OBJECTIVE

• Develop and optimize BALL POWDER® Propellant to achieve an additional 130 feet per second over current offerings, but also offers added benefits such as:

  ✓ Low flame temperature for extended barrel life.

  ✓ Excellent ignition for low velocity standard deviation.

  ✓ Flash suppression.

  ✓ Lower charge weight for reduced fouling.
Weapon Constraints

• Weapon designed for 65,000 psi cartridge.
• Desired operating pressure of 62,500 psi.
• Optimized for single shot bolt action.
• 27.5 or 29.5 inch barrel.
• 1/10 twist barrel.
• Operating temperatures from +150° F to -20° F.
• Testing constraints from +150° F to -65° F.
Relative Ballistics

Trace 1: .50 cal M33, 29 inch
Trace 2: 338 LM, OBP(R)715
Trace 3: M118 LR standard

Crosshair
Inches: 0.0
Yards: 1500

Bullet Drop

Range in Yards

Inches

GENERAL DYNAMICS
Ordnance and Tactical Systems

Company Proprietary Information
.338 Lapua Magnum High Performance Program
Baseline Ballistic Data, 24 inch Test Barrel

Competitive Propellant

Velocity: 2840 fps
Pressure: 58800 psi
Charge weight: 108 grains

St. Marks Powder OBP® 715

Velocity: 3030 fps
Pressure: 62,200 psi
Charge weight: 101.2 grains
• Ambient Velocity: 3030 fps
• Pressure: 62,200 psi
• Charge weight: 101.2 grains

• Velocity change at temperatures:
  +80 fps at +125° F
  -70 fps at -65° F

• Velocity increase of 190 fps over competitors propellant.
• Energy increase of 14% over competitors propellant.
• Charge weight reduction of 7%. 
### .338 Lapua Magnum
- **Velocity**: 3160 fps
- **Ballistic Coefficient**: 0.560
- **100 yard zero**:
- **3 MOA at 300 yards**: 9.75 MOA at 600 yards
- **22.75 MOA at 1000 yards**: 1095 ft-lbs energy at 1275 yards

### M118 LR
- **Velocity**: 2620 fps
- **Ballistic Coefficient**: 0.496
- **100 yard zero**: 5 MOA at 300 yards
- **16 MOA at 600 yards**: 38 MOA at 1000 yards
- **1095 ft-lbs energy at 600 yards**
SMP® Propellant Technology

- Maximize area under the pressure/time curve.
- 100% propellant burn out.
- Near 100% loading density, but not over filled.
- Propellant optimized for temperature stability and maximum energy inside the cartridge case.
- Flash suppression integrated into propellant.
- Similar propellant chemistry has been DoD safety certified for 25mm M910 ammunition.
• St. Marks Powder propellant achieved increased velocity over all US and European rounds available.

• St. Marks Powder propellant achieved excellent temperature stability.

• BALL POWDER® Propellant meters thru charge plates with precise charge weight repeatability, for consistent velocity in factory rounds, unlike extruded propellant.

• OBP® 715 contains flash suppression for sniper concealment.

• Low flame temperature ensures prolonged barrel life.

• Low charge weight ensures low residue and clean barrels.