DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY DEVELOPMENTAL TEST COMMAND
314 LONGS CORNER ROAD
ABERDEEN PROVING GROUND, MD 21005-5055

REPLY TO
ATTENTION OF

CSTE-DTC-TT-T (70-10p)

29 May 03

MEMORANDUM FOR Law Enforcement Tactics Branch (ATSJ-SMP-STA/Mr. Lee Chewey), U.S. Army Military Police School, B-971, 1401 Artillery Circle, Fort Leonard Wood, MO 65473

SUBJECT: Amendment 2 to DTC (TECOM) Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol

1. References:

a. Memorandum, TECOM, AMSTE-TM-S, 22 Sep 98, subject: TECOM Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol.

b. Memorandum, TECOM, CSTE-DTC-TT-T, 18 May 00, subject: Amendment 1 to TECOM Safety Confirmation for Simulation FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol.

c. Email message, ATC, CSTE-DTC-AT-FC-M, undated, subject: Recommendation for Amendment 3 to DTC (TECOM) Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits.

2. Purpose: To amend the TECOM (DTC) Safety Confirmation to allow the use of the Scott Hotshot thermal goggles with the Simunition FX Marking Cartridges.

3. Background: In order to provide the most effective training possible, the training must simulate the operational environment. It is difficult to provide effective training in a Close Quarter Battle (CQB) scenario such as building or room entry, hostage situations, ship boarding or clearing. Tactics can be practiced and skills can be honed, but the effectiveness of those tactics and skills cannot be graded until put to the test in real life situation. The effectiveness of this type of training can only be graded by the mission objectiveness that is achieved compared to the number of casualties. By utilizing the Simunition FX Marking Cartridge and Adapter Kit system, it is possible to provide training that duplicates the real life operational environment without subjecting the trainees to a hostile environment. The Simunition FX Adapter Kits are designed to look, feel, function, and have the same balance and safety features as the standard weapon.

Printed on Recycled Paper

29 May 03

CSTE-DTC-TT-T

SUBJECT: Amendment 2 to DTC (TECOM) Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol

a. The TECOM Safety Confirmation (ref 1a) issued in Sep 98 restricted the protective headgear to the JT mask/face protector. Users have found that the JT mask/face protector extends up above the goggle area and interferes with the proper wearing of the Kevlar helmet and, because the use of the JT mask/face protector necessitates the use of a NOMEX hood, Soldiers are forced to endure an added heat burden. Consequently, the Dismounted Battlespace Battle Lab (DBBL) requested the use of a substitute mask, the Scott Extreme Stalker. Because this mask protects the ears, the need for the NOMEX hood would be eliminated. The original TECOM Safety Confirmation was amended by reference 1b to allow the use of the Scott Extreme Stalker mask minus the NOMEX hood.

b. Discussions with Military Police Headquarters representatives have noted the limited supplies of the Scott Extreme Stalker mask. Scott now has a modified design (the Scott Hotshot thermal goggles), which was tested as a potential alternative to the JT mask/face protector or the Extreme Stalker mask. As a result of those tests, ATC issued a safety confirmation recommendation (ref 1c).

4. System Description.

a. When the Simunition FX Marking Cartridge Adapter Kit is installed on the "host" weapon, the weapon will function in a normal manner when firing the Simunition FX Marking Cartridge. The Marking Cartridge consists of a modified 9mm cartridge case, a plastic sabot, and a 7.62mm (0.30 inch) thin-walled plastic projectile, which contains a detergent based marking compound. The training barrel is uniquely designed to chamber and fire this hybrid cartridge. The Simunition FX Marking Cartridges are propelled by a standard small pistol primer in combination with a very small quantity of propellant (0.243 grains). This small amount of propellant is the reason why the cartridges are of reduced energy in nature. Weapon cycling occurs because the brass cartridge case is free to slide rearwards over the sabot during firing, resulting in a straight blowback action.

b. The 9mm cartridge consists of a brass cartridge with a plastic (nylon) sabot that remains attached to the case when fired. The projectile is a polypropylene sheath that encapsulates a "pea size" colored detergent base and weighs 7.3 grains. The detergent consists of barium sulfate, amide surface-active agent, water, and hydrocarbons. On impact, the polypropylene sheath breaks and the detergent marks the target.

5. Tests Performed and Results:

a. Safety tests were conducted by ATC on the Scott Hotshot thermal goggles from Dec 01 to Jan 02 to ensure the design modifications did not affect the safety of use of the new mask versus the FX Marking Cartridges. The FX Marking Cartridges were fired from M9 Beretta Pistol as the threat/weapon.

CSTE-DTC-TT-T 29 May 03
SUBJECT: Amendment 2 to DTC (TECOM) Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol

b. In accordance with previous testing, the mask/face protector (Scott Hotshot thermal goggles) was tested at distances of five feet and one foot. Fifty rounds of sub-caliber 9mm training ammunition were fired at the mask from the five-foot position. Sequencing at five feet was 20 rounds at the bridge, 20 rounds at the left eye, and 10 rounds at the mouth guard. One hundred rounds of sub-caliber 9mm training ammunition were fired at the mask from the one-foot position. Sequencing at the one-foot position was 50 rounds at the bridge and 50 rounds at the right eye. The Scott Hotshot thermal goggles withstood 50 rounds fired at five feet and 100 additional rounds fired at one foot.

6. Conclusions/Recommendations:

a. The Scott Hotshot thermal goggles provide proper protection for use with the Simunition FX Marking Cartridge.

b. Based on the above, the DTC Safety Confirmation (ref 1a) is amended to allow the use of the Scott Hotshot thermal goggles. The following restrictions and limitations apply:

(1) The officer in charge will brief all personnel on the boundaries of the exercise area and will ensure all personnel within those boundaries will wear safety clothing and gear. As a minimum, this will include approved protective headgear, BDUs or flight suits, standard Army Kevlar helmet, and groin protection by padding or use of an athletic cup.

(2) Rules of engagement will be established and reviewed prior to the exercise. The Range Safety Officer will strictly enforce these rules.

(3) No headshots will be executed by any participant and no shots shall be executed closer than five feet.

(4) The officer in charge will ensure that only a FX Marking Cartridge Adapter Kit Barrels are used.

(5) Only Simunition Sub-Caliber 9mm Marking Cartridges (DODIC AA12 [Red] and/or DODIC AA21 [Blue]) will be allowed in the training area. The officer in charge will ensure that service ammunition is restricted from the training area. In addition, the officer in charge will ensure the sub-caliber 9mm marking ammunition is loaded in clear magazines in the training area only. A visual inspection of all loaded magazines will be made prior to commencement of each day's exercises.

29 May 03

CSTE-DTC-TT-T
SUBJECT: Amendment 2 to DTC (TECOM) Safety Confirmation for Simunition FX Marking Cartridge Adapter Kits for M4A1 Carbine, M16A2 Rifle, M9 Pistol and the USMC Caliber .45 Marine Expeditionary Unit, Special Operations Command (MEUSOC) Pistol

(6) All personnel will wear single hearing protection during exercise.

(7) All weapons and adapter kits will be maintained in strict accordance with the manufacturers' operation and maintenance manuals.

7. The DTC point of contact for this action is Mr. Bernard A. Sokolis, sokolisb@dtc.army.mil, DSN 298-1460/FAX DSN 298-9169.

410 436 -1460
1464
2361

FOR THE COMMANDER:

ALAN L. YANKOLONIS
Chief, Tank-Automotive and Armaments Division
Directorate for Test and Technology

CF:
AMC (AMCSF-E), 5001 Eisenhower Ave., Alexandria, VA 22333-0001
TRADOC (ATCS-S), Fort Monroe, VA 23651-5000
ATEC (CSTE-ILE-S), 4501 Ford Ave., Alexandria, VA 22333-0001
ATC (CSTE-DTC-AT-FC-M), APG, MD 21005-5059
ARDEC (AMSTA-AR-QAW-S), Picatinny Arsenal, NJ 07806-5000
PM Small Arms (ARDEC) (AMSTA-LC-AS), Picatinny Arsenal, NJ 07806-5000
U.S. Army Safety Center (CSSC-O), Fort Rucker, AL 36362-5363
U.S. Army Chemical and Military Police Center and Fort McClellan (ATZN-CSF), Fort McClellan, AL 36205-5000
U.S. Army Infantry Center and Fort Benning (ATZB-WC-MOUT), Fort Benning, GA 31905-5400
U.S. Army John F. Kennedy Special Warfare Center and School (ATSU-ST-SE-SO), Fort Bragg, NC 28307-5000
U.S. Army CID, Protective Services Unit (CPT Thrash/CPT Barris), B1465, 6010 6th St., Fort Belvoir, VA 22060