

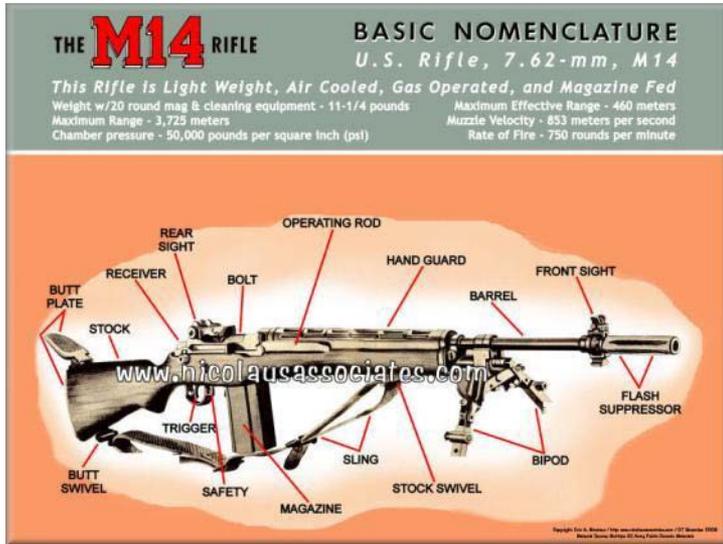
The M14 EBR - a Continuing Evolution



Logo by M1A96819 @ www.sageebr.com

Dave Armstrong, Mechanical Engineer
Small Arms Engineering Section
Crane Division, Naval Surface Warfare Center (NSWC Crane)
Small Arms Weapon Systems Division
Joint Special Operations Response Department (JSORD)
Ph: 812-854-5731 Email: david.armstrong@navy.mil

Overview - M14 Enhanced Battle Rifle (EBR)



Stock Prototypes Developed for Winter Warfare M14 (yr 2000)



One of Sage made prototypes with Concept M203 - Stock System Designed Summer of 2002



MK 14 MOD 0 EBR as Issued 2004

M14 Rifle Adopted in 1957 / Production Ceased by 1965



Lightened Prototype Stock with 16 inch barrel, modified SAI (Springfield Armory Inc.) Brake & Mini Night Vision Sight (AN/PVS-17) in Prototype Mount (2003)



CURRENT FIELDDED M14 EBR VARIANTS



Military Issued EBR's



MK 14 MOD 0 - Air Force Configuration



**MK 14 MOD 1 – Nightforce NXS 2.5-10X
Scope w/ LaRue LT608 Mount**



MK 14 MOD 1 with FA762K Suppressor and AN/PVS-26



**M14 T (Tactical) USCG
Helicopter Interdiction
Tactical Squadron (HITRON)**

USMC M39 EMR

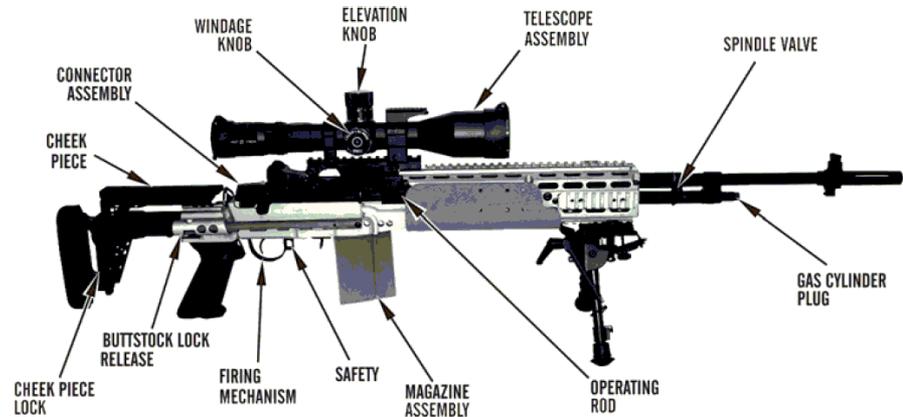


Figure 2. EMR - Right Side.

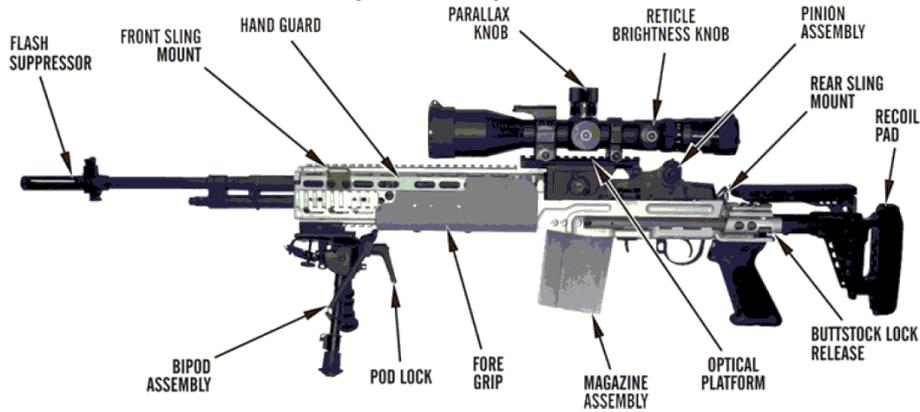


Figure 1. EMR - Left Side.



Excerpt Image from M39 EMR Operator's Manual



M39 Enhanced Marksman Rifle – now being replaced by Knight's Armament Company M110, Used 22 inch long Krieger Cut Rifled Barrel in original 1 in 12 inch twist – Has unique recoil pad spacer made by Sage upon USMC request, and Smith Enterprise Scope Mount .



US Army M14 EBR-RI DMR (Enhanced Battle Rifle – Rock Island / Designated Marksman Rifle)



6,200 EBR-RI's fielded, which is more than the M110, AMU-built DMR (M16 based) and M24 sniper rifles combined.



The System includes the Sage Cantilevered Scope Mount, 3.5-10X Leupold Day Scope, and Harris Bipod.

Army M14 EBR-RI (DMR) System



M14 ENHANCED BATTLE RIFLE (EBR), 7.62MM SUPPLEMENT TO
Below is excerpt from: **TM 9-1005-223-10**

1 December 2008



The M14 EBR-RI was developed in response to the large number of Operational Needs Statements (ONS) submitted for M14 rifles to support the role of Squad Designated Marksman (SDM). The first M14 rifles were fielded to units as they came out of the Depot, equipped with only one magazine and no provisions for optics.

To meet the needs of the SDM program, TACOM-RI selected key components to assemble a package of standardized components to enhance the stock M14 weapon system and provide standardized optics and rails for the mounting of lasers and night vision equipment. To that package was added a Harris Bipod, Sage forward pistol grip, 6 magazines, sling, cleaning kit and laser filter / anti-reflection device.

US Army M14 EBR-RINM (Rock Island National Match)



M14 EBR-RINM Prototype Kit – Medium Wt. SEI Configuration Barrel, Magpul PRS-2 Buttstock on Sage Iron Sight Capable Interface

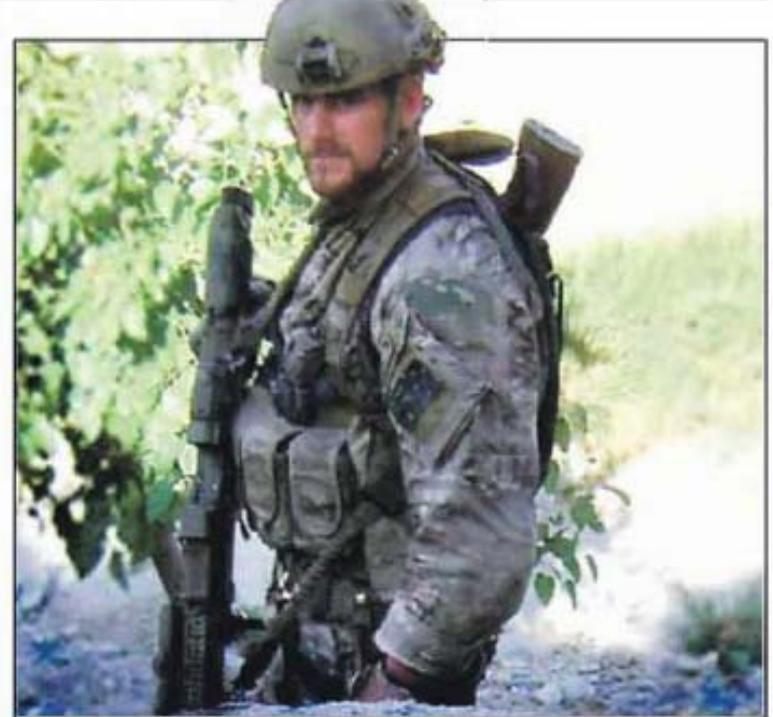


Doug Carlstrom (Lead EBR-RI Developer) firing prototype EBR-RINM System at NSWC Crane



Army and Navy EBR's Share a Bench

Australian SAS MK14 Use



In action: This image of Cpl Ben Roberts-Smith, which features in the Australian War Memorial's Hall of Valour, was taken not long after the action for which he was awarded the Victoria Cross. Provided by AWM

The Australian SAS borrowed a quantity of MK 14 MOD 0 Rifles, one of which was used to earn a Victoria Cross by Corporal Ben Roberts-Smith in October of 2010. He had been providing Sniper Cover from the Air when his Assaulting Services were needed on the Ground.



Australian Government

Department of Defence
Capability Development Group



RECENT NAVY MK 14 EFFORTS



Naval Expeditionary Combat Command (NECC) and the M14 Sniper Security Rifle (SSR)



M14 SSR

First used by Naval Special Warfare Units (pre - MK 11)

In 2012, NECC reorganized the Riverine and Maritime Expeditionary Security Force to create the Coastal Riverine Force (CRF). The M14 SSR had been the primary Expeditionary medium range Designated Marksman weapon. It was somewhat maintenance intensive due to glass bedding, had no standard means to attach ancillary equipment and lacked a night fighting capability. NECC worked with the Naval Surface Warfare Center Crane Small Arms Engineering Section to develop a more robust weapon to meet the challenges of an Expeditionary medium range rifle that would meet a 24 hour operational tempo. The result was development and fielding of the MK 14 MOD 2 EBR-EDMV. The System is used by the Expeditionary force to provide VBSS over-watch, perimeter defense, ordnance stand-off operations, and command post security.



**MK 14 MOD 2 Prototype at
Fort A.P. Hill, VA for Evaluation**

DMR Precision Needs

Precision Requirements for Designated Marksman or Sharpshooter Rifles in general will vary, just as with Sniper Rifles, based on Target Size and Expected Effective Range.

NSWC Crane tests for Precision linked to the lot of ammunition used, such as allowing for an Extreme Spread (ES) up to ½ MOA larger than the ammunition must achieve.

The original M14 SSR (Sniper Security Rifle) accuracy testing generally consisted of proving the system was able to get 5 consecutive shots inside a 4.5 by 4.5 inch square area at 300 yards. This roughly translates to the 1.5 MOA Extreme Spread which is currently verified for each MK 14 MOD 2. This allows for the NECC Expeditionary DM to engage vehicle engine targets at 800 meters, and EOD units can regularly hit unexploded 40mm grenades at a 150 meter stand-off.



The X-Treme Shooting Products Trigger Shoe is provided with the MK 14 MOD 2 to aid in precision fire.

MK 14 MOD 2 Enhanced Battle Rifle – Expeditionary Designated Marksman Variant (EBR-EDMV)



MK 14 MOD 2 with AN/PVS-27 Night Vision

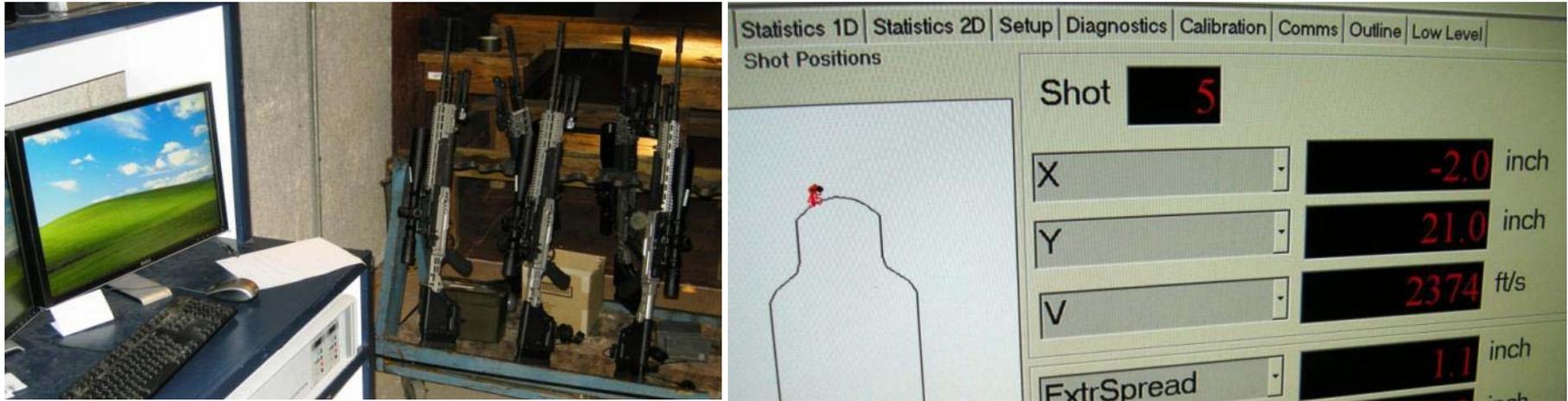


MK 14 MOD 2 with Nightforce NXS 3.5-15X50mm Scope



MK 14 MOD 2 with Soft Case converted to Shooting Mat – The System also includes a Hard Case which fits Soft Case and Night Vision System

1.5 MOA Extreme Spread Precision @ 100 yards



Electronic Targeting System Used in Qualification Testing of all EBR's – 5 shot groups



**MK 14 MOD 2 EBR – EDMV Systems at the Underground Range Bench
 B&T Industries BT10 Atlas Bipod is used (alt. feet and leg extensions avail.)
 Magpul PRS 2 Buttstock is used with Sage Adj. Height Buttpad Interface.**

M14 SSR Product Improvement into MK 14 MOD 2 EBR - EDMV



MK 14 MOD 2 Barreled Action Separated from Sage Chassis Stock (PN M14ALCS/PRMI-N)



The M14 SSR Round Profile Op. Rod Spring Guide Remains.



The M14 SSR Full Heavy Profile Match Barrel (1 in 10 inch twist) remains, but most associated parts get replaced w/ Sage Op. Rod Guide, SEI Gas Cylinder, Chromed Piston, and Vortex DC Flash Suppressor.

M14 SSR Receiver and Crane Design Scope Mount Remain the same – Standard MK 14 SEI Extended Bolt Release is used.

**MK 14 MOD 2 Length: 44 inches
Weight: 17 lbs (w/bipod, scope, mag.)**



ALTERNATIVE 7.62 MM NATO RIFLE SYSTEMS



Current Inventory 7.62mm NATO Systems

Rifle, 7.62mm, MK20 MOD 0 Sniper Support Rifle (SSR)



10.7 lbs (Empty / No Optics)

Rifle, 7.62mm, MK17 MOD 0 (CAR-H)



7.9 lbs (Empty / No Optics STD 16" Barrel)



**M110 SASS - Semi Auto Sniper
System 11 lbs (Empty / No Optics)**

7.62mm NATO Carbine Trends

LMT – Lewis Machine & Tool



LMT MRP (Mono. Rail Platform)

L129A1 "Sharpshooter" Rifle in Service Since 2010 by UK MOD – in US the LMT PN is LM308SS (16")



Knight's Armament M110C (Carbine) Configuration – Army has indicated interest in such a system. M110C Weight is 8.9 lbs unloaded without optic or 762 QDC suppressor (has 16 inch Chromed Barrel)

Industry 7.62mm NATO Carbine Trends



HK 417 – 12 inch barrel



Sig 716 with 16 inch barrel



16" OBR 7.62 shown with optional accessories

LaRue
Tactical

**LaRue OBR 16 inch barrel
(Optimized Battle Rifle)**



**LMT .308 LM8-MWS (16" chromed bl.)
(MWS - Modular Weapon System)**

**<LWRC Int'l. – REPR –Rapid Engagement
Precision Rifle (12" barrel available)**



SAGE STOCK BASED M14 EBR'S AND OTHER M14 STYLE RIFLE PRODUCTS



Some EBR Configurations & Bullpups



Sage MK 14 Mod 1 Chassis w/ Crane Buttstock & Compact Reflex Sight and ACLS (Mod 0) Below



Sage Modular Buttstocks – L3 EOTech 500 Series Holographic Sight with 3X Magnifier



Folding Buttstock Adapted Sage Chassis System with 16 inch SAI Barrel



Short Rifle Stock Systems – Bulldog 762



Juggernaut Tactical M14 Rogue Chassis



Commercial M14 Products



McCann Ind. Stocked M14/M1A - Any Pistol Grip or Buttstock meant for an M16 type rifle can be fitted.



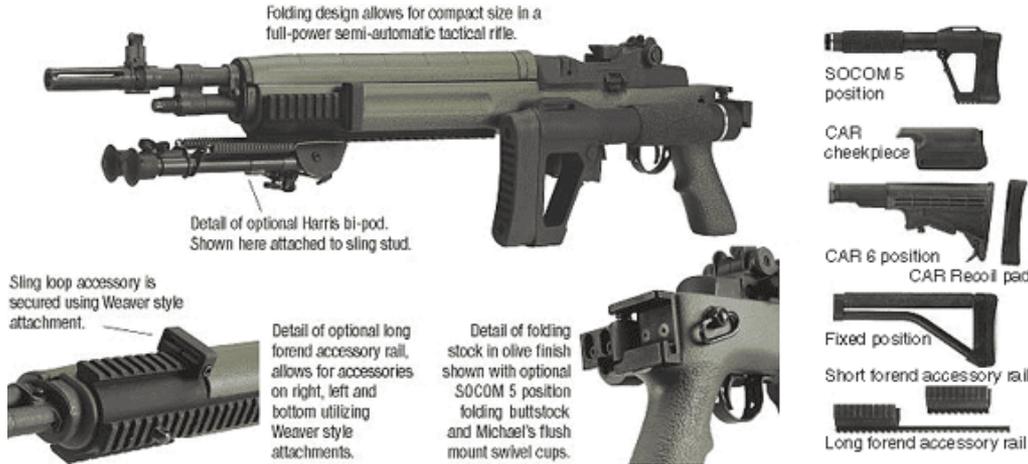
Scale reads 1 lb 9.6 oz (or 1.6 lbs) for McCann Carbon Fiber Stock Body



McCann Stocked Rifle with 18 in. Barrel over a CAR Heavy with standard 16 in.

Laying up Carbon Fiber around a Metallic Frame / Skeleton could avoid bedding – Similar to HS Precision Army M24 Rifle Stocks

More Commercial M14 Kit



McMillan Fiberglass Stocks MFS-14 Modular Tactical System

J. Allen Enterprises (JAE) Precision Stock System



Accuracy International Prototype M14 Chassis System

ProMag Archangel Drop in Stock (Molded Carbon Fiber Reinforced Polymer)



A few EBR Accessories



SEI (Smith Enterprise Inc.) Front End Kit for 16 inch Barrels



XS Products X14 50 round Drum Mag in Action



SadlackTactical Mag Release Latch JB1



Troy Ind. Battle Rail

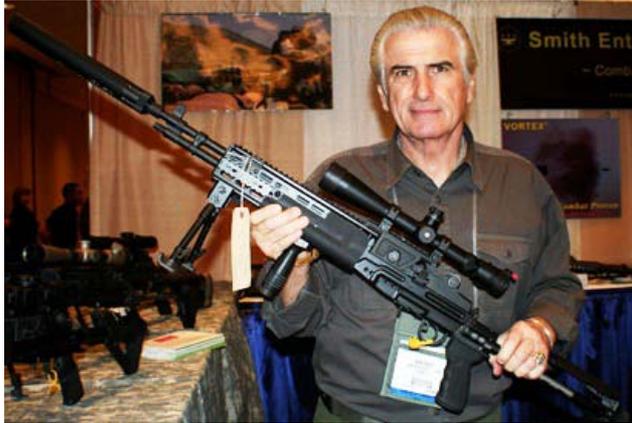


LRB Standard M25 Receiver
Photo By M1A96819



CASM M14 Scope Mount Rail

M1/M14 Based Developments



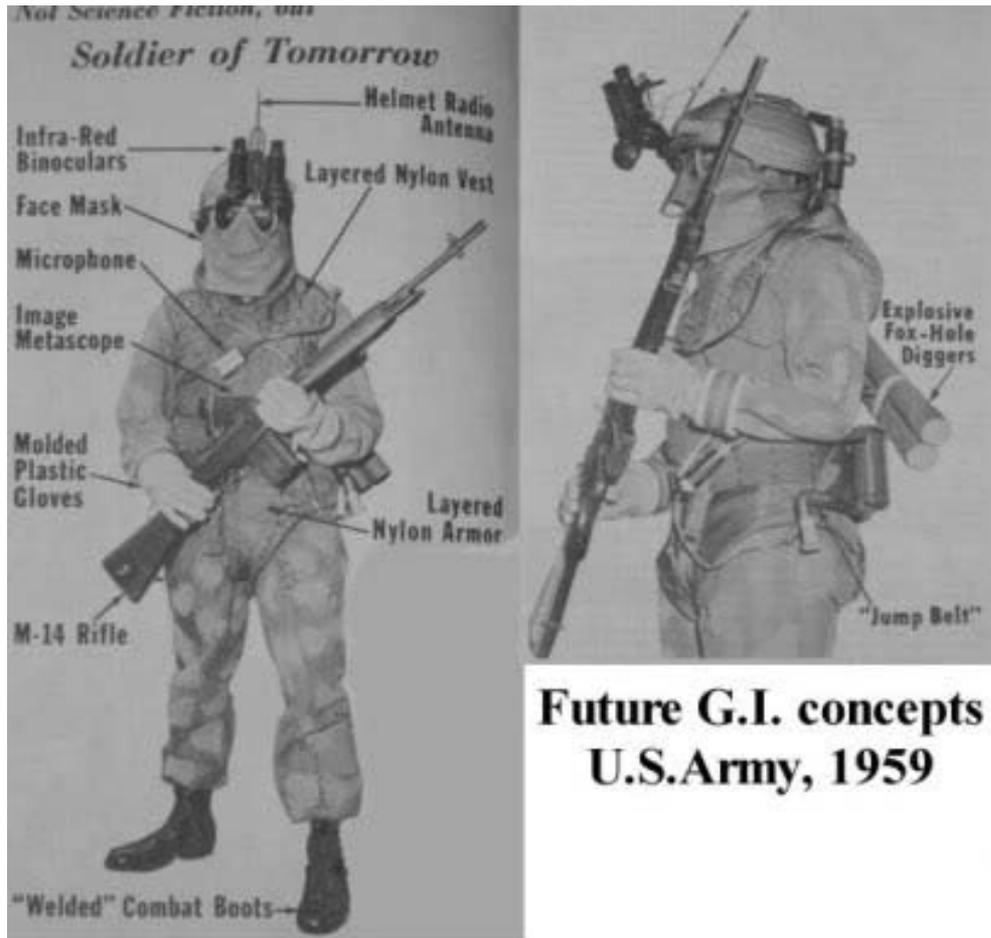
Ron Smith holding Sage Stocked Rifle with SEI (Smith Enterprise Inc.) Scope Mount and Suppressor. SEI has long worked toward accuracy and long lasting M14 Related Products, to include extensive use of Melonite / Salt Bath Nitriding.

Sage has recently developed a reduced weight MOD 0 type stock – use of Magnesium Alloy could also allow for significant further weight reduction.



LOSOK Custom Arms LLC Prototype M14-06 Receiver in McMillan Stock (Aluminum Chassis in development). Heavy Barrel M1/M14 Based Design, Integral Scope Rail with 20 MOA Cant. Designed for 30-06 chambering and other similar length cartridges to include .300 Win Mag.

M14 EBR – Back to the Future



While explosive fox hole diggers never quite panned out, several of these 1959 concepts certainly have, such as comms, thermal (IR) imagers, and body armor – also the fact that the soldier would still have the potential for an M14 based Battle Rifle / Carbine !

The book on small unit tactics has evolved to defeat a new kind of enemy, and the old standby Springfield Armory M-14 has evolved right along with it.

Quote above from: **New Lease on Life for the Beloved M-14**
November 13, 2008
Tactical Life by Eric R. Poole



The M14 EBR - a Continuing Evolution



Logo by M1A96819 @ www.sageebr.com

Dave Armstrong, Mechanical Engineer
Small Arms Engineering Section
Crane Division, Naval Surface Warfare Center (NSWC Crane)
Small Arms Weapon Systems Division
Joint Special Operations Response Department (JSORD)
Ph: 812-854-5731 Email: david.armstrong@navy.mil