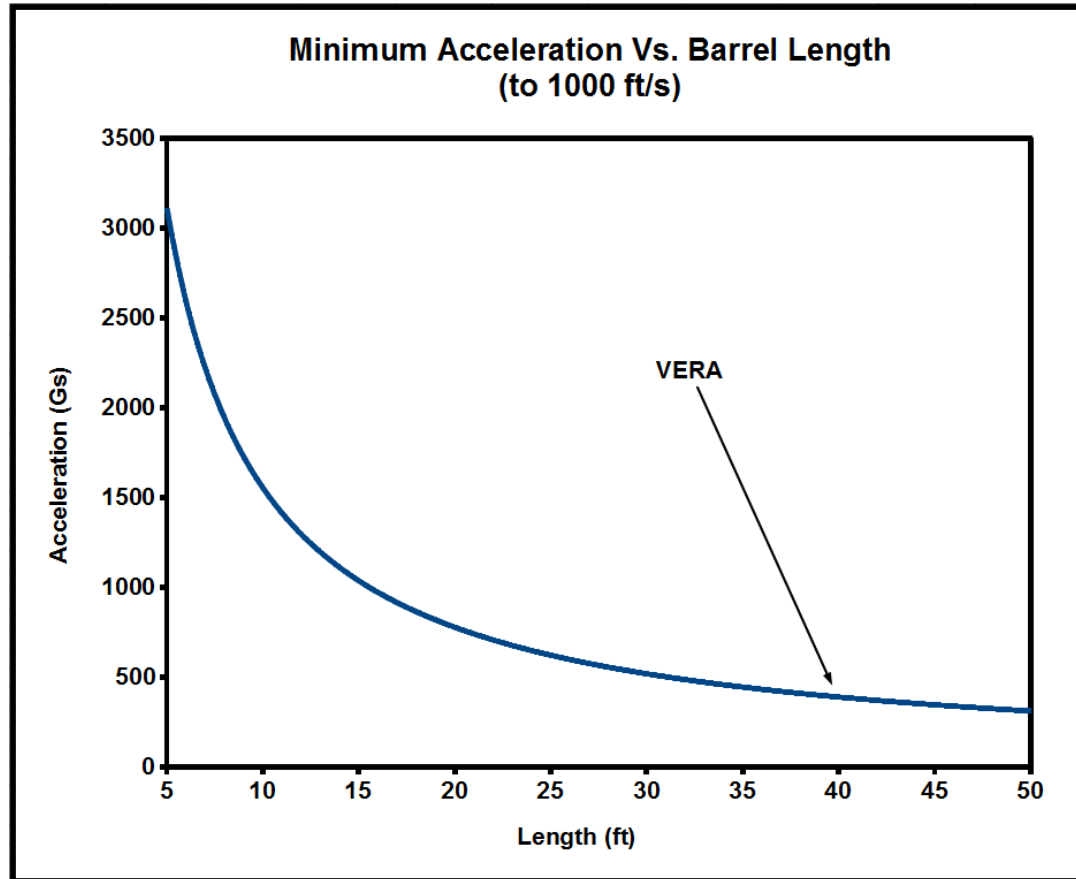
Transonic Impact Gun

Muzzle Energy > 2 MJ

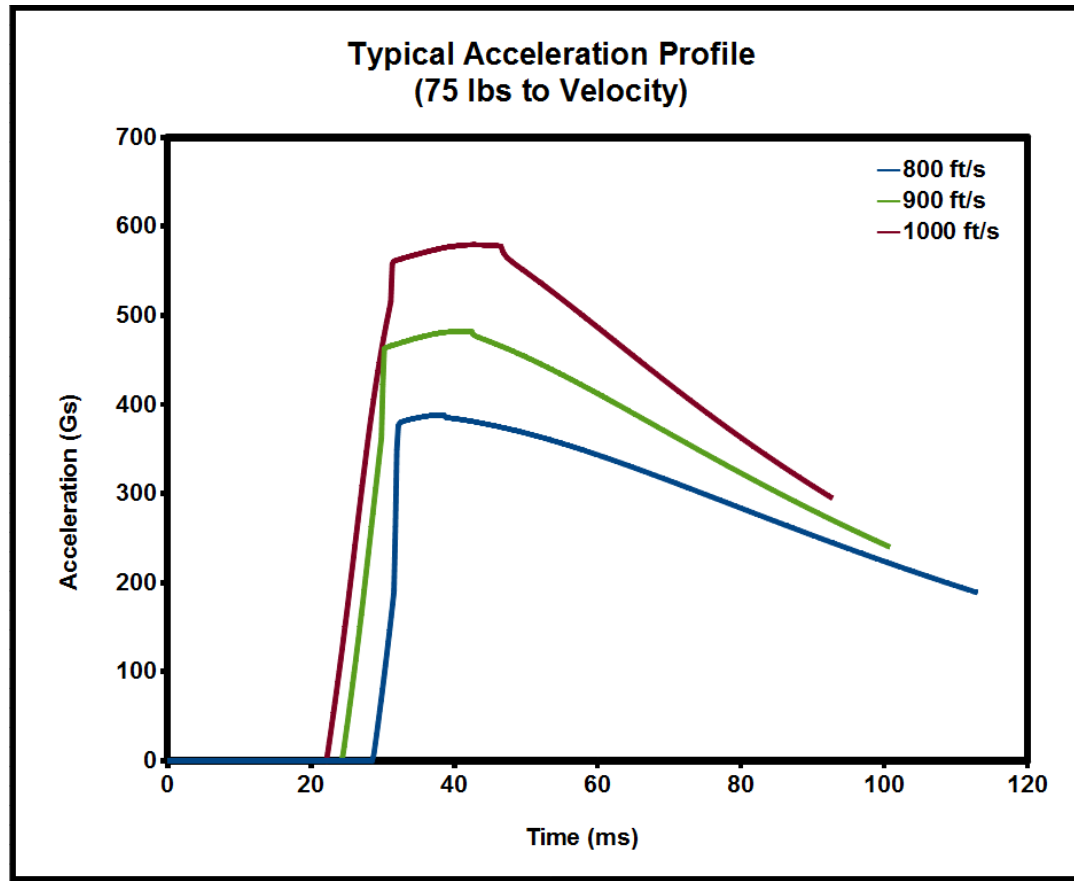
19" x 40' barrel



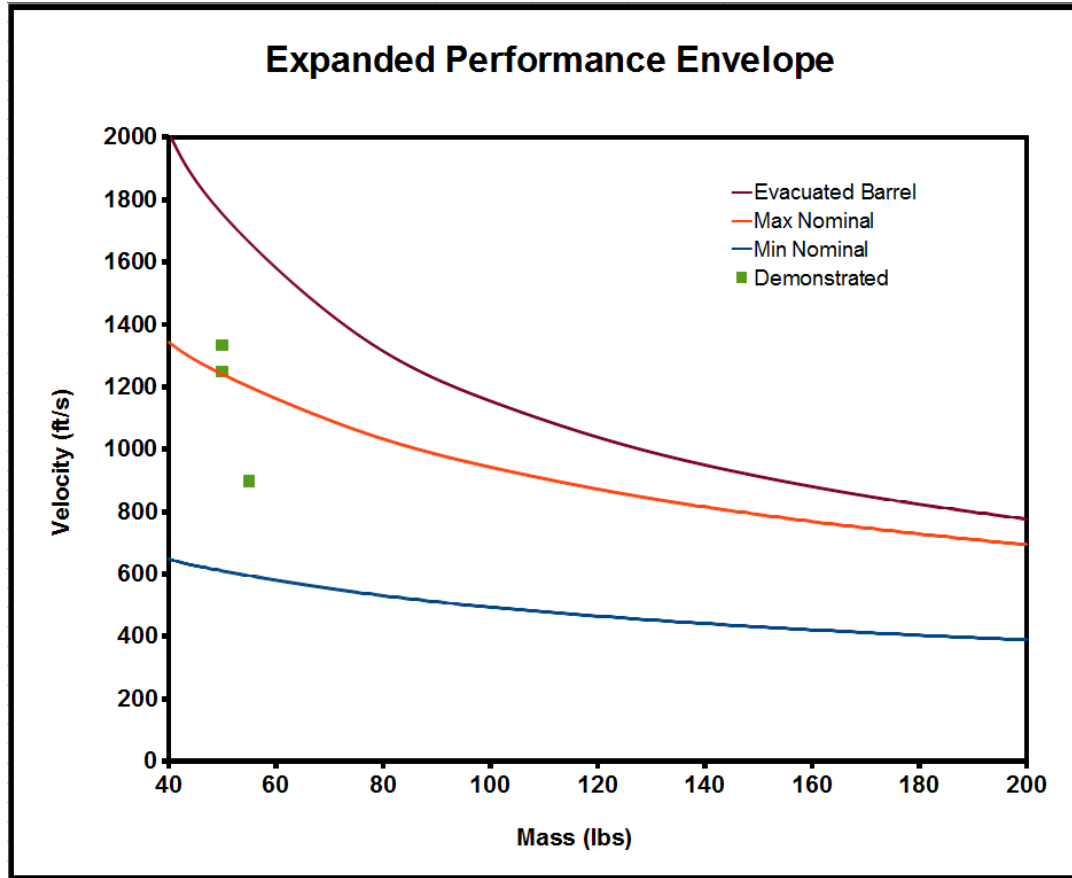
Long Barrel Allows for Low Acceleration Forces



Large Chamber Minimizes Peak Acceleration

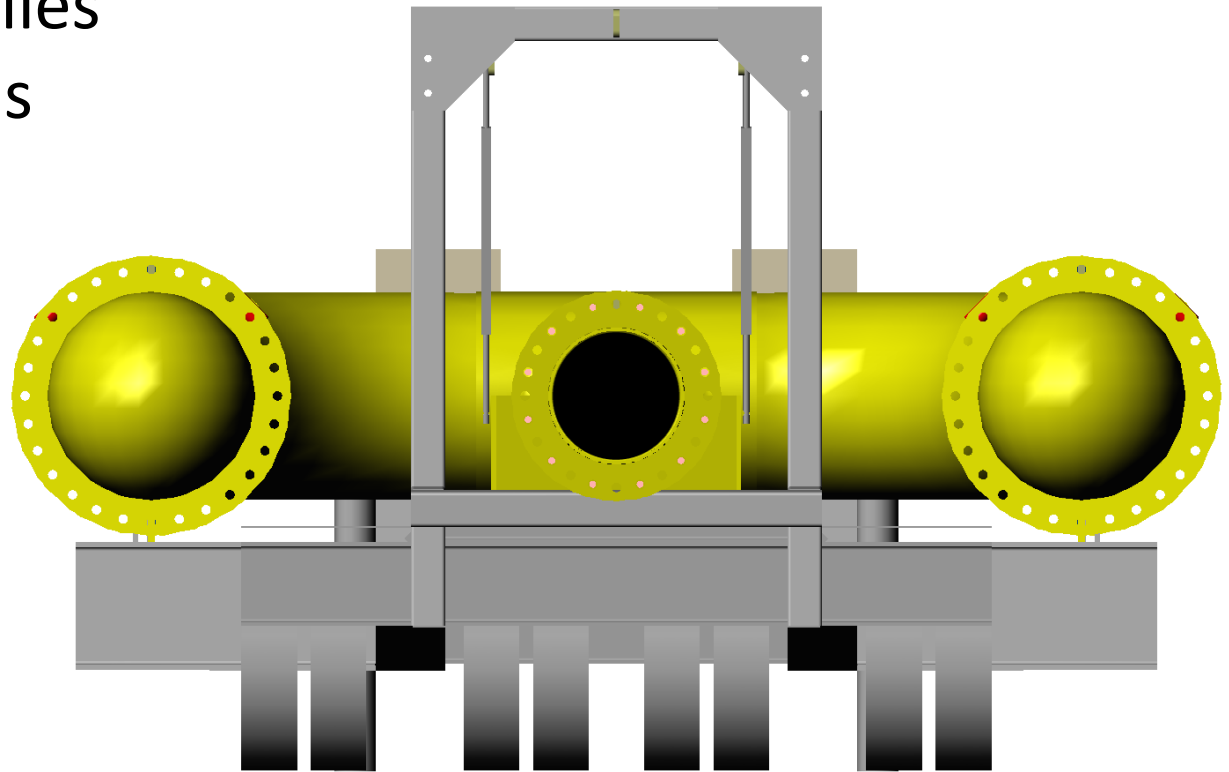


Muzzle Velocity



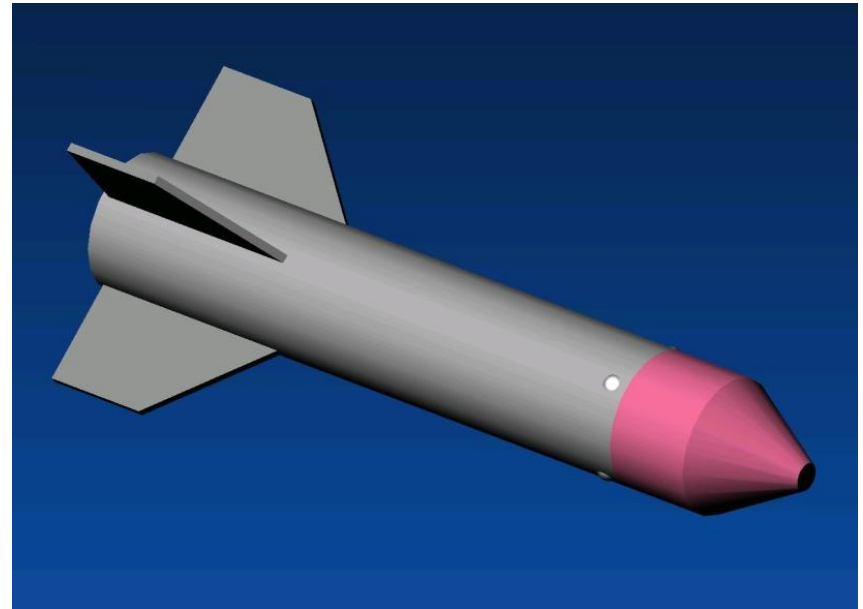
19" Bore for Large or Oddly Shaped Payloads

- Finned projectiles w/o folding fins
- Extreme AOA possible



Live or Inert Projectiles

- Mass up to 200 lbm
- Designed for fuzes and small warheads
- “Armed” ordnance in barrel is acceptable



Designed for Low Cost

- Easy modification for unique test requirements
 - Communication with projectile while in barrel is trivial
 - Low pressure operation
 - Standard industrial components (COTS)
- Propane & air powered
 - Zero administrative / magazine costs



It's time to show
the movie, Dave!



Summary

- Unique gun designed, built, and tested
 - Live or inert projectiles up to 200 lbm
 - Low acceleration forces (<600 Gs typical)
 - Useful velocities (Mach 0.5 – Mach 1.5)
 - Low cost construction & operation
 - Large bore (19 inch)
- **Attained IOC in fall, 2011**



Questions?

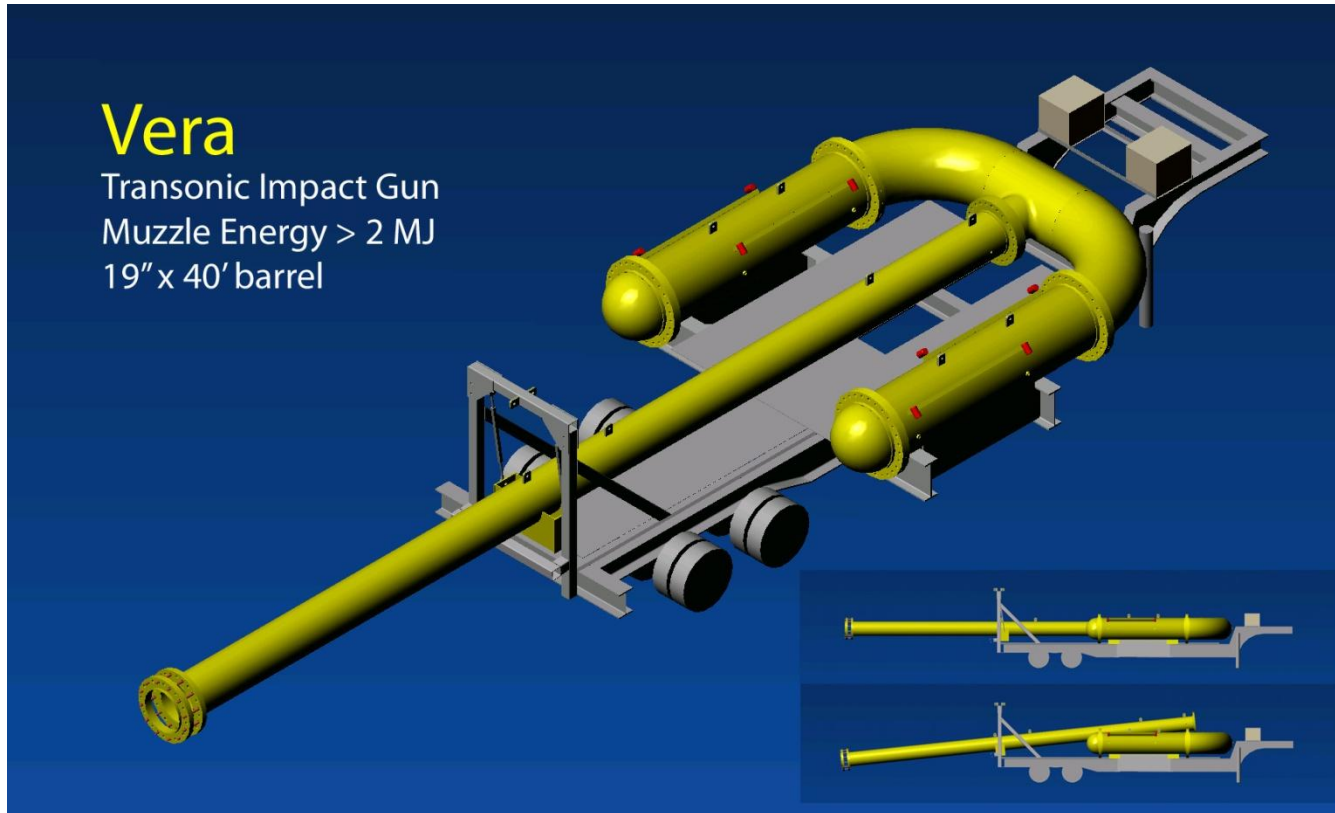


How is Vera Loaded?



- Break action
 - Long projectiles are not a problem.

What About Larger/Smaller Bores?



Vera was designed to accept multiple barrels with minimal effort.

- Adapt breech and hang new barrel from overhead support.
- 12" and 29" bores have already been studied.

