



5.56MM REDUCED RICOCHET LIMITED PENETRATION (RRLP), MK 255 Mod 0

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5.56MM RRLP, MK 255 Mod 0

- **BACKGROUND/HISTORY**
- **CARTRIDGE DESCRIPTION**
- **CARTRIDGE SALIENT CHARACTERISTICS**
- **CURRENT STATUS**





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BACKGROUND/HISTORY

- **SPECWARCOM Finalized Joint Operational Requirements Document (JORD) for Frangible Ammunition (April 98)**
 - **Based on existing frangible technology and operational requirements**
- **JORD was reviewed by other USSOCOM activities**
- **USSOCOM Approved JORD (Aug 98)**





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BACKGROUND/HISTORY (cont)

- **One round, two missions**
 - **Training**
 - **Operational**
- **Be used for**
 - **Close Quarter Battle (CQB)**
 - **Military operation in Urban Terrain (MOUT)**
 - **Visit Board Search and Seizure (VBSS)**
 - **Counter-Narcotics (CN) Operation**





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BACKGROUND/HISTORY (cont)

- **Initial Specification**

- **Minimal damage to training facility**
- **Eliminate lead/toxic accumulation within the training facility**
- **Eliminate lead/toxic emission from projectile and primer**
- **Reduce ricochet hazard/No reverse splatter**
- **Must be lethal**
- **Be accurate (100Meters)**
- **Must be waterproofed**
- **Ballistic match to the M855**





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BACKGROUND/HISTORY (cont)

- **NSWC, Crane evaluated production samples to determine if any commercially available cartridges could meet the JORD requirements**
 - **None of the cartridge types met all Operational Requirements**
 - **Acceptable function and reliability**
 - **Deficiencies:**
 - **Over penetration on hard target**
 - **Accuracy**
 - **Primer sensitivity**
 - **Waterproof**
 - **Lethality**





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BACKGROUND/HISTORY (cont)

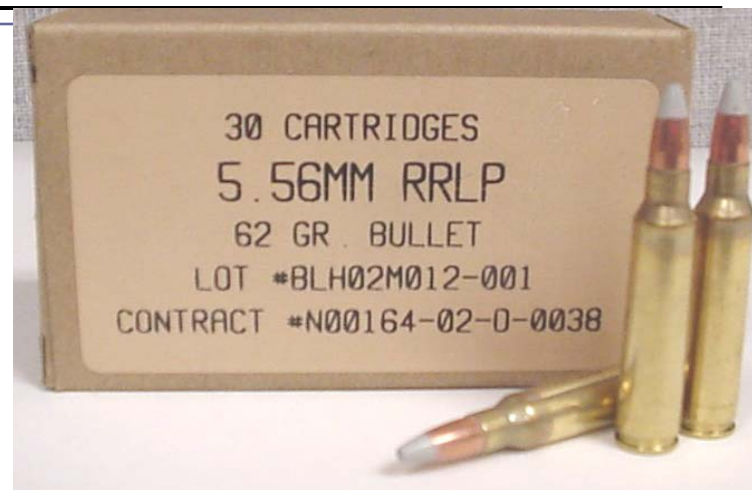
- **SPECWARCOM funded Crane Navy to develop cartridge**
 - **Changed nomenclature from “frangible” to “Reduced Ricochet Limited Penetration”**
 - **Modified Initial Specification**
 - **Emphasized waterproof, accuracy, lethality and no backstop penetration (3/8” AR500 steel plate)**
 - **Included 10 inch barreled M4A1 carbine requirement**
 - **Dropped lead-free primer requirement**
 - **Awarded 5 Year IDIQ Contract to Black Hills Ammunition**



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CARTRIDGE DESCRIPTION

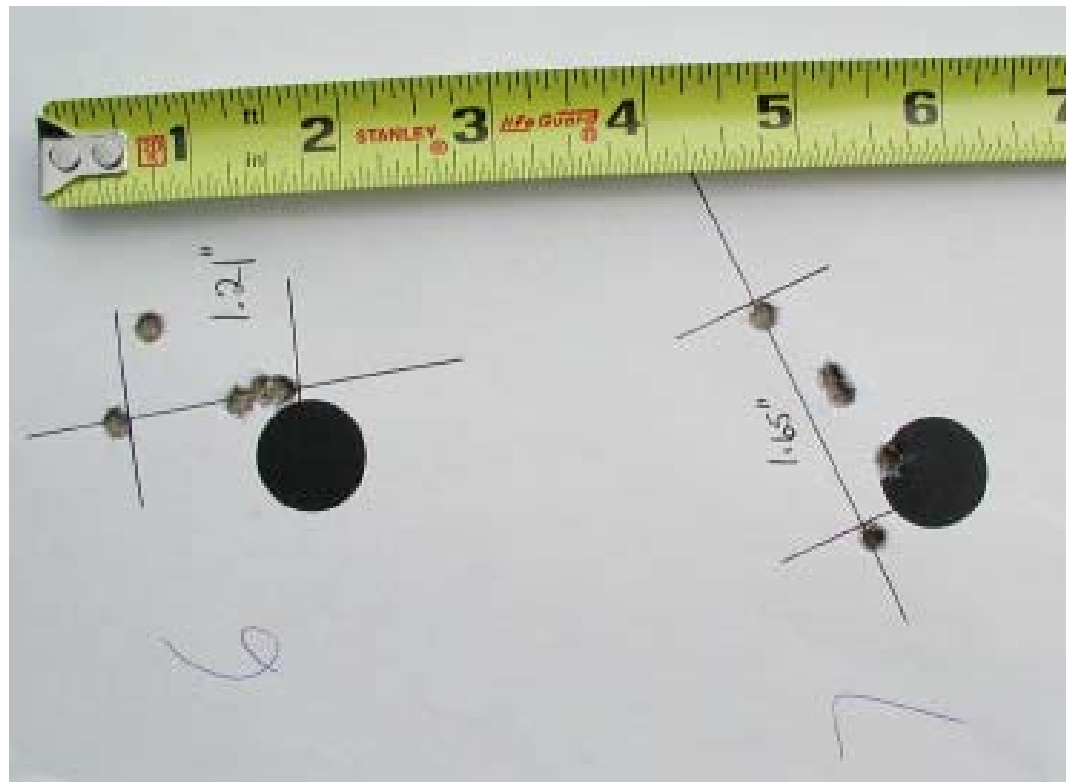
- **62 grain jacketed frangible projectile – Copper/polymer composite core**
- **Winchester cartridge case that meets M855 specification**
- **Standard military No. 41 primer**
- **Western C1700 propellant**



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Cartridge Salient Characteristics

- Chamber & Port pressures meet that of M855
- Accuracy – less than 2 in. ES at 100 yards.





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Cartridge Salient Characteristics

- **Waterproof**
 - No water intrusion after the cartridge was subjected to 28-31 psig water pressure for 115-125 minutes.
- **Ricochet Fragments**
 - No fragments penetrated deeper than 2.5” into 10% (by weight) Ballistic Gelatin after 45° impact on AR500 steel plate located 15 ft. from the muzzle
- **Reverse Splatter**
 - No reverse splatter toward the shooter position from AR500 steel plate 15 ft. away from the muzzle





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Cartridge Salient Characteristics (cont)

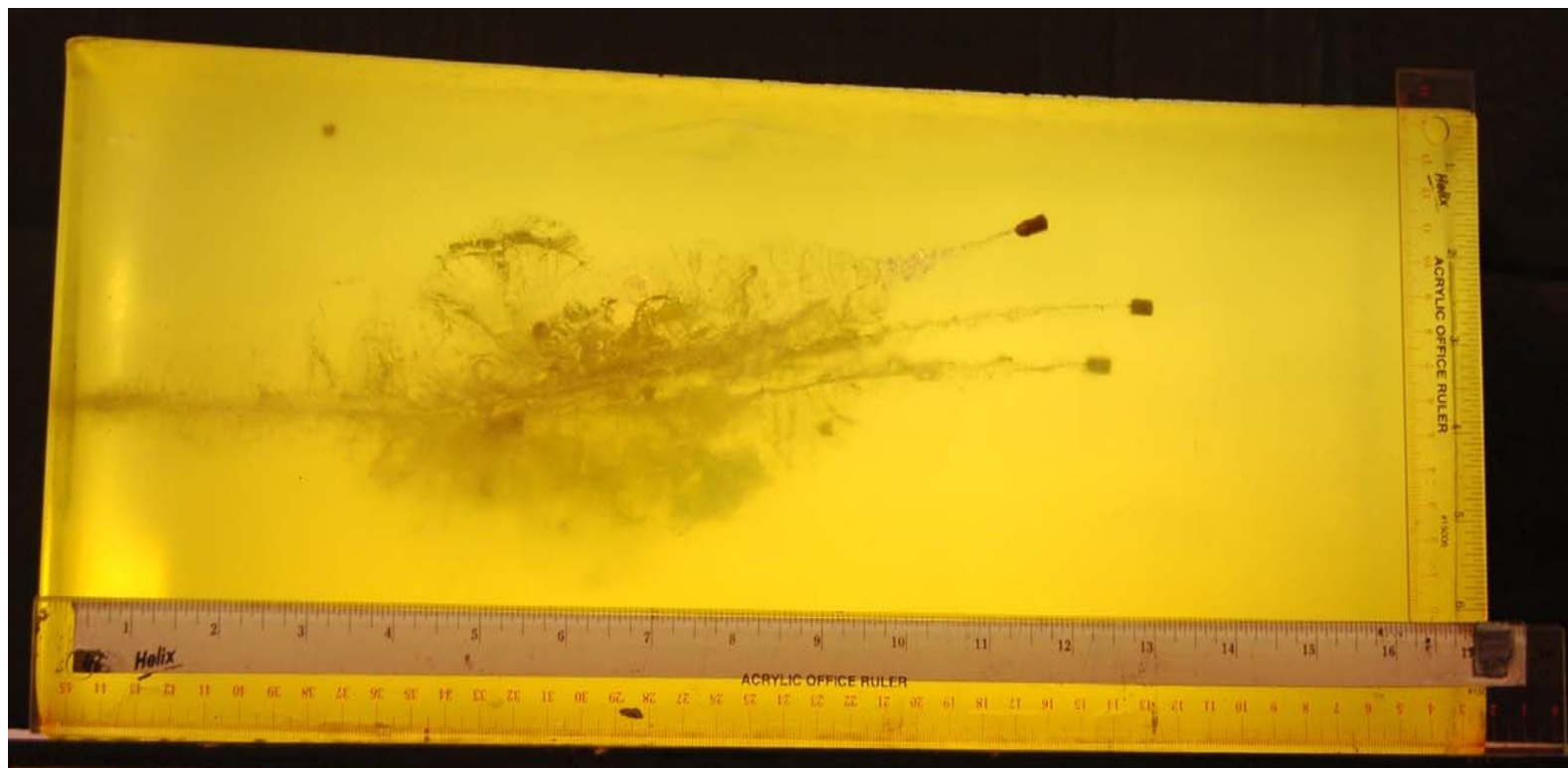
- **Lethality @ 15 ft.**
 - **10% Ordnance Ballistic Gelatin**
 - **Initial yaw; 2 in. max.**
 - **Temporary cavity length; 6 in. min.**
 - **Temporary cavity diameter; 3 in. min.**
 - **Temporary cavity diameter location; 3 to 6 in.**
 - **Number of fragments weighing 1 grain or more; 5 min.**
 - **At least 50% of the fragments should be 7 in. or deeper**
 - **Maximum penetration depth should be 13 in. or deeper**



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Cartridge Salient Characteristics (cont)

- 10% Ordnance Ballistic Gelatin Penetration



Cartridge Salient Characteristics (cont)

- **AR500 Steel Plate Penetration**

- Muzzle to impact was maintained at 3 feet
- Multiple shots within a 0.75 in. diameter area
- No penetration occurred after 50 rounds using Mk 18 Mod 0
- Penetration occurred from 25 rounds to 50+ rounds using M4A1 Carbine





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CURRENT STATUS

- **JAG approved for training and operation, CONUS/OCONUS**
- **Completed WSESRB testing and requirement (2005)**
- **Received WSESRB IOC (Nov 2005)**

