

FIRING/NONFIRING DATA

For use of this form see USAIC Regulation 350-19; the proponent agency is DPTMS

TO: Chief,
Range Division,
Directorate of Plans, Training, Mobilization and Security
Fort Benning, GA 31905

Date: 4 February 2014
Range: Red Cloud Range
Title: Weapons Demonstration
Problem No:

Log #9-10-13

THRU: Chief, Soldier Team
Fort Benning, GA. 31905

FROM: Maneuver Battle Lab
Fort Benning, GA. 31905

SECTION I, TYPE OF TRAINING

a. Live Fire b. Non-live Fire CP/Controller Coordinates: 9486 8178

SECTION II, DEMOLITIONS/GRENADES/MINES/PYROTECHNICS

Coordinates	Type	Model/DODAC	Size of Charges
See Weapon & Ammo List	See Weapon & Ammo List	See Weapon & Ammo List	N/A

SECTION III, WEAPONS/AMMUNITION REQUESTED

Coordinates of Weapons Position	Type Weapon/Model Number	Type Ammunition	Left Limit	Right Limit
See Weapon & Ammo List	See Weapon & Ammo List	See Weapon & Ammo List	See Weapon & Ammo List	See Weapon & Ammo List

SECTION IV, LIVE FIRE EXERCISES Attach the following:

SECTION V, NON-LIVE FIRE TRAINING

- Scenario of training to be conducted:
- Sketch of area:
- Risk Assessment:
- Attach FB Form 350-19-2-E-R if Mortar or artillery is being fired:

- Training area(s) to be occupied:**
- Scenario of training to be conducted:
 - Sketch of area(s) to be occupied:
 - Risk Assessment:

Name/rank of requesting officer:
Barricks, Jerry W. GS-12

Name/rank of Major Unit S3/Commander:
Lubin, Harry J. GS-13

SECTION VI, FOR RANGE DIVISION USE

DATE: 27 FEB 14

TO: Maneuver Battle Lab
Fort Benning, GA 31905

FROM: Range Division,
Directorate of Plans, Training,
Mobilization and Security
Fort Benning, GA 31905

- a. Roadblocks to be closed:
- b. Road(s) to be closed/road barrier locations:
- c. Remarks:
- d. This approval expires: **Indef**

A: 8, 13, 14, 18, 23, 30, 33A, 34.
Guards will be placed at A13 and A14 roadblocks on Sunshine Rd. See Roadblock List.

Chief, Range Division
Directorate of Plans, Training, Mobilization and Security

Brad S. Tusch



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MANEUVER CENTER OF EXCELLENCE
1 KARKER STREET
FORT BENNING, GEORGIA 31905-5000

REPLY TO
ATTENTION OF
ATZB-SO

21 January 2014

MEMORANDUM FOR Director, Maneuver Battle Lab, Attn: Mr Fredrick Rose, Fort Benning, GA 31905

SUBJECT: MBL Commanding General's Lethality Branch Demonstration on Red Cloud Range Concept and Safety Review

1. References.

a. Authorization to Use of Commercial Off The Shelf (COTS) and Government Off The Shelf (GOTS) Items Memorandum and RMW.

b. Army Regulation 385-10, The Army Safety Program, 27 November 2013

c. Army Regulation 385-63, Range Safety, 19 May 2003

d. Department of the Army Pamphlet 40-501, Hearing Conservation Program, 10 December 1998

e. Department of the Army Pamphlet 385-10, Army Safety Program, RAR 19 January 2010

f. Department of the Army Pamphlet 385-30, Mishap Risk Management, RAR 01 February 2010

g. Department of the Army Pamphlet 385-63, Range Safety, RAR 12 May 2009

h. Field Manual 5-19, Composite Risk Management, August 2006

i. MCoE Regulation 350-19, Range and Terrain Regulation, 23 July 2010

j. MCoE Policy Memorandum 385-6-12, Composite Risk Management, 15 December 2010

2. Document received on 15 January 2014.

3. Concur with comment.

ATZB-SO

SUBJECT: MBL Commanding General's Lethality Branch Demonstration on Red Cloud Range Concept and Safety Review

RD
a. Concept Paper, 5j, pg 3. Request for NOTAMs must be requested through the Air Traffic and Airspace officer (AT&A) prior to the launch of this event for the UAS.

rough
b. RMW, Block 7 and 9, pg 2. "Accident/Negligent discharge of weapons or equipment malfunctions during training", recommend that the Initial and Residual hazard assessment be elevated to HIGH and MODERATE. The lack of familiarity of the weapons, severity of the action, and the focus group of shooters greatly increases the hazard.

RY
c. RMW, Block 7 and 9, pg 3. "Fratricide/Suicide", recommend that the Initial and Residual hazard assessment be elevated to HIGH and MODERATE. The simply end state (act or purpose) of the act is catastrophic in on purpose.

4. Point of contact is Mr. Michael W. Risher II, MCoE/Fort Benning Safety Office, Comm. (706) 545-8278, Govt. Cell. (706) 604-7249, michael.w.risher.civ@mail.mil


JILL E. CARLSON
Director, MCoE/USAG Safety

Redcloud MBL Weapons Demonstration Weapon/Ammunition Enclosure (Log #9-10-13) Feb 5, 2014

Coordinates of Weapons Positions	Weapon, Model #	Type Ammunition	Left Limit of Fire Mils, Grid Azimuth	Right Limit of Fire Mils Grid Azimuth	Targets/Restrictions
Pistols 9503 8177 to 9501 8176	Various Civilian and Military 9mm, .357, .40, .45	Ball/Commercial	2800	3000	Pistol firing area is located left of BP1. Targets are located to its front.
9495 8173 to 9490 8172 See Note 1 Below	ARES 16, M249, Rifles M240L Telescoped Lightweight Machine Gun	5.56mm Ball/Tracer & Link 7.62mm Ball/Tracer/Linked 5.56mm Telescoped	2130 2130 2130	2895 2895 2895	Trench pop-ups and #1 - #11
9494 8173 to 9488 8172	Various Military Compact/Precision Sniper Weapon Sstems Machine Gun	7.62mm .300 Win Mag .338 Norma Mag	2610 2610 2610	2880 2880 2880	Targets #1 - #11.
Machine Guns 9491 8172 to 9488 8172	M2A1, GAU 19 MK19	.50 cal Ball/Tracer 40mm TP	2610 2605	3010 2795	.50 cal Targets #1 - #20. NOTE: Cannot engage the right two targets, #21 & #22, on Wells Hill located 1500m Downrange. MK19 Targets #1-#11.
Mortars 9486 8172	120mm Mortar XM701	M931 FRPC XM395 APMI HE	2800 2925	3100 2925	M931 FRPC Targets #12 - #22 on Wells Hill located 1500m Downrange. XM395 Target is #16 (FA 95251 80297) on Wells Hill located 1500m downrange. See Note below for min and Max range, charges and max ord.

Notes

The following Smoke Grenades will be used: M106, M18 series and M83. See enclosures for firing points/target locations and weapon safety releases. **1)** Various military weapons will also be used using the same ammunition listed. No one is allowed downrange forward of the concrete trench. The handrails leading down into the concrete trench must be removed before firing and replaced after demonstration is over.

120mm Mortar M931 FRPC: Min Range = 1000m, Max Range = 2000m; Minimum Charge = 1, Maximum Charge = 2; Maximum Ordinate = 2236m.
120mm Mortar XM395 APMI HE: Range to Target = 1470m; Charge = 2; Maximum Ordinate = 2130m.

10142

TRANSMITTAL, ACTION AND CONTROL

For use of this form see MCoE Memo 25-52; the proponent is SGS

1. SGS LOG: ES 14/29976	2. IN SGS: 2/28/14	3. OUT SGS: 3 March 14	4. DATE PREPARED: 06 January 2014
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5. SUBJECT: Authorization for Use of Government Facilities for the Commanding General's Demonstration

6. ACTION OFFICER/OFFICE SYMBOL/PHONE NUMBER: LTC Tobin Moore / ATZB-CIS / 545-1910	7. DIRECTOR'S/COMMANDER'S SIGNATURE: COL Daniel R. Barnett, Director, Soldier Division
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SIGNATURE APPROVAL INFORMATION

SGS DCofS GC CSM USAIS CSM USAARMS CSM MCoE CSM CDIA

GC CIG CofS SA DCG-NG Comdt, IN School Comdt, AR School CG

1. PURPOSE: Obtain the Commanding General's signature on the Authorization for Use of (COTS) and (GOTS) items and the Garrison Commander's Signature on the Authorization for use of Government Facilities memorandum.

2. RECOMMENDATION: Sign the Authorization for Use of Government Facilities memorandum.

3. DISCUSSION: Soldier Division requests approval to allow Department of the Army (DA) Civilians, DA Contractors to participate in a Commanding Generals Lethality Branch demonstration scheduled for 05 Mar 14. The demonstration includes Berretta 9mm pistol, Modular Handgun System (2)", Sub Compact, M4A1, PSR" (338 Lapua), CSASS (7.62) , M249 SAW, M240 (L), M2A1, Mk 19, LSAT (5.56 LMG), GAU 19 (.50 cal), Aries 500 (5.56mm), Automated Direct Indirect Mortar System (81mm mortar FRTR), Maneuver and Fires Integration Application, Accelerated Precision Mortar Initiative (120mm mortar), and the Ranger Fire Support System (120mm mortar carrier). All activities involving civilians will be thoroughly planned, resourced and authorized In Accordance With (IAW) Fort Benning Policy Memorandum 385-63-1, dated 8 Apr 10..

SIR: Fully staffed & coordinated. No issues. Supports CDID LFX demo next week. Require your waiver to fire commercial/prototype wpns & ammo to assess capability gaps. Validated by AEC & ALDC. YR Bob Brown

4. THIS DOCUMENT IS AUTHORED BY: CPT Coule / ATZB-CIS / 545-1294

8. COORDINATION/APPROVAL

OFFICE	ACTION	NAME AND DATE	OFFICE	ACTION	NAME AND DATE
Safety	Concur w/c	K. Edens 22 Jan 14	G3 XO	Concur	w. Hensler 28 Feb 14
SJA	NLO	MA. GORDON 23 Jan 14			
Range Cntrl	Concur	Brady S. Todd 27 Feb 14			
DPTMS	concur	K. Edens 2/28/14			
G3	CONCUR	LICHILMES 2/28/14			

STAFF REMARKS: (Command Group Use Only)

Returns to G3 after signature

APPROVAL AUTHORITY

APPROVED:

DISAPPROVED:

NOTED:



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MANEUVER CENTER OF EXCELLENCE
1 KARKER STREET
FORT BENNING, GEORGIA 31905-5000

REPLY TO
ATTENTION OF

ATSH-CG

MEMORANDUM FOR: Director, Plans, Training, Mobilization and Security, U.S. Army
Garrison, Fort Benning, Georgia 31905

SUBJECT: Range Safety Waiver for Soldier Division's Lethality Demonstration on Red
Cloud Range

1. References:

- a. AR 385-63, Range Safety, 30 Jan 2012.
- b. DA PAM 385-63, Range Safety, 30 Jan 2012.
- c. TRADOC Regulation 385-2, TRADOC Safety Program, 23 January 2009
- d. MCoE Regulation 350-19, Range and Terrain regulation, Mar 2013.

2. Background: On 5 March 2014, Soldier Division will conduct a demonstration of latest weapons technology on Red Cloud Range. The purpose is to address several lethality capability gaps. There will be a mix of Army programs of record weapons systems, as well as commercial and prototype weapon systems and ammunition. For all commercial and prototype weapons systems, the US Army Evaluation Center (AEC) and/or US Army Research, Development, and Engineering Command (ARDEC) have issued safety releases to support this live fire demonstration.

3. Areas to be Waived:

- a. Area #1: Allow Soldiers only to fire small caliber (50 caliber and below) commercial off the shelf and government off the shelf weapons including: (1) Compact Semi-Automatic Sniper System (7.62mm); (2) Precision Sniper Rifle (7.62mm, 300 win mag, .338); (3) Sub-Compact Weapon (5.56mm); (4) Suppressors; (5) ARES 16 (5.56mm linked, standard M249 ammo); (6) GDATP Lightweight Medium Machine Gun (.338); (7) Modular Handgun System candidates (9mm, .357, .40, and .45); and (8) Individual Carbine candidates (5.56mm)
- b. Area #2: Allow Soldiers, Army Civilians, and Army Contractors (under contract to MCoE) to fire small caliber (7.6mm and below) commercial off the shelf and government off the shelf weapons including: (1) Compact Semi-Automatic Sniper System (7.62mm); (2) Precision Sniper Rifle (7.62mm, 300 win mag.); (3) Sub-Compact Weapon (5.56mm); (4) Suppressors; (5) ARES 16 (5.56mm linked, standard M249 ammo); (6)

ATSH-CG

SUBJECT: Range Safety Waiver for Soldier Division Lethality Demonstration on Red Cloud Range

Modular Handgun System candidates (9mm, .357, .40, and .45); and (7) Individual Carbine candidates (5.56mm).

4. Controlling Factors: For both areas, ensure all firers are qualified for their assigned duties. Training will include a review of all warnings, cautions, and limitations identified in the supporting AEC/ARDEC safety release and in supporting reference documents. Single hearing protection, plugs or muffs, will be worn by all personnel within 30 meters of the firing positions. The weapon and ammunition will be visually inspected prior to firing; both must be clean and free of foreign debris. The weapons must be inspected prior to each demonstration IAW specified AEC/ARDEC safety release. Firing from the shoulder, bipod, tripod, or from a bench rest is authorized IAW specified AEC/ARDEC safety release. Firers will be warned to ensure the weapons remains pointed down range after each trigger release. AEC/ARDEC will be immediately informed of any safety anomalies observed during this demonstration.

5. Under the provisions mentioned above, Areas #1 and #2 are waived. Risk management factors for this waiver are integrated in the activity's risk management worksheet. The residual risk level is marked as MODERATE.

6. This waiver is valid for the period of one year (12 months) from the date of this memorandum when used in conjunction with live fire range scenario and risk management worksheet. In the event of an accident arising from the use of the waived condition, this waiver becomes invalid until reinstated by this headquarters.

7. The point of contact is Mr. Brad Tesch, Operations Officer, Range Division, Directorate of Plans, Training, Mobilization, and Security, 706-544-6385.

A handwritten signature in black ink, appearing to read 'H.R. McMaster', with a long horizontal flourish extending to the right.

H.R. MCMASTER
Major General, USA
Commanding



Time Line



Fort Benning, Home of the MCoE

Time line (T)

4 Mar:

0800-1600 Range prep, rehearsals, and test fire (Tents, Tables, chairs)

5 Mar:

0800: Occupy Range

0800 - 1100: Range Set-up and final rehearsals

1100 - 1200: Test Fire and Target Checks

1200 - 1230: Final Weapons Check

1230 - 1300: Receive the CG

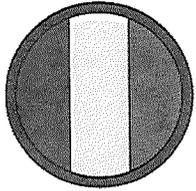
1300 - 1305: Escort CG to Command Post

1305 - 1320: ADIM, RFSS, and MaFIA briefs

1320 - 1335: Vignette for RFSS, MaFIA

1335 - 1400: PSR, CT LMG, CSASS briefs and demonstrations

1400 - 1430: CG comments, static displays and briefs upon CG's request



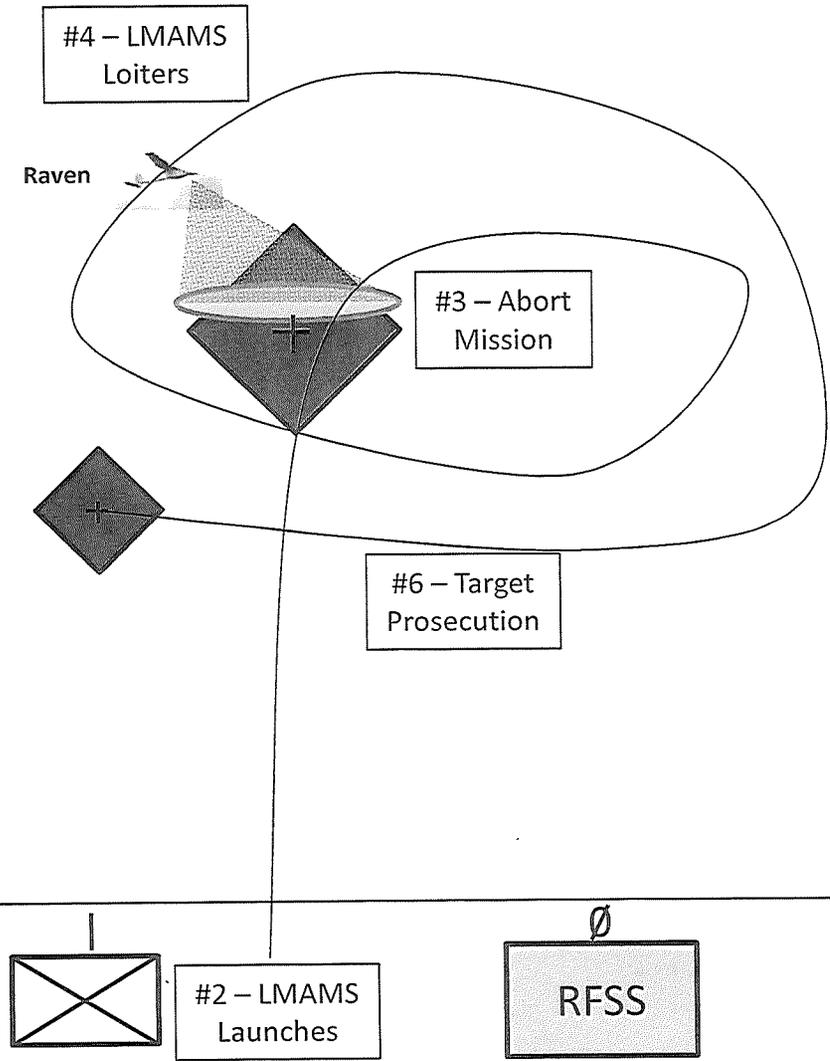
LMAMS Vignette

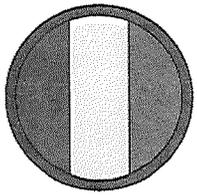


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Sequence of Events:

1. Squad Leader (11 series) equipped with Fires Warrior & MaFIA identifies a BOLO vehicle from RAVEN feed; Squad Leader generates a CAT I grid of BOLO Vehicle and sends target information to the LMAMS operator.
2. LMAMS Operator immediately launches LMAMS, LMAMS flies autonomously to the target location.
3. While in terminal engagement, the LMAMS operator notices noncombatants in close proximity to the BOLO vehicle and aborts the mission.
4. LMAMS waives off and assumes a loitering pattern.
5. The squad receives enemy small arms fire from a fighting position in defilade. The squad leader sends CAT I grid to LMAMS operator, LMAMS receives target information and autonomously flies to the second target.
6. As the munition goes into terminal prosecution, the LMAMS operator refines the point of aim and eliminates the threat.
7. Raven provides BDA





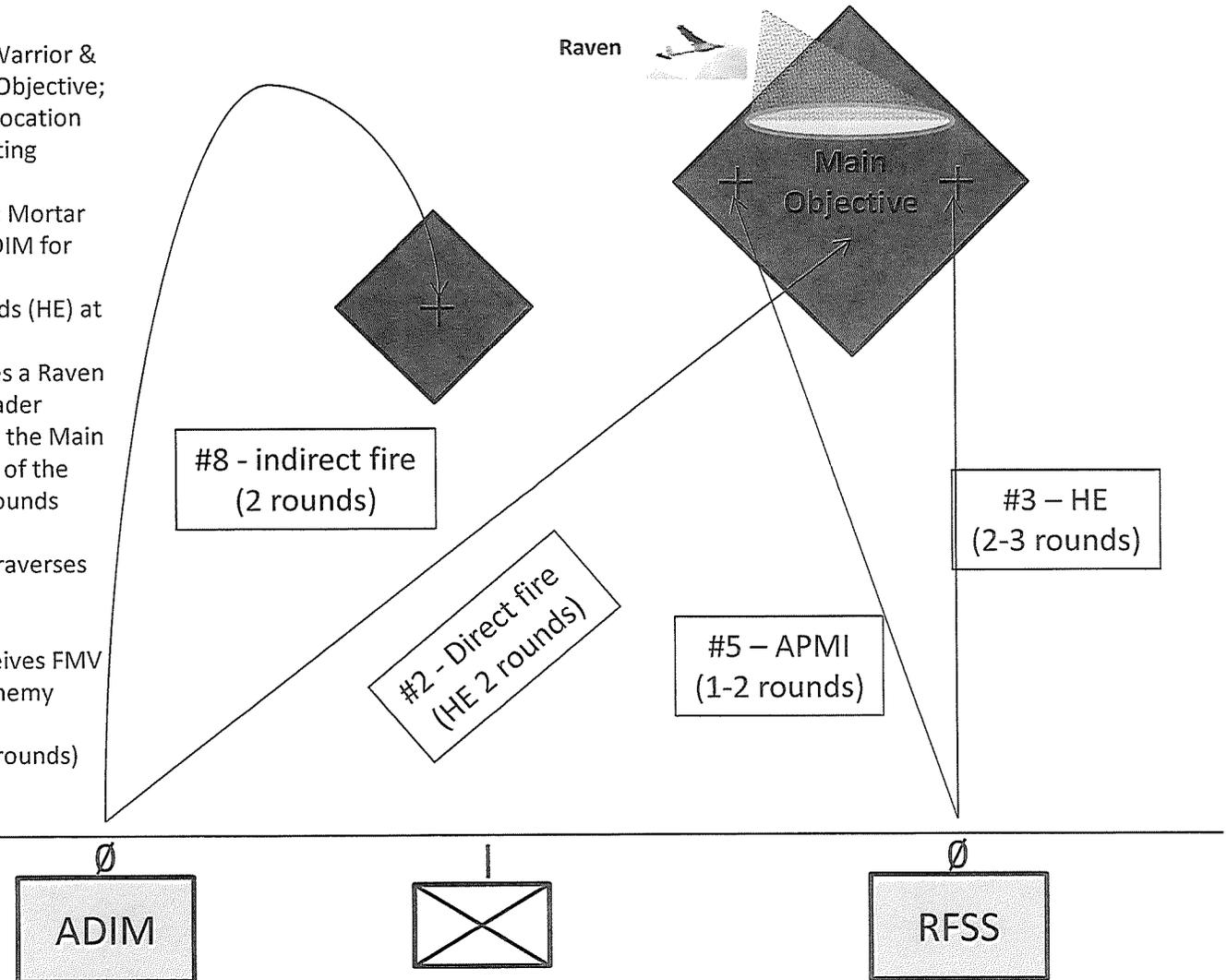
ADIM, MaFIA, RFSS Vignette



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Sequence of Events:

1. Squad Leader (11 series) equipped with Fires Warrior & MaFIA identifies an enemy target on the Main Objective; Squad Leader generates a CAT I grid of enemy location and sends a Call for Fire to Mortar FDC requesting 120mm mortars (RFSS).
2. Air space/Ground are cleared, RFSS emplaces; Mortar FDC sends Call for Fire target information to ADIM for direct fire (2 rounds) on enemy location.
3. Air space/Ground cleared, RFSS fires 2-3 rounds (HE) at enemy location on main objective.
4. Upon End of Mission (EOM) the squad launches a Raven (UAS) to observe the main objective. Squad Leader w/MaFIA receives FMV and identifies a HVT on the Main Objective; Squad Leader generates a CAT I grid of the HVT and sends a Call for Fire requesting 1-2 rounds APMI to RFSS.
5. Mortar FDC sends Fire Mission to RFSS; RFSS traverses to HVT and fires 1-2 APMI rounds.
6. Raven provides BDA
7. Raven (UAS) locates an enemy OP; MaFIA receives FMV feed, Squad Leader generates a CAT I grid of enemy location and sends a Call for Fire to ADIM.
8. ADIM engages enemy OP with indirect fire (2 rounds)





REPLY TO
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DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MANEUVER CENTER OF EXCELLENCE
1 KARKER STREET
FORT BENNING, GEORGIA 31905-5000

ATZB-CIS

20 December 2013

MEMORANDUM FOR Chief, Range Operations, US Army Maneuver Center of Excellence, Ft Benning, GA 31905

SUBJECT: Commanding General Lethality Branch Demonstration

1. **TASK:** Conduct live fire demonstration of programs and initiatives within the Lethality Branch of Soldier Division.
2. **Purpose:** To provide the Commanding General hands-on familiarization with technological capabilities and advancements in development that will satisfy or mitigate current and forecasted lethality gaps that the US Military faces.
3. **Weapons and ammunition types:** Soldier Division will demonstrate the following weapons and ammunition during this event:
 - a. Small Caliber, .50 caliber and below, commercial off the shelf and government off the shelf weapons.
 - (1) Compact Semi-Automatic Sniper System (7.62mm)
 - (2) Precision Sniper Rifle (7.62mm, 300 win mag, .338)
 - (3) Sub-Compact Weapon (5.56mm)
 - (4) Suppressors
 - (5) ARES 16 (5.56mm linked, standard M249 ammo)
 - (6) GDATP Lightweight Medium Machine Gun (.338)
 - (7) Modular Handgun System candidates (9mm, .357, .40, and .45)
 - (8) Individual Carbine candidates (5.56mm)

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SUBJECT: Commanding General Lethality Branch Demonstration

b. Fielded legacy equipment:

- (1) 120mm Mortar System
- (2) M9 Pistol (9mm)
- (3) M249 (5.56mm linked)
- (4) M106 Smoke Grenade
- (5) M18 Smoke Grenade
- (6) M83 Smoke Grenade
- (7) M2A1 .50 Cal Machine Gun
- (8) M240L (7.62mm linked)
- (9) RAVEN UAS

c. New technologies with current safety releases:

(1) Lightweight Small Arms Technology Cased Telescoped Lightweight Machine Gun (5.56mm)

- (1) Accelerated Precision Mortar Initiative (120mm)
- (2) Maneuver and Fires Integration Application (software for end user devices)
- (3) Pen Flare Signaling Device (multi-shot)
- (4) GAU 19 (.50 cal Gatlin Gun, uses standard .50 cal linked ammo)

4. Execution and concept of Operation: The execution of this demonstration shall be in compliance of Range Control safety regulations. This demonstration will consist of several static displays, a vignette for the ADIM, APMI and, RAVEN, and firing of several small arms technologies .50 caliber and below. A Tactical Operations Center (TOC) will be located in front of the bleachers, behind the firing line. The Raven will fly at 600 feet AGL as an ISR over watch for the vignette. The scenario is initiated when the TOC receives a report of an enemy target located in vicinity of the 1500 meter targets on the south west portion of the Red Cloud Range impact area. Grid coordinates will be digitally transmitted with Maneuver and Fires Integration Application (MaFIA). The CAT 1 grid will be sent to the mortar team which will emplace the M120mm mortar system. The mortar team will fire four 120mm FRTR (training rounds). The Raven will be launched upon the end of the fire mission to asses BDA. The Raven will identify a high value target on the same objective. The Raven will send the grid location through MaFIA, MaFIA will send a CAT 1 grid to the mortar team, the mortar team then fires 3-5 rounds of the Accelerated Precision Mortar Initiative (APMI) rounds. The Raven is used to asses BDA and identifies an enemy OP, the grid location is sent through MaFIA, MaFIA sends the CAT 1 grid location to ADIM, ADIM fires two FRTR rounds in indirect mode Upon completion of the vignette, the CG and other post leadership will receive information briefs, safety briefs, and preliminary marksmanship instructions for each small arms weapon system that will be fired. Each weapon system will have a dedicated instructor / safety to oversee weapons firing. No more than six shooters will fire at a given time.

5. Safety:

a. Battle Lab will maintain continuous contact with Range Control at all times. In the event of an accident, injury or illness, the OIC/RSO will immediately suspend the demo and, call 911 using the standard 9 Line MEDEVAC to determine what type of evacuation is the most appropriate for the injury (e.g., loss of life, limb or eyesight). MEDEVAC will be IAW MCoE Regulation 350-19 and MCoE 40-2. The landing zone for MEDEVAC aircraft will be established prior to use and marked appropriately. Range Control will be notified of an event. The cease fire will remain in effect until cleared through Range Control.

b. All material will be stored at an approved ammunition holding area at Red Cloud.

c. If a malfunction is experienced, the OIC/RSO will suspend all firing and immediately notify Range Control. Weapons, ammunition and all components involved will remain in place. The cease fire will remain in effect until cleared through Range Control. In this case, an investigation is required and will be conducted by the ammunition and weapons inspection personnel and DOL.

d. All demonstrations will adhere to operational and safety constraints identified in the Safety Releases (Reference Tab D).

e. Ammunition will be brought to the range by Maneuver Battle Lab (MBL) personnel in a vehicle approved for transporting ammunition.

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SUBJECT: Commanding General Lethality Branch Demonstration

- f. It will have the appropriate placards with a DD Form 626 completed by the Ammunition Supply Point (ASP). The vehicle will be parked at the designated ammunition point with two serviceable fire extinguishers. A MBL representative with updated credentials will manage the issuing and receiving of ammo. The ammo personnel will issue ammo prior to firing and receive ammo upon completion of firing.
- g. Weapons will be checked to ensure they are cleared and placed on safe before issuing to firing personnel. Weapons will orient down range at all times.
- h. Each firing position will have a subject matter expert for each weapon and will provide preliminary marksmanship instruction to each person that will fire the weapon.
- i. All weapon systems will be prepositioned at their firing position in order to limit the number of personnel carrying weapons on the range. Firing personnel will orient their weapon down range and stand behind their assigned firing lane while awaiting further guidance from the RSO. The RSO will instruct all firing personnel to secure their weapons on the sandbags or firing position.
- j. The RSO and firing line safeties will control the firing line with verbal command to load, fire, and unload the weapons. The line safeties will check to ensure the weapons are cleared and placed on safe after completion of firing. **(Note: No personnel will be permitted to go down range without the authorization of the Range Safety Officer) and requires coordination with Range Operations and EOD.**
- k. All Unmanned Aerial Systems (UAS) will maintain a flight pattern above Red Cloud range impact area, maintaining 1,000 meters in the direction of travel from all occupied structures, roads, and the perimeter of the impact area. UASs will be in compliance with Lawson Army Airfield instructions.
- l. After all firing is complete, range safety personnel will inspect all weapon systems to ensure that all systems are clear of any ammo and that the selector switch is on safe.
- m. All personnel on the range will be briefed on the Composite risk management worksheet.
- n. All firing personnel will wear the standard gear for firing on a live fire range IAW their unit or company policies (i.e. ACH, body armor with plates, ear, and eye protection).
- o. Soldiers will follow all commands given by the RSO and safety personnel while conducting training and drills.
- p. The line safety will position himself where he can observe and control all firers.

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SUBJECT: Commanding General Lethality Branch Demonstration

q. All personnel on the range are considered safety officers. Anyone who observes an unsafe act will immediately call for a cease fire.

r. Weapons will always be placed on safe when not engaging targets.

s. Personnel carrying a weapon will walk on the range with both hands securing the weapon.

t. All firing will start and end on the command given by the RSO or his designated representative.

u. All shooters will be in a fixed position engaging stationary targets.

v. All equipment or ammunition will have a current safety release prior to use or included the safety waiver signed by the MCoE Commanding General.

6. Medical.

a. Primary means of medical support on site will be qualified combat lifesavers with bag.

b. Primary means of evacuation will be a covered vehicle. Alternate means of evacuation is Air MEDEVAC.

c. Life threatening injuries will require the 9 line MEDEVAC request.

d. Primary loading zone for air evacuation is vic. FA94908174.

6. Signals.

a. In case of an emergency, the cease-fire command will be given verbally and with hand and arm signals.

b. The Range OIC or RSO will act as the observer controllers.

c. All Soldiers receive Range Safety briefings on procedures, equipment, and hazards.

d. Laser and laser hazards are addressed prior to use, to include a brief instruction on the Laser equipment.

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SUBJECT: Commanding General Lethality Branch Demonstration

- a. Should any incident occur on the range, whether or not there are injuries, the OIC/RSO will immediately call a cease fire and report it to Range Control. OIC/RSO will take action as directed by Range Control. The cease fire will remain in effect until the issue is resolved and cleared through Range Control. If the incident results in an injury, the OIC/RSO will use the procedures outlined in the medical paragraph. The following information will be furnished by the OIC/RSO to Range Control:

- (1) Designation of unit.
- (2) Range and location
- (3) Type of weapon involved
- (4) Type of ammunition involved
- (5) Brief summary of event
- (6) Type and extent of personnel injuries
- (7) Full Name, SSN, rank and unit of injured personnel
- (8) Extent of property damage. Intentions regarding an AR 15-6 investigation.

6. The point of contact is CPT Coule, Lethality Branch, SD, bradley.n.coule2.mil@mail.mil, (706) 545-1294. .


BRADLEY COULE
CPT, LG
Chief, Firepower Section



DEPARTMENT OF THE ARMY
UNITED STATES ARMY EVALUATION CENTER
2202 ABERDEEN BOULEVARD – SECOND FLOOR
ABERDEEN PROVING GROUND, MD 21005-5001

TEAE-SS

25 February 2014

MEMORANDUM FOR Project Manager Crew Served Weapons (SFAE-SDR-
CSW/Michael Doyle) B151, Picatinny Arsenal, NJ 07806-5000

SUBJECT: Safety Release for the GAU-19B Caliber 0.50 Electric Driven Weapon
Mounted on the Ground Mobility Vehicle (GMV) 1.1 (a.k.a. Flyer) Provided for Live Fire
Demonstrations

1. References.

- a. Standard, MIL-STD-882E, Department of Defense, Standard Practice, System Safety, 11 May 12.
- b. Department of the Army (DA) PAM 385-30, Safety Mishap Risk Management, 1 February 2010.
- c. Operator's manual, General Dynamic- Ordnance and Tactical Systems (GD-OTS), 23 May 2012, subject: GAU-19B .50 Caliber Gun System Operator's Manual, Operator's Checklist and Maintenance Test Flight Manual Procedures for the US Army OH-58D Kiowa Warrior Helicopter.
- d. Maintenance manual, GD-OTS, 6 Jun 12, subject: GAU-19/B .50 Caliber Gun System Field Maintenance Manual with Repair Parts and Special Tool List for the US Army OH-58D Kiowa Warrior Helicopter.
- e. Memorandum, U.S. Army Evaluation Center (AEC), 27 Aug 12, subject: Safety Confirmation for the GAU-19B Machine Gun as Installed on the OH-58D® in Support of Rapid Acquisition Fielding.
- f. Presentation charts, GD-OTS, March 2014, subject: MCoE CG's Demonstration.
- g. Report, U.S. Army Public Health Command (PHC), 10 Aug 12, subject: Health Hazard Assessment Report (RCS MED-388) No. 69-MP-0982-12, GAU-19B .50 Caliber Machine Gun.

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(Test and Evaluation), Feb 14

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TEAE-SS

SUBJECT: Safety Release for the GAU-19B Caliber 0.50 Electric Driven Weapon Mounted on the Ground Mobility Vehicle (GMV) 1.1 (a.k.a. Flyer) Provided for Live Fire Demonstrations

h. E-mail, PM-CSW, 19 Feb 14, subject: GDOTS GAU-19B on GMV 1.1 (Flyer) Vehicle Information.

2. Purpose. This U.S. Army Evaluation Center (AEC) Safety Release for the GAU-19B Caliber 0.50 Electric Driven Weapon Mounted on the GMV1.1 (a.k.a. Flyer), hereafter referred to as the GAU-19B on GMV 1.1, is provided for Live Fire Demonstrations. The demonstration will be conducted by the Special Operations Forces for the Maneuver Center of Excellence (MCoE) Commanding General at Fort Benning, GA 5 March 14. There will be other demonstrations of the GAU-19B on the GMV1.1 throughout CY14 at other Continental United States (CONUS) locations. This Safety Release will expire 31 Jan 15. A safety review of the referenced documentation has been conducted and it has been determined that the GAU-19B on the GMV 1.1 may be operated by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and the Operator's Manual are followed.

3. System Description.

a. The GAU-19B is a chute-fed, air-cooled, electrically driven, electronically controlled, three-barrel, 0.50-caliber, Gatling style machine gun designed for a maximum effective range of 2,000 meters. This machine gun is installed on the OH-58D(R) Kiowa Warrior helicopter, and has a fixed maximum firing rate of 1,300 shots per minute (spm), but was tuned to fire approximately 1,150 spm during flight tests. This firing rate applies to the ground vehicle application on the High Mobility Multipurpose Wheeled Vehicle (HMMWV). General Dynamics Armament and Technical Products (GDATP), Inc. (now GD-OTS) modified the GAU-19A machine gun to create the reduced-weight GAU-19B machine gun by removing unnecessary steel from components, and by replacing steel components with aluminum or titanium. A more detailed description, including operating characteristics, limitations, parts lists, and electrical schematics of the GAU-19B can be found in the GAU-19B operator's manual (reference 1c) and maintenance manual (reference 1d). The GAU-19B gun system is comprised of a gun adapter mount (steel saddle), gun assembly, gun battery, gun electronic control unit (ECU), vehicle interface harness, ammunition magazine, and ammunition feed chute. The major components of the GAU-19B are described below.

(1) The gun pintle mount is installed directly on the roof M1165 ring mount assembly. The gun pintle mount provides support for the gun assembly, the battery, and the electronic control unit (ECU). The gun assembly attaches to the upper slide spindle and lower recoil mechanism of the adapter. The upper slide spindle and lower recoil mechanism are each supported by a forward and aft support arm of the mount frame.

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(2) The gun assembly is composed of the gun drive assembly, powered delinker, housing/rotor assembly, guide bar, ammunition transfer unit, clutch assembly, three gun barrels with supports, and a flash suppressor. A SAFE/ARM fire lever is located at the aft end of the gun assembly. The words SAFE and FIRE are in raised letters on the back plate of the gun and adjacent to the lever. The SAFE/FIRE lever can be manually rotated 180 degrees between the SAFE and FIRE positions then secured with a spring-loaded latch pin once it is in a detent in either position. With the SAFE/FIRE lever in the SAFE position, the exposed side of the lever is white and the firing pins are not allowed to sear for firing ammunition in the barrels. In the FIRE position, the exposed side of the lever is red and the firing pins are allowed to sear for firing ammunition in the barrels. The GAU-19B is designed to fire with or without a flash suppressor installed. The three barrels are designed to be replaced as a set after being used to fire 35,000 rounds. The GAU-19B is designed to eject the ammunition cartridge cases and links below and right of the gun so that they are away from the vehicle.

(3) A ruggedized, high-energy, light-weight, lithium-ion gun battery is mounted above the ring mount on the vehicle and supplies a maximum (fully charged) of 33.6 Volts Direct Current (VDC) to the ECU via cable W1. The vehicle provides a 24 VDC, 3-A "trickle charge" to the spare gun battery via a charging cable. The battery is equipped with a protection control module that monitors and controls the battery charging, an internal thermostat that shuts off current flow when the internal temperature is above 40 °C, and a 100-A push-pull type circuit breaker. The control module is designed to turn off charging at 100% state of charge (SOC). Additionally, each battery cell is monitored and charge voltage is turned off if any cell reaches 4.2 VDC (100% SOC) or a cell/battery temperature is greater than 70°C. The battery is also equipped with a SOC indicator consisting of a vertical scale of five light-emitting diodes (LEDs) that corresponded to a particular DC voltage range IAW reference 1c, table 20 (each steadily illuminated LED indicates that the battery state of charge is sufficient to fire approximately 500 rounds). A fully charged battery is designed to fire approximately 2,500 rounds without recharging it. A built-in-test (BIT) check of the battery is initiated by pressing and holding the battery switch for approximately 5 sec; flashing LEDs indicated the BIT status IAW reference 1c, table 22. The battery is also equipped with a vent behind the membrane panel and is designed to open at 4 pounds per square Inch (psi).

(4) The ECU is installed above the ring mount on the vehicle. The ECU receives signals from the hand grips and weapons fire switch (via the handgrip interface harness). The ECU is powered by 28 VDC from the battery (via cable W1) and distributes this power via metal-oxide semiconductor field-effect transistors (MOSFETs) to cycle the drive motor and feeder solenoid in the gun assembly and thus provides

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control of the gun firing cycle, clearing cycle, and ammunition feed. The ECU has a 5-A circuit breaker.

(5) The ammunition magazine holds up to 800 rounds of 0.50-caliber ammunition.

(6) The ammunition feed chute is a flexible link-belt of composite and metal construction manufactured by Nobles Manufacturing, Inc. The chute connects to the ammunition magazine and the gun assembly via dual latches on each end and allows the ammunition to be partially gravity-fed, as well as pulled by the gun's power delinker, from the magazine to the gun.

b. The GAU-19B mounted on the GMV 1.1 (Flyer) is presented in the below Figure.



Figure. GAU-19B Mounted to a GMV 1.1 (Flyer).

4. Discussion.

a. This AEC Safety Release is derived through Test Manager analysis of the results from contractor testing and a review of referenced documentation. Available information was evaluated following safety guidance provided in MIL-STD-882E (reference 1a).

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b. The live fire demonstrations are planned for Soldier live fire exercises at Fort Benning, GA, Fort Bragg, NC, and other CONUS locations. The demonstrations are designed to provide firsthand knowledge of the weapon mounted to the GMV 1.1. PM-CSW and/or manufacturer representatives will provide training on the GAU-19B mounted on the GMV 1.1.

c. GD-OTS indicates in reference 1e that over 1.6 million rounds have been fired from the GAU-19 weapons. Approximately 200,000 have been man fired in the HMMWV pintle mount configuration during previous use/demonstrations.

d. Ammunition to be used for demonstrations will be standard M33 ball and M17 Tracer with standard links. For the demonstration purposes the firing by each Soldier will be limited to a single 200 round belt. The GAU-19B on the GMV 1.1 must be stationary when firing on the ranges where demonstrations are performed. Strict adherence to weapons maintenance must be followed.

e. Soldiers must inspect the weapon system to include the suppressor periodically for any signs of cracks or loose fit. Soldiers must wear appropriate Personal Protective Equipment when firing the weapon system to include eye protection.

f. Identified safety hazards are summarized below:

(1) Impulse Noise. Sound pressure levels were measured by U.S. Army Aberdeen Test Center. The peak decibel (dB) value measured near the shooter's ear firing in ground mount configuration was no greater than 160.4 dB. Exposure to the impulse noise generated by the weapon and cartridge can result in auditory injury to unprotected personnel resulting in permanent partial disability. Single hearing protection must be worn within 139 meters of the firing position. Ground mount firing restrictions were assessed at 1,445 rounds for number of rounds in bursts over one second when wearing single hearing protection. Double hearing protection has no round count firing restriction.

(2) Chemical Substances (Weapons Combustion Products) Hazard. The following typical combustion products are expected to be produced when firing the weapon: ammonia, carbon dioxide, carbon monoxide, hydrogen cyanide, nitric oxide, nitrogen dioxide, and sulfur dioxide. Excessive combustion products can produce respiratory injury to exposed personnel. Firing must be conducted in a well-ventilated environment to mitigate the risk of toxic fumes exposure. No other Soldiers other than the shooter shall be in the GMV 1.1 while firing the GAU-19B. The GMV 1.1 will be stationary during any demonstration.

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5. Conclusions. This AEC Safety Release for the GAU-19B on GMV 1.1 is provided for Live Fire Demonstrations. A safety review of the referenced documentation was conducted and it has been concluded that the GAU-19B on GMV 1.1, as described in this document, can be operated by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and in the Operator's Manual are implemented.

a. All Soldiers participating in the demonstrations must be qualified for their assigned duties and must complete training for the GAU-19B on GMV 1.1. Training must include a review of all warnings, cautions, and limitations identified in this Safety Release and in the Operator's Manual.

b. Mitigations that must be implemented to assist in risk management are as follows:

(1) Soldiers within 139 meters of the ground mounted GAU-19B must wear Army approved single hearing protection at a minimum.

(2) Soldiers must be aware of the toxic fumes build-up that can occur when firing from an enclosed position. Soldiers will fire in a well-ventilated environment. No Soldiers other than the shooter operating the weapon shall be in the GMV 1.1 during the demonstration firing. The GMV 1.1 will be stationary during any demonstration

(3) Soldiers must inspect the weapon system periodically, to include the suppressor, for any signs of cracks or loose fit.

(4) Soldiers must wear appropriate Personal Protective Equipment when firing the weapon system, to include eye protection.

c. Technical/operational limitations and precautions addressed in paragraph 4 are to be implemented as indicated.

d. A copy of this memorandum must be provided to the Commander of the unit to which participating Soldiers are assigned. The Commander is responsible for providing risk acceptance documentation IAW DA-PAM 385-30 (reference 1b) and ensuring that the Soldiers are qualified to support the demonstrations. This Safety Release is provided for the composite risk management process and risk acceptance by the Commander of the unit participating in the demonstrations. The MCoE is responsible for ensuring the Soldiers are properly trained regarding the GAU-19B on GMV 1.1 being used and are aware of the guidance contained in this Safety Release.

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e. The MCoE must put into practice a risk mitigation management process IAW DA-PAM 385-30 for the implementation of the warnings, cautions, and procedures addressed in this Safety Release and in the Operator's Manual.

f. This headquarters must be immediately notified of any safety anomalies regarding Soldiers use of the GAU-19B on GMV 1.1 during the demonstrations.

g. This document is not to be used to accomplish fielding, which requires a Safety Confirmation. This Safety Release does not authorize the use of the GAU-19B on GMV 1.1 in any OCONUS area where hostilities are present.

6. The AEC point of contact is Mr. Bernard Sokolis, TEAE-SSD, bernard.a.sokolis.civ@mail.mil, DSN 848.9883, commercial 443.861.9883.

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FOR THE DIRECTOR:

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TEAE-SS

27 February 2014

MEMORANDUM FOR Product Manager Soldier Maneuver Sensors (SFAE-SDR-SMS/MAJ Toby Birdsell), 10245 Burbeck Rd, BLDG 359, Fort Belvoir, VA 22060

SUBJECT: Safety Release for Family of Weapons Sights – Individual (FWS-I) Provided for Live Fire Demonstration

1. References:

- a. Standard, MIL-STD-882E, Department of Defense, Standard Practice, System Safety, 11 May 12.
- b. Pamphlet, DA Pamphlet (PAM) 385-30, Safety Mishap Risk Management, 1 Feb 10.
- c. Report, BAE Systems, 19 Feb 13, subject: Advanced Weapon Sight Technology – Individual (AWST-I) System Safety Notes / Precautions.
- d. Report, DRS Technologies, 19 Feb 13, subject: Safety Assessment Report (SAR) for the Individual Weapon Sight (IWS) Program Phase II Level, Revision A.
- e. Memorandum, U.S. Army Evaluation Center (AEC), 16 Feb 12, subject: Safety Confirmation for the Enhanced Night Vision Goggles (ENVG) in Support of Type Classification (TC) and Full Materiel Release (FMR).
- f. Technical Bulletin (TB) 43-0134, Battery Disposition and Disposal, 19 May 08.

2. Purpose. This AEC Safety Release of FWS-I is provided for a Live Fire Demonstration. The Live Fire Demonstration will be conducted by Product Manager Soldier Maneuver Sensors (PM SMS) from 4 – 5 Mar 14 at Fort Benning, GA. Soldiers from the Maneuver Center of Excellence (MCoE) will participate in the Live Fire Demonstration. This Safety Release will expire on 31 Jul 14. AEC conducted a safety review of the references and determined that adherence to the warnings, cautions, procedures, and mitigations identified in this Safety Release minimizes all risks to a level commensurate with the risks of normal operations.

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Other requests for this document shall be referred to PM SMS

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SUBJECT: Safety Release for Family of Weapons Sights – Individual (FWS-I) Provided for Live Fire Demonstration

3. System Description. The FWS-I is designed to provide the individual Soldier with a thermal capability that mounts on the MIL-STD-1913 rail in-line with the existing M68 Close Combat Optic (CCO) and M150 Rifle Combat Optic (RCO). The system is designed to provide a wireless Rapid Target Acquisition (RTA) capability, allowing the Soldier to view weapon sight information and/or reticle using the Enhanced Night Vision Goggle (ENVG). The FWS-I system includes the optic sight, tethered remote with RTA controls, and Smart Battery Pack. Two FWS-I systems are currently being developed: one manufactured by BAE Systems and one manufactured by DRS Technologies.

a. The FWS-I manufactured by BAE Systems is also referred to as the Advanced Weapon Sight Technology – Individual. The system weighs approximately 1.7 pounds. The optical sight and remote are powered by two L-91 AA Lithium (Li) batteries. The Smart Battery Pack is mounted to the back of the Army Combat Helmet and contains an additional 4 L-91 AA Li batteries to power an ENVG-III. The Smart Battery Pack includes power buttons to initiate wireless pairing and RTA processing. The remote control is designed to be connected directly to the FWS-I during wireless operation or via a “T” connection when in wired mode. The “T” connection is designed to be affixed directly to the rail for a safe secure connection.



Figure 1. BAE Systems FWS-I (optical sight, tethered remote and battery pack).

b. The FWS-I manufactured by DRS Technologies is also referred to as the Individual Weapon Sight (IWS). The sight weighs 1.5 pounds and is powered by four L-91 AA Li batteries that are contained in a quick change battery cassette. The Smart Battery Pack is mounted to the back of the Army Combat Helmet and contains an additional four L-91 AA Li batteries to power the ENVG (AN/PSQ-20D) (reference 1e). The Smart Battery Pack includes the RTA processor, provides power to the ENVG, and wirelessly communicates to the sight. The tethered remote includes the RTA controls.

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SUBJECT: Safety Release for Family of Weapons Sights – Individual (FWS-I) Provided for Live Fire Demonstration



Figure 2. DRS Technologies FWS-I (optical sight, battery pack, tethered remote).

4. Discussion.

a. Information for this AEC Safety Release is derived through Test Manager review of the references. Information was evaluated in accordance with (IAW) MIL-STD-882E (reference 1a).

b. The lenses contain germanium. Inhalation or ingestion of germanium particles can produce moderate toxic effects. Soldier exposure is only possible if the lens is chipped or broken. Care must be taken in the handling of broken lenses to avoid inhalation or ingestion of any particles inadvertently chipped or scratched from the lens. Glass may be sharp enough to cut personnel if touched. Soldiers will not clean up any broken lenses.

c. The FWS-I sight and the Smart Battery Pack are powered by L-91 AA Li batteries. Li batteries are safe under normal conditions, but may become extremely hot and emit smoke/flame when punctured, damaged, or misused. Soldiers should be instructed not to recharge, mishandle, mutilate, or short circuit the batteries and to follow handling and disposal procedures outlined in TB 43-0134 (reference 1f).

d. Soldiers are not authorized to perform maintenance activities on the FWS-I during the Live Fire Demonstration other than changing batteries and cleaning lenses.

5. Conclusions. This AEC Safety Release of the FWS-I is provided for a Live Fire Demonstration. AEC conducted a safety review of the references and determined that adherence to the warnings, cautions, procedures, and mitigations identified in this Safety Release minimizes all risks to a level commensurate with the risks of normal operations.

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SUBJECT: Safety Release for Family of Weapons Sights – Individual (FWS-I) Provided for Live Fire Demonstration

a. The PM SMS must provide the MCoE a copy of this memorandum for inclusion in the Unit risk management process and ensure the Soldiers are properly trained on the FWS-I and aware of the guidance contained in this Safety Release.

b. The MCoE is responsible for providing risk acceptance documentation IAW DA-PAM 385-30 (reference 1b) and ensuring that the Soldiers are qualified to support the Live Fire Demonstration.

c. The PM SMS must put into practice a risk mitigation management process IAW DA-PAM 385-30 to implement the warnings, cautions, procedures, and mitigations addressed in this Safety Release and identified references. The PM SMS is also responsible for obtaining risk acceptance documentation from the Soldier chain of command.

d. This Headquarters must be immediately notified of any safety anomalies regarding Soldier use of the FWS-I.

e. This document does not satisfy a fielding requirement. Fielding requires a Safety Confirmation. This Safety Release does not authorize the use of FWS-I outside the Continental U.S. (OCONUS) where hostilities are present.

6. The AEC point of contact is Ms. Melissa Rhoads, TEAE-SS-M, melissa.a.rhoads2.civ@mail.mil, DSN 848.9606, commercial 443.861.9606.

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FOR THE DIRECTOR:

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MARC E. BALL

Associate Director for Test and Safety
Soldier and Support Systems Evaluation
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TEAE-SS

SUBJECT: Safety Release for Family of Weapons Sights – Individual (FWS-I) Provided for Live Fire Demonstration

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TEAE-MGT

10 May 2013

MEMORANDUM FOR US Army Armaments Research, Engineering and Development Center,
(AMSRD-AAR-AIJ/Korene Phillips), Building 65, Picatinny Arsenal, NJ 07806-5001

SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology
(LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

1. References:

- a. MIL-STD-882E, Department of Defense, Standard Practice, System Safety, 11 May 12.
- b. DoDI 5000.02, Operation of the Defense Acquisition System, 8 Dec 08.
- c. Email, US Army Aberdeen Test Center (ATC) (CSTE-DTC-AT-FP-S), George Niewenhaus, 2 Oct 06, subject: Safety Release for LSAT/SAW - Background.
- d. Email, US Army Armaments Research, Development and Engineering Center (ARDEC) (JSSAP), Korene Spiegel, 11 Jan 07, subject: RE: LSAT POC.
- e. Email, Aircraft Armament Incorporated (AAI), Paul Shipley, 12 Jan 07, subject: RE: LSAT POC.
- f. Memorandum, US Army Developmental Test Command (DTC), CSTE-DTC-TM-T, 23 Jan 07, subject: Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.
- g. Memorandum, DTC, TEDT-TMT, 28 Jan 08, subject: Amendment 1 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.
- h. Memorandum, DTC, TEDT-TMS, 16 Apr 09, subject: Amendment 2 Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.
- i. Memorandum, DTC, TEDT-TMW, 28 April 10, subject: Amendment 3 Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.
- j. Email, US Army Armaments Research, Development and Engineering Center (ARDEC) (JSSAP), Ned DeWitt, 11 Apr 11, subject: RE: Upcoming LSAT Demos.

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SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

k. Checklist, AAI, 11 Apr 11, subject: Approval for Shoulder Fire of Weapons In Support of Advanced Systems.

l. Meeting Minutes, AAI, 22 Apr 11, subject: LSAT CT LMG SN3-10 (Spiral 3 Ammo) Manned Fire Safety Approval.

m. E-mail, ARDEC, Ned DeWitt, 19 May 11, subject: LSAT Safety Release.

n. Report, United States Army Maneuver Center of Excellence, Dec 2011, subject: Cased Telescoped Light Machine Gun (CT-LMG) Military Utility Assessment (MUA) Final Report. Battle Lab Project Number 274.

o. Memorandum, DTC, TEDT-TMW, 24 May 11, subject: Amendment 4 Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.

p. E-mail, ARDEC, Ned DeWitt, 6 Mar 12, subject: LSAT Safety Release 2012.

q. Briefing, AAI, 27 April 12, subject: Resolution of MUA Ammunition-Related Failures.

r. Memorandum, US Army Evaluation Center (AEC), TEAE-MGT, 10 May 12, subject: Amendment 5 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator in Support of User Evaluations and Demonstrations.

s. E-mail, ARDEC, 19 Feb 13, subject: Update to the expiring LSAT AEC safety release for 10 May 2012.

t. E-mail, ARDEC, 25 April 13, subject: LSAT safety release May 13.

u. Report, ARDEC, undated, subject: Noise Test Report.

2. Purpose. This US Army Evaluation Center (AEC) Safety Release for the LSAT Demonstrator is provided for User Evaluations, Training, and Demonstrations. This Safety Release amends reference 1r to extend the time period for user evaluations, training, and demonstrations an additional year. This Safety Release expires one year from the date of issue. A safety review of the referenced documentation has been conducted and it has been determined that the LSAT may be used by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and reference 1k are followed.

3. System Description. The LSAT Demonstrator (Figure 1) is a belt-fed Light Machine Gun (LMG) capable of firing 5.56 millimeter (mm) ammunition in the full or semi-automatic mode. The LSAT (9.4 pounds) is a reduction in weight from the M249 Squad Automatic Weapon

TEAE-MGT

SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

(SAW) (17.95 pounds). There is over 21 pounds decrease in Soldier load with a standard combat load between LSAT with the Case Telescoped (CT) Ammunition (Figure 2) and the M249 SAW with the standard linked M855A1/M856A1 cartridge. The CT ammunition will only function in the LSAT weapon.

a. The basic cartridge is a straight plastic tube with the projectile telescoped inside surrounded by propellant. The cartridge case is closed at one end by a solid base. The primer is positioned at the case base in the conventional manner. A front insert cap holds the projectile and on firing, moves forward a very short distance to opturate between the chamber and barrel. The standard M855 projectile and standard ball propellant are used.

b. The LSAT functional cycle is as follows: The rammer pushes the cartridge out of the link and into the chamber. The chamber rotates 90 degrees to align with the barrel. The firing pin strikes the primer and the cartridge fires. Propellant gases are tapped from the barrel and engage a piston. The piston is driven to the rear. This action results in rotating the chamber back to align with the feedway. The rammer repeats its cycle. The new cartridge pushes out the fired case. The fired case is ejected by the ejector and the old link is ejected by the next link.



Figure 1. Lightweight Small Arms Technology (LSAT) Demonstrator (5.56mm Machine Gun).



Figure 2. Case Telescoped (CT) Ammunition.

4. Discussion.

a. This AEC Safety Release is derived through Test Manager analysis of the results of testing conducted by Aircraft Armament Incorporated (AAI) of Hunt Valley, MD and a review of referenced documentation. Available information was evaluated following safety guidance provided in MIL-STD-882E (reference 1a).

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SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

b. The LSAT program is a technology demonstration sponsored by the Joint Service Small Arms Program (JSSAP) Office of the US Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ. It is an effort to develop a prototype for a LMG that has the same effectiveness as the M249 SAW by taking advantage of the latest advances in lightweight materials and cartridge design.

c. AAI is the prime contractor and system integrator. Other partners include Alliant Techsystems (ATK) (ammunition production), ARES (weapon design), General Dynamics/Saint Marks (propellant), Battelle (material analysis), and Omega (training concepts).

d. JSSAP requested that military personnel be allowed to fire the prototype weapon in user evaluations and demonstrations.

e. The background information for this Safety Release is provided by references 1c through 1t. Most tests were fired at ambient temperature at different weapon orientations. Rounds have also been temperature conditioned to -65 degrees Fahrenheit (°F) and +160 °F and fired. No safety incidents have occurred.

f. During the interval from the initial release in 2007 to the Amendment 5 safety release in 2012, there were several occurrences of failure-to-sear in both the semi-automatic and full-automatic modes. When the weapon was set in the semi-automatic mode, a failure-to-sear caused the weapon to fire more than one round per trigger pull. These sear issues were fixed in 2012 and have not recurred in succeeding tests and demonstrations.

g. A cook-off test conducted by AAI using 300 rounds showed no safety issues (reference 1p). AAI conducted a noise test that showed the firing of the LSAT noise level measurement peaks and durations to be less than the M249 SAW (reference 1u). However, the US Army Public Health Command (PHC) has not analyzed the data for a Health Hazard Assessment Report (HHAR). Therefore, the use of the M249 SAW hearing protection level shall be used. Single hearing protection is required out to 30 meters from the shooter for unlimited firing.

h. During the Military Utility Assessment (MUA) in 2011 (reference 1n), the failure of the weapon sear to stop an additional round of ammunition to fire did not occur. However, there were three different ammunition failure modes observed. None of these ammunition failure modes (three types listed below) caused safety issues.

(1) Type I: Case Base Blowout - Out of specification concentricity of plastic case mold cavity.

(2) Type II: Case Cracking/Separation - Asymmetric loading with thin and thick walls created from plastic case mold.

TEAE-MGT

SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

(3) Type III: Dropped Primer - Insufficient interference fit between the primer and primer support.

i. There have been an additional 18,368 rounds fired successfully without safety incident on the six weapons (SN4, 5, 7, 8, 9 10) from May 12 to May 13 (reference 1t). There were ammunition case blowouts noted with spent cases following firing after long term storage at +160°F. There was case wall cracking noted following firing in spent cases. There were also some dropped primers noted in spent cases following firing. None of these ammunition case issues caused safety incidents. There were also no incidents of weapon failure to sear during this time frame.

5. Conclusions. This AEC Safety Release for the LSAT is provided for User Evaluations, Training, and Demonstrations. A safety review of the referenced documentation was conducted and it has been concluded that the LSAT, as described in this document, can be used by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and reference 1k are followed.

a. All Soldiers participating in user evaluations, training, and demonstrations must be qualified for their assigned duties. Training must include a review of all warnings, cautions, and limitations identified in this Safety Release and in the referenced documents.

b. Single hearing protection, plugs or muffs, must be worn by all personnel within 30 meters of the firing positions.

c. The weapon and ammunition must be visually inspected prior to firing. Both must be clean and free of foreign debris.

d. The weapon must undergo magnetic particle inspection prior to each demonstration.

e. Firing from the shoulder, bipod, tripod, or from a bench rest is authorized.

f. Shooters must be warned that it is possible for the weapon to fire a round after the trigger is released and that the weapon must remain pointed down range after trigger released.

g. A copy of this memorandum must be provided to the Commander of the unit to which participating Soldiers are assigned. The Commander is responsible for ensuring that the Soldiers are qualified to support the User Evaluations and Demonstrations. The LSAT demonstrating organization and/or test sponsor is responsible for ensuring the Soldiers are properly trained regarding the LSAT being used and are aware of the guidance contained in this Safety Release.

TEAE-MGT

SUBJECT: Amendment 6 to Safety Release for the Lightweight Small Arms Technology (LSAT) Demonstrator Provided for User Evaluations, Training, and Demonstrations

h. The organization hosting the user evaluations, training, or demonstrations must put into practice a risk mitigation management process for the implementation of the warnings, cautions, procedures, and mitigations addressed in this Safety Release and referenced documentation.

i. This headquarters must be immediately notified of any safety anomalies regarding Soldier use of the LSAT during User Evaluations and Demonstrations.

j. This document is not to be used to accomplish fielding, which requires a Safety Confirmation. This Safety Release does not authorize the use of the LSAT in any OCONUS area where hostilities are present.

6. The AEC points of contact are Mr. Bernie Sokolis, TEAE-MGT, bernard.a.sokolis.civ@mail.mil, DSN 848-9883, commercial (443) 861-9883, and Mr. Bob Duffy, TEAE-MGT, francis.r.duffy9.civ@mail.mil, DSN 848-9884 or commercial (443) 861-9884.

FOR THE DIRECTOR:

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Maneuver Ground Evaluation Directorate

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TEAE-MS

30 October 2013

MEMORANDUM FOR Headquarters, Maneuver Center of Excellence (MCoE), COL Daniel Barnett, ATZB-CIS, 1 Karker Street, Fort Benning, GA 31905-5000

SUBJECT: Safety Release for the M110 Carbine Conversion Kit (M110K1) Provided for Live Fire Demonstrations

1. References.

- a. MIL-STD-882E, Department of Defense, Standard Practice, System Safety, 11 May 12.
- b. DoDI 5000.02, Operation of the Defense Acquisition System, 8 Dec 08.
- c. Memorandum, Naval Surface Warfare Center (NSWC), Crane Division, 19 Jan 12, subject: Request for Safety Recommendation For Fielding Decision of the M110 Short Upper Receiver Assembly.
- d. Memorandum, Naval Sea Systems Command, 25 Jan 12, subject: Weapon System Explosives Safety Review Board Concurrence With Initial Operational Capability For the 7.62mm M110 Semi-Automatic Sniper System With Short Upper Receiver Assembly.
- e. Test Plan, US Army Aberdeen Test Center, Jul 13, title: Detailed Test Plan Dismounted Non Network Enabled (DNNE) Limited Objective Experiment (LOE).
- f. Document, Knight's Armament, undated, title: United States Marine Corps Special Operations Command (MARSOC) M110 Carbine Conversion Kit: P/N 30246.
- g. Memorandum, US Army Developmental Test Command, 8 Aug 06, subject: Safety Confirmation for the XM110 Semi-Automatic Sniper System in Support of Materiel Release and Fielding.
- h. Email, NSWC, Crane Division, Mr. Marc Bever, subject: M110 Semi-Automatic Sniper System With Short Upper Receiver Assembly.

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(Test and Evaluation), Oct 13

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TEAE-MS

SUBJECT: Safety Release for the M110 Carbine Conversion Kit (M110K1) Provided for Live Fire Demonstrations

2. Purpose. This US Army Evaluation Center (AEC) Safety Release for the M110 Carbine Conversion Kit, hereafter referred to as the M110K1, is provided for Live Fire Demonstrations. The demonstrations will be conducted by the Maneuver Center of Excellence (MCoE) at Fort Benning, GA. This Safety Release will expire one year from the date of issue. A safety review of the referenced documentation has been conducted and it has been determined that the M110K1 may be operated by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and the Operator's Manual are followed.

3. System Description.

a. Standard Weapon. The M110 Semi-Automatic Sniper System (SASS) is a man portable, semi-automatic, direct line-of-sight weapon system with a 10-round magazine capacity, suppressor, and attached optics/electro-optics. The M110 SASS is designed to augment the single bolt-action M24 Sniper Weapon System (SWS). The M110 SASS is optimized to fire M118LR, 7.62x51mm ammunition and other North Atlantic Treaty Organization (NATO) standard 7.62x 51mm ammunition as well as the M993 armor piercing round. The M110 SASS is manufactured by the Knight's Armament Company.

b. Modified Weapon. The M110K1 consists of a short upper receiver assembly with suppressor, an adjustable buttstock, and carrying case. The conversion kit is intended to reduce the overall length of the M110 SASS to allow operators greater maneuverability in close quarters. The conversion kit is a requirement for US Marine Corps Special Operations Command (MARSOC) and Naval Special Operations Command (NAVSOC) elements of US Special Operations Command (USSOCOM). The National Stock Number is 1005-01-601-1835. The lower receiver is unchanged from the M110 SASS. The conversion kit is manufactured by Knight's Armament Company.

4. Discussion.

a. This AEC Safety Release is derived through Test Manager analysis of the results of testing conducted by US Army Aberdeen Test Center (ATC) and a review of the referenced documentation. Available information was evaluated following safety guidance provided in MIL-STD-882E (reference 1a).

b. The live fire demonstrations are planned for the Commanding General and other Soldier live fire exercises throughout the year at the MCoE, Fort Benning, GA. The demonstrations are designed to provide firsthand knowledge of the weapons and weapons accessories.

TEAE-MS

SUBJECT: Safety Release for the M110 Carbine Conversion Kit (M110K1) Provided for Live Fire Demonstrations

c. The M110K1 received the Weapon System Explosives Safety Review Board (WSESRB) concurrence with the initial operational capability for the M110K1 (reference 1d). The weapon is currently utilized by the MARSOC.

d. The M110K1 was tested by ATC to support the Dismounted Non Network Enabled Limited Objective Experiment at Fort Benning. ATC conducted the following subtests: Initial Inspection, Dispersion, High Temperature (125°F), Noise, Flash, Recoil, and Final Inspection. All testing was conducted with the M118LR ammunition.

e. Recoil Energy. The average recoil energy was calculated at 9.1 foot-pounds (ft-lbs) without the suppressor and 7.8 ft-lbs with the suppressor. There is no recommended limit in rounds per day per Soldier.

f. Soldiers must inspect the weapon system periodically to include the suppressor for any signs of cracks or loose fit. Soldiers must wear appropriate Personal Protective Equipment when firing the weapon system, to include eye protection.

g. Identified safety hazards are summarized below:

(1) Impulse Noise. Sound pressure levels were measured by ATC. The peak decibel (dB) value measured near the shooter's ear firing unsuppressed was 163.7 dB and 147.8 dB firing suppressed. Exposure to the impulse noise generated by the weapon and cartridge can result in auditory injury to unprotected personnel resulting in permanent partial disability. Single hearing protection must be worn within 45 meters of the firing position when firing unsuppressed and 5 meters when firing suppressed. Wearing single hearing protection mitigates the risk of auditory injury.

(2) Chemical Substances (Weapons Combustion Products) Hazard. The following typical combustion products are expected to be produced when firing the weapon: ammonia (NH₃), carbon dioxide (CO₂), carbon monoxide (CO), hydrogen cyanide (HCN), nitric oxide (NO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). Excessive combustion products can produce respiratory injury to exposed personnel. Firing must be conducted in a well-ventilated environment to mitigate the risk of toxic fumes exposure.

5. Conclusions. This AEC Safety Release for the M110K1 is provided for Live Fire Demonstrations. A safety review of the referenced documentation was conducted IAW MIL-STD-882E (reference 1a). A safety review of the referenced documentation was conducted and it has been concluded that the M110K1, as described in this document, can be operated by trained Soldiers provided the warnings, cautions, and procedures addressed in this Safety Release and in the Operator's Manual are implemented.

TEAE-MS

SUBJECT: Safety Release for the M110 Carbine Conversion Kit (M110K1) Provided for Live Fire Demonstrations

a. All Soldiers participating in the demonstrations must be qualified for their assigned duties and must complete training for the M110K1. Training must include a review of all warnings, cautions, and limitations identified in this Safety Release and in the Operator's Manual.

b. Mitigations that must be implemented to assist in risk management are as follows:

(1) Soldiers must wear single hearing protection within 45 meters and 5 meters of the firing position when firing unsuppressed and suppressed, respectively.

(2) Soldiers must be aware of the toxic fumes build-up that can occur when firing from an enclosed position. Soldiers should fire in a well-ventilated environment.

(3) Soldiers must inspect the weapon system periodically to include the suppressor for any signs of cracks or loose fit.

(4) Soldiers must wear appropriate Personal Protective Equipment when firing the weapon system, to include eye protection.

b. Technical/operational limitations and precautions addressed in paragraph 4 are to be implemented as indicated.

c. A copy of this memorandum must be provided to the Commander of the unit to which participating Soldiers are assigned. The Commander is responsible for ensuring that the Soldiers are qualified to support the demonstrations. This memorandum provides an assessment of the system safety hazards associated with the use of the M110K1 during the demonstrations. This Safety Release is provided for the composite risk management process and risk acceptance by the Commander of the unit participating in the demonstrations. The MCoE is responsible for ensuring the Soldiers are properly trained regarding the M110K1 being used and are aware of the guidance contained in this Safety Release.

d. The MCoE must put into practice a risk mitigation management process for the implementation of the warnings, cautions, and procedures addressed in this Safety Release and in the Operator's Manual.

e. This headquarters must be immediately notified of any safety anomalies regarding Soldiers use of the M110K1 during the demonstrations.

TEAE-MS

SUBJECT: Safety Release for the M110 Carbine Conversion Kit (M110K1) Provided for Live Fire Demonstrations

f. This document is not to be used to accomplish fielding, which requires a Safety Confirmation. This Safety Release does not authorize the use of the M110K1 in any OCONUS area where hostilities are present.

6. The AEC point of contact is Mr. Bob Duffy, TEAE-SS-D, francis.r.duffy9.civ@mail.mil, DSN 848.9884, commercial 443.861.9884.

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REPLY TO
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ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY, NEW JERSEY 07806-5000

RDAR-MEM-A

24 Feb 2014

MEMORANDUM FOR RECORD

SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

1. (U) INTRODUCTION

(U) The Aeroballistics Division of ARDEC, Picatinny Arsenal, NJ, was tasked to conduct a Surface Danger Zone (SDZ) analysis for firing the 120mm, High Explosive, Guided, XM395, Accelerated Precision Mortar Initiative (APMI). The firings will be conducted at Fort Benning as part of the Maneuver Center of Excellence Live Fire Demonstration (MCoE LFX Demo). Considering that the firings will be conducted from a single firing point to a single target and at a given propellant charge, a deviation from the Urgent Materiel Release (UMR) SDZ was requested to reduce the safety fan's real estate requirements. The SDZ generated for this demonstration applied the same assumptions and approach and used the same aerodynamic characteristics as those used to establish the UMR SDZs. The final SDZ product defines the area needed for the probability of a hazardous fragment escapement to be less than one in one million (1:1,000,000).

2. (U) XM395 DEMONSTRATION

(U) The PM Guided Precision Munitions and Mortar Systems (PM GPM2S) New Equipment Training Team (NETT) will be training members of the 2/29th IN BN at Fort Benning in support of the MCoE LFX Demo. The demonstration is being held to showcase the technological capabilities and advancements being developed to satisfy/mitigate current and forecast lethality gaps that the U.S. military faces. Among the many systems being included in the LFX, the XM395 GPS guided mortar will be fired. The M120A1 120mm mortar system will be transported and emplaced by the Ranger Fire Support System (RFSS) then the XM395 will be unpacked, set by the XM701 Precision Lightweight Universal Mortar Setter System (PLUMSS), and fired to engage targets down range to demonstrate this organic precision capability. Since the XM395 and XM701 are only Urgent Materiel Releases, Soldiers have not been previously trained on these systems.



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RDAR-MEM-A

SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

3. (U) SDZ ANALYSIS

(U) The SDZ analysis used the same approach as the UMR SDZs generated by Alliant Techsystems (ATK). The analysis was conducted in two parts. The first established the dispersion area and the second developed the maneuver authority.

(U) Based on the firing and target points provided by Fort Benning (see Table (1)), a firing solution was generated to determine the nominal launch conditions using GTRAJ. GTRAJ (General Trajectory Program) is a Firing Tables developed interactive trajectory simulation program that uses modified point mass equations of motion to simulate the trajectory of a projectile in flight. The program uses a database to obtain aerodynamics and ballistics for various projectile types. A GTRAJ model for the XM395 was previously established from proving ground testing. Based on the data in table (1), the slant range to target is 1,472 meters. For propellant charge 2, the GTRAJ firing solution is a quadrant elevation (QE) of 1,393 mils based on a nominal muzzle velocity of 216 meters/sec.

(U) Table 1. Fort Benning Data Points

(Unclassified)

Points	Military Grid Reference System (MGRS)
Firing Position	16S FA 94860 81716
Target Position	16S FA 95251 80297

(Unclassified)

(U) To develop the SDZ for Fort Benning, site specific conditions were applied. Firing altitude was taken at 128 meters or 420 feet above Mean Sea Level (MSL). To bracket the meteorological (MET) conditions, the SDZ analysis modeled a cold and hot atmosphere with air temperature assumed at 0 and 120 degrees Fahrenheit, respectively. The dispersion area was generated for each atmosphere by running a Monte Carlo analysis. A Monte Carlo analysis is a problem solving technique used to approximate the probability of certain outcomes by running multiple trials or simulations using stochastic variables. For this analysis, the number of Monte Carlo trials was set at 1,000 trajectories. The stochastic variables are the error sources that affect the nominal trajectory flight path. The delivery accuracy error budget variables are listed in table (2) along with their 1-sigma or standard deviation values.

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SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

accuracy error budget variables are listed in table (2) along with their 1-sigma or standard deviation values.

(U) Table 2. Delivery Accuracy Error Budget

(Unclassified)

Error Sources	Cold (1-sigma)	Hot (1-sigma)
Muzzle Velocity (m/s)	2.5	2.5
QE (mils)	3.0	3.0
Azimuth (mils)	4.5	4.5
Drag Form Factor (%)	1.0	1.0
Air Temperature FF (%)	0.6	0.4
Air Density FF (%)	0.7	0.4
Range Wind (m/s)	3.6	4.9
Cross Wind (m/s)	3.6	4.9

(Unclassified)

(U) For each set of dispersion impacts resulting from the Monte Carlo analysis, the mean and standard deviation were computed for both range and deflection. These standard deviations were then used to generate a 1:1,000,000 dispersion box by applying 4.9 standard deviations (+) and (-) from the mean point of impact.

(U) The next part of the analysis considered the XM395 maneuver authority. The maximum diversion was modeled by assuming that the canards are held in a fixed orientation. The orientation was sampled in all directions and the start of the maneuver was modeled from the earliest possible guidance and control time which is 3.0 seconds prior to time-of-apogee. Based on all impacts, a maximum maneuver radius of 105 meters was determined for this specific firing scenario. This distance was added to the 1:1,000,000 dispersion boxes in both range and deflection and produced the inner data points of the SDZ as shown in Figure (1).

(U) The final hazard considered for the XM395 120mm HE mortar firing was fragmentation. For this hazard, the U.S. Army Range Safety Pamphlet provides a recommended fragmentation distance of 600 meters in Chapter 9.¹ The fragmentation distance was added to the inner SDZ points to generate the outer SDZ data points as shown in figure (1).

¹ Department of Army Pamphlet 385-63, Range Safety, DA PAM 385-63, 30 January 2012

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SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

4. (U) RESULTS

(U) The SDZ in figure (1) was situated at Fort Benning Red Cloud Range. The line of fire to target and MGRS firing point were referenced to generate the point data as provided in figure (1). The general SDZ template is shown in figure (2). The blue shaped area in figure (2) accounts for dispersion and maneuver authority. With the addition of the fragmentation hazard, Areas A and B, the maximum range of the SDZ is 2,450 meters and the overall maximum width is 1,700 meters. Based on the assumed firing conditions of the SDZ analysis, firing restrictions are included in the notes section of figure (2).

5. (U) SUMMARY

(U) The Aeroballistics Division of ARDEC conducted a Surface Danger Zone analysis for firing the 120mm, High Explosive, Guided, XM395, Accelerated Precision Mortar Initiative during the upcoming Maneuver Center of Excellence Live Fire Demonstration at Fort Benning. The SDZ considers dispersion, adverse MET conditions, the XM395 maneuver authority, and fragmentation. The calculated risk of a hazardous fragment escaping the SDZ is one in one million. This risk level is consistent with the guidelines stated in reference 1.

(U) As a result of the specific inputs used in the analysis, the SDZ templates generated only hold for the firing restrictions defined in figure (2). Any deviations from the parameters and conditions used to calculate the SDZ presented in this report would nullify the results. The SDZs cannot be applied to any situation that falls outside the restrictions stated without ARDEC approval.

6. (U) CONCURRENCE

The undersigned has generated the attached SDZ to use for Range Safety



Mr. Ernesto Vazquez
Aeroballistics Division
Munitions Systems & Technology Directorate, METC
SDZ Originator

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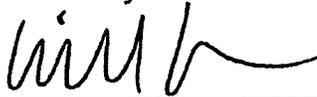
RDAR-MEM-A

SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

The undersigned have reviewed the attached SDZ and endorse its use for Range Safety.



Mr. John C. Grau
Competency Manager, Aeroballistics Division
Munitions Systems & Technology Directorate, METC



William McDonough
LTC, IN
Product Manager, GPM2S

The undersigned has reviewed the attached SDZ and accepts its approach and findings for Range Safety.



Mr. John Reed
RDECOM, ARDEC System Safety Manager

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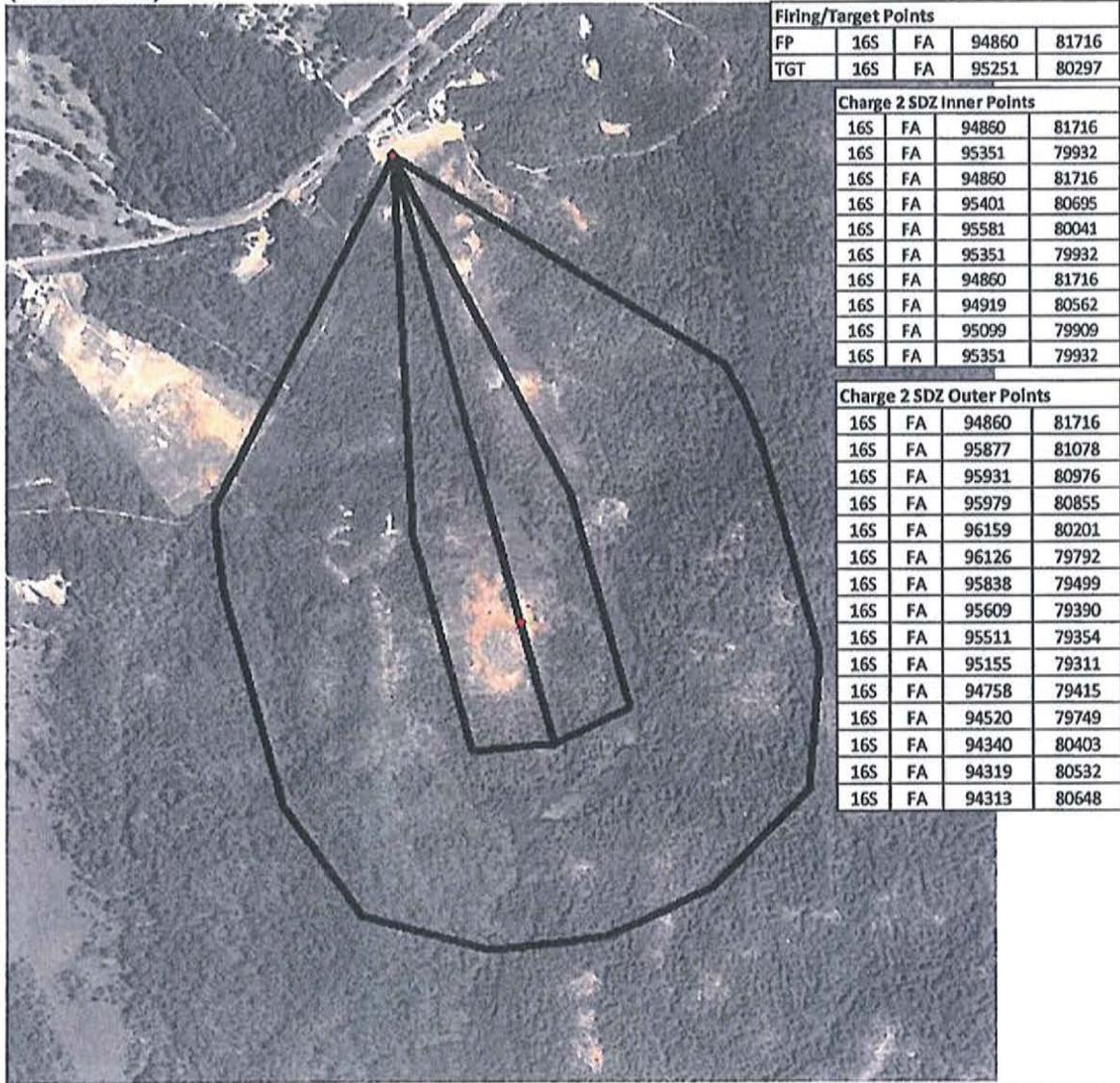
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SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

(U) Figure 1. Surface Danger Zone for XM395 Firings at Fort Benning, Red Cloud Range

(Unclassified)



(Unclassified)

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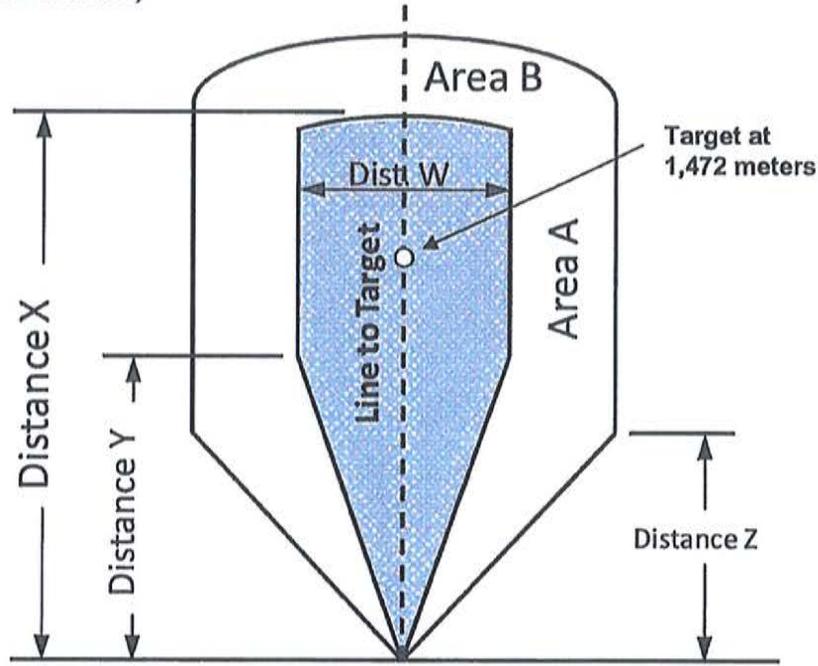
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SUBJECT: (U) Surface Danger Zone Analysis for Fort Benning MCoE LFX Demonstration of XM395 Guided Mortar

(U) Figure 2. Surface Danger Zone Template for Fort Benning XM395 Firings

(Unclassified)



Distances in meters.

Distance X	Distance Y	Distance Z	Distance W	Area A	Area B
1,850	1,130	885	500	600	600

(Unclassified)

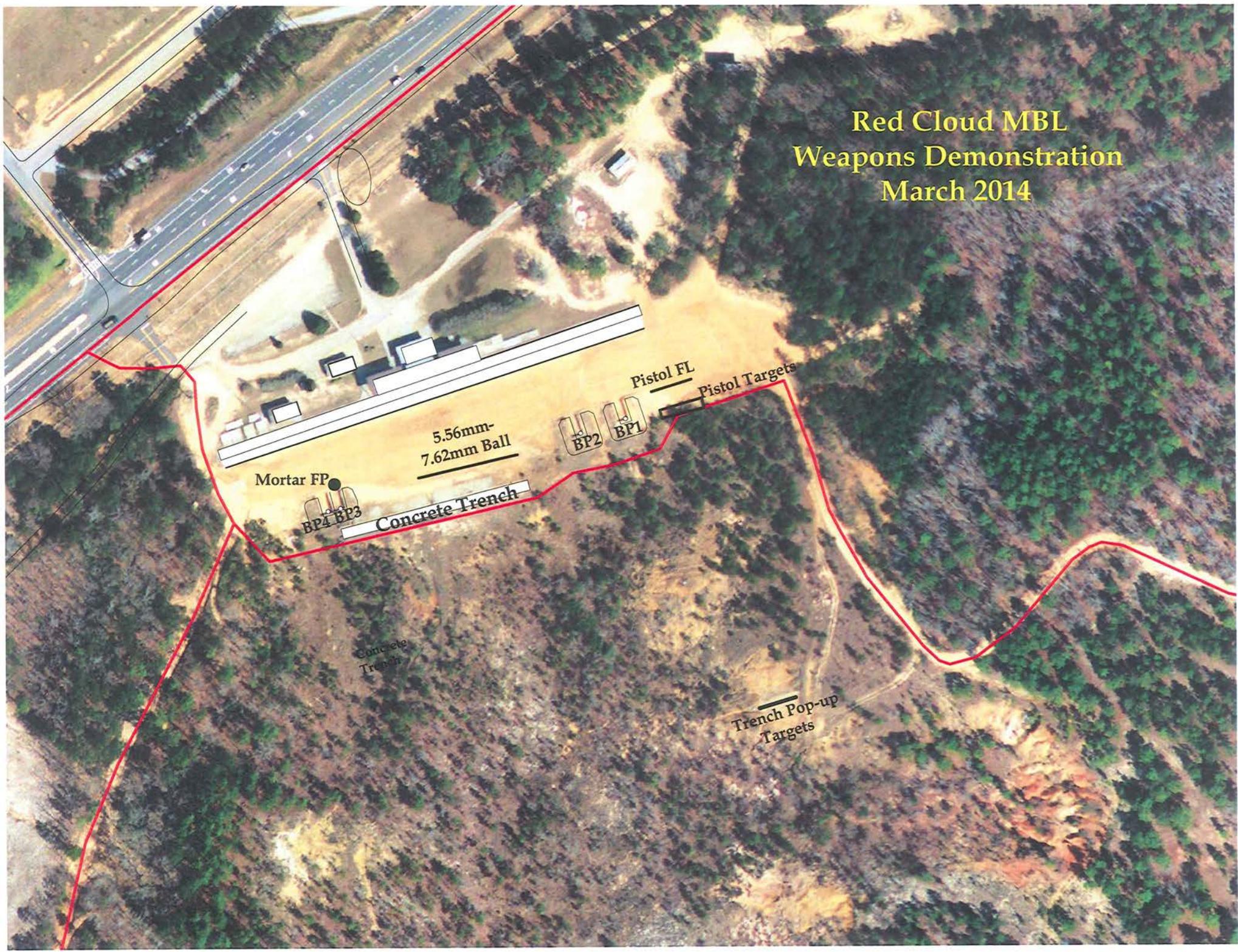
Notes:

1. SDZ holds for a target range of 1,492 meters and a high angle firing solution for propellant charge 2.
2. Maximum winds of 15 m/s or 30 knots.
3. Firing air temperature between 0 and 120 deg. Fahr.
4. Vertical hazard is 2,130 meters MSL.

DISTRIBUTION STATEMENT D. Distribution authorized to DoD Components and U.S. DoD Contractors only; Critical Technology; 24 Feb 2014. Other requests shall be referred to SFAE-AMO-CAS-GMS, Bldg. 172, Picatinny Arsenal, NJ 07806-5000.

WARNING: This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C. Sec 2751, ET SEQ). Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DOD Directive 5230.25.

Red Cloud MBL
Weapons Demonstration
March 2014



Mortar FP

5.56mm-
7.62mm Ball

Pistol FL

Pistol Targets

BP2 BP1

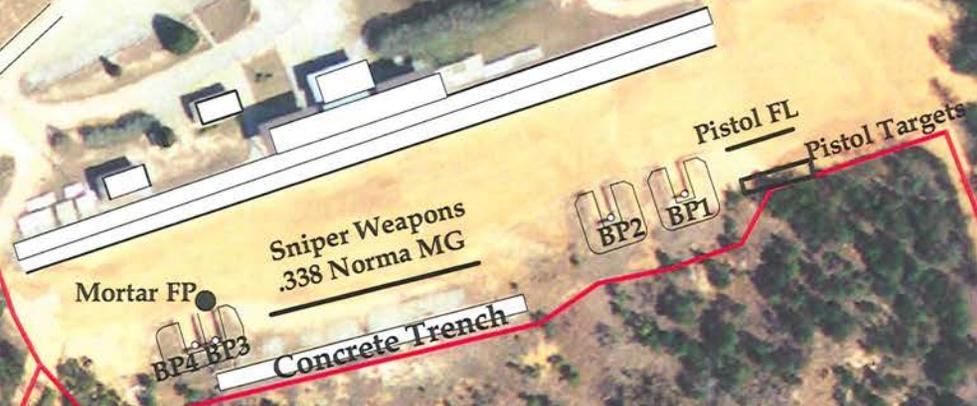
BP4 BP3

Concrete Trench

Concrete
Trench

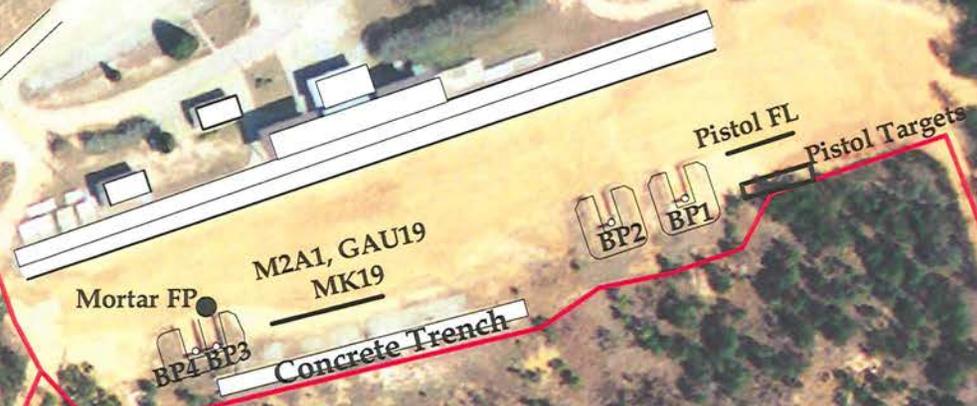
Trench Pop-up
Targets

Red Cloud MBL
Weapons Demonstration
March 2014



Trench Pop-up
Targets

Red Cloud MBL
Weapons Demonstration
March 2014



Trench Pop-up
Targets

Red Cloud Range

A38

Trench Pop-up TARGETS

TARGETS 1-4

TARGETS 5-7

TARGETS 8-11

WELLS HILL TARGETS 12-22

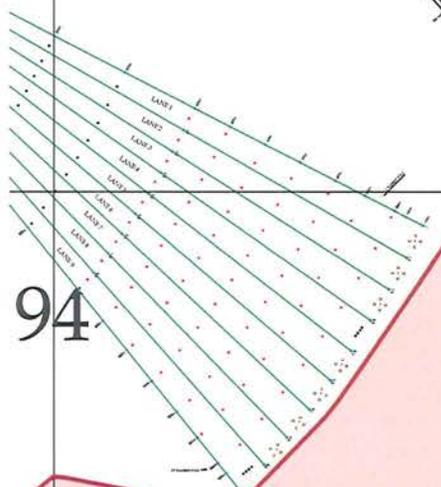
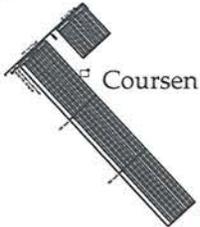
Coursen Range

Coursen Range

Dixie Rd

Tank Trail

TANK TRAIL



94

95

96

8

01

Red Cloud Range MBL Weapons Demonstration (Log # 9-10-13) Roadblock/guard List, 17 JAN 2014

BLOCK	GRID	LOCATION	TYPE
A-1	FA 911 792	Across firebreak 275m down Fiske Range at right end of old KD berm. Permanently closed.	Cable
A-2	FA 910 783	Off Sightseeing Road on unnamed trail opposite of entrance to LRC.	Gate
A-4	FA 925 766	Off Sunshine Road 1,200m W of entrance to Grandstaff Range.	Gate
A-5	FA 936 762	Across entrance road to Grandstaff Range, 10m N of Sunshine Road.	Gate
A-6	FA 939 763	Off Sunshine Road 150m W of Oswichee Creek. Permanently closed.	Cable/ Berm
A-8	FA 968 740	Across unnamed trail 30m N of Sunshine Road and 800m N-W of entrance to Griswold Range.	Gate
A-10	GA 018 730	Across entrance road to Flint Range. 50m N of Sunshine Road.	Gate
A-11	GA 019 731	Across Lumpkin Trail 30m N of its intersection with Sunshine Road.	Gate
A-11A	GA 032 729	Rd guard pos # 2 for Garnsey Rng Obj 'E' (intersection Jamestown/Sunshine Rd's).	Rd Grd #2
A-12	GA 033 742	Across Garnsey Road 50m W of its intersection with Jamestown Road.	Gate
A-12A	GA 029 744	Across Garnsey Road 400m W of A-12 Roadblock.	Gate
A-12B	GA 028 741	Across trail 150m S-W of A-12A Roadblock. 50m S-W of Garnsey Range Bldg.	Gate
A-12C	GA 036 746	Road guard position # 3 for Garnsey Rng Objective 'E' (Jamestown at Lightning Rd).	Rd Grd #3
A-13	FA 936 762	Across Sunshine Road 10m E of the entrance to Grandstaff Range (Road guard location).	Gate
A-14	FA 974 733	Across Sunshine Road 10m W of the entrance to Griswold Range. (Road guard location).	Gate
A-15	GA 021 799	Across entrance road to Buchanan Range.	Gate
A-15A	GA 021 798	Across Good Luck Rd. 20m W of Jamestown	Gate
A-15B	GA 022 796	Road guard position # 1 (for Garnsey Rng Objective 'E') on Jamestown Road 150m S of Goodluck Road.	Rd Grd #1
A-18	FA 993 828	Across Buckeye Rd 225m S of its intersection with 1st Div Rd. and 50m E of entrance to Duke Range.	Gate
A-19	FA 973 825	Across entrance road to Patton Range 400m S of its intersection with 1st Div Rd.	Gate
A-20	FA 974 827	Across entrance to Dianda Range, 140m N of A-19 gate (entrance to Patton Range).	Gate
A-22	GA 015 817	Across unnamed trail 175m N of Krilling Range and 10m W of Jamestown Road.	Gate
A23	FA 983 756	Across Lumpkin Trail 200m E of Griswold Range.	Gate
A-23A	GA 005 748	Across Lumpkin trail 50m N-W of Objective 'E' on Garnsey Range.	Gate
A-23B	GA 005 747	Across un-named trail 50m S of A-23A gate on W side of Lumpkin trail.	Gate
A-24	GA 015 811	Across Un-named trail, 10m inside S entrance gate to Krilling Range.	Gate
A-25	GA 016 789	Across fire break 10m W of its intersection with Goodluck Road.	Gate
A-26	GA 013 798	Across firebreak on Left side of Buchanan Range 50 meters S of chow area.	Cable
A-27	GA 018 805	Across unnamed trl 175m N of intersection of Hourglass and Jamestown Roads.	Gate

BLOCK	GRID	LOCATION	TYPE
A-28	GA 012 774	20 meters W of Yankee road on south side of Galloway Range.	Gate
A-28A	GA 011 776	30 meters S of Galloway Range Tower.	Gate
A-30	GA 026 758	Across fire break leading to Garnsey Range. 120m S-W of Brann Flat Range.	Gate
A-30A	GA 027 758	Across trail leading to Garnsey Range 50m E of A-30 Roadblock.	Gate
A-31	GA 020 745	Across fire break leading to Brann.	Cable
A-32	FA 989 724	Across entrance road to Kunzig Range.	Gate
A-33	FA 974 734	Across entrance road to Griswold Range.	Gate
A-33A	FA 979 739	150m N-W of Target Systems bldg on trail leading to MTC on Griswold Range.	Gate
A-33B	FA 982 739	20m N-E of Target Sys bldg on trail running on west side of bldg on Griswold Range.	Gate
A-34	FA 947 760	Across entrance to Minter Hill 700m E of Oswichee Creek.	Gate
A-38	FA 952 816	Across fire break 200m down range of firing line on Red Cloud Range on Left side of range.	Cable
A-39	FA 956 822	Across unnamed trail 200m S of bldgs on Left side of Buckner Range.	Cable
A-40	FA 967 823	Across fire break 100m down range on the left side of Pierce Range.	Gate
A-40A	FA 965 824	Across fire break on the right side of Pierce Range 10m E of the entrance road.	Gate
A-41	FA 972 820	Across fire break located on the rightside of the firing line on Patton Range.	Cable
A-42	FA 978 820	Across fire break located on the left side of the firing line on Patton Range.	Cable
A-43	FA 983 823	Across fire break located on the right side of Booker Range Firing Line	Cable
A-44	FA 986 823	Across fire break 100m E. of the 25m flat range on Booker Range	Gate
A-45	FA 990 827	Across fire break located 40m W of the right side of Duke Range Firing Line	Gate
A-45A	FA 991 829	Across Booker Breach site entrance road 200m W of Duke Rng entrance gate.	Gate
A-46	FA 984 832	Across unnamed trail 110m W of the intersection of 1st Div Rd and Ivy Rd.	Gate
A-47	FA 990 833	Across unnamed trail 500m W of the intersection with 1st Div & Buckeye Rd's.	Gate
A-48	FA 995 827	Across fire break located on the right side of the firing line on Porter Range.	Cable
A-49	FA 998 827	Across fire break located on the left side of the firing line on Porter Range.	Cable
A-50	GA 000 830	Across unnamed trail 200m W. of entrance to Maertens Range.	Gate
A-51	GA 031 791	Barrier on Furman Rd.	Barrier 1
A-52	GA 034 776	Barrier on Yankee Rd.	Barrier 2
A-53	GA 035 776	Gate to Cole Range.	Barrier 3
A-54	GA 046 749	Barrier off Lightning Rd on unnamed trail.	Barrier 5
A-55	GA 057 759	Barrier off Lightning Rd on unnamed trail.	Barrier 4

NOTE: Roadguards will be placed at A13 roadblock blocking traffic travelling East on Sunshine Road and at A14 roadblock blocking traffic travelling North-West on Sunshine Road. Guards will maintain communications with OIC.

COMPOSITE RISK MANAGEMENT WORKSHEET

For use of this form, see FM 5-19; the proponent agency is TRADOC.

1. MSN/TASK Commanding General's Live Fire Demonstration	2a. DTG BEGIN 030700Mar14	2b. DTG END 062000Mar14	3. DATE PREPARED (YYYYMMDD) 20131220
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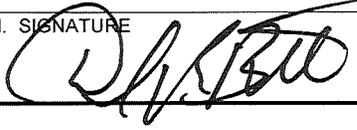
4. PREPARED BY		
a. LAST NAME Coule	b. RANK CPT	c. POSITION Firepower Team Cheif

5. SUBTASK	6. HAZARDS	7. INITIAL RISK LEVEL	8. CONTROLS	9. RESIDUAL RISK LEVEL	10. HOW TO IMPLEMENT	11. HOW TO SUPERVISE (WHO)	12. WAS CONTROL EFFEC-TIVE?
Range Operation	Range/ General Situational Awareness	M	The OIC will: 1. Read and review the risk assessment 2. Conduct a daily risk assessment in consultation with training	L	Give a safety brief to all personnel on the range and enforce the standards with direct supervision.	OIC/RSO/ All safety personnel.	
			3. Identify qualified combat lifesavers, conduct an inventory of the combat lifesaver bag.				
			4. Identify an evacuation vehicle and have a 9 line medevac request posted with emergency numbers. Ensure all personnel know the evacuation plan and procedures.				
			5. Identify high risk personnel prior to demonstration execution. Identify personnel with cold or heat injuries.				
			6. Ensure all personnel on site understand the procedures for inclement weather. 7. Brief all personnel on site on environment and wildlife policies.				
			8. Maintain radio communication with Range Control Operation/ Personnel.				

Additional space for entries in Items 5 through 11 is provided on Page 2.

13. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (Check one)

LOW
 MODERATE
 HIGH
 EXTREMELY HIGH

14. RISK DECISION AUTHORITY			
a. LAST NAME BARNETT, DANIEL R.	b. RANK COL	c. DUTY POSITION DIRECTOR, SOLDIER DIVISION	d. SIGNATURE 

ITEMS 5 THROUGH 12 CONTINUED:

5. SUBTASK	6. HAZARDS	7. INITIAL RISK LEVEL	8. CONTROLS	9. RESIDUAL RISK LEVEL	10. HOW TO IMPLEMENT	11. HOW TO SUPERVISE (WHO)	12. WAS CONTROL EFFEC-TIVE?
			9. Ensure that the standard safety brief is read to all personnel involved in the demonstration pertaining to the layout and operation procedures of the range.				
New Equipment Training (NET) and familiarization	Accidental/Negligent discharge of weapons or equipment malfunctions during training.	H	1. Safety briefing will address the possibility of discharging of weapons and equipment malfunctions.	M	Give a safety briefing to all personnel on the range and enforce the standards with direct supervision.	OIC/RSO/All range safety personnel.	
			2. Range OIC will designate qualified personnel to ensure all weapons are cleared prior to occupying and leaving the firing line/range.				
			3. The vendor will not handle weapons or equipment unless told by a range safety personnel.				
			4. In the event of a discharge or equipment malfunction, a self imposed check fire will be given to assess the situation.				
			5. Vendors that discharge their weapon will be cleared from the fire line and assess the situation with their equipment				
			6. Anyone injured during a weapon discharge or equipment malfunction will initially be evaluated by the combat lifesaver or medical personnel; evacuated ASAP; Notify Range Control.				
	Use of non-standard weapons/ equipment and ammunition	H	1. Scenario and range fan have been approved by Range Control. 2. MBL will maintain a roster and provide control over the vendor firing.	M	1. Enforce the training/ equipment scenario and range fan provided and approved by Range Control.	OIC/RSO/All Range Safety Personnel and Individual	
	Heat Injury	M	1. Personnel will be acclimatized in accordance with MCOE Regulation 350-19.	L	All personnel will receive a briefing on hot weather injuries, heat categories and treatment.	Range OIC/ RSO and all personnel involved with the training/ experiment	
			2. Range OIC/ RSO will have designated water points for hydration during the training/ experiment.				

ITEMS 5 THROUGH 12 CONTINUED:

5. SUBTASK	6. HAZARDS	7. INITIAL RISK LEVEL	8. CONTROLS	9. RESIDUAL RISK LEVEL	10. HOW TO IMPLEMENT	11. HOW TO SUPERVISE (WHO)	12. WAS CONTROL EFFECTIVE?
			3 Hourly halts are taken for water intake and rest. During heat category I and II, the break will be no less than 10 minutes. Heat category III the break will be no less than 15 minutes.				
			4. All training/ experimental personnel will carry at least two quarts of water. Experiment staff will ensure training personnel drink the following amounts of water as a minimum:				
			Heat category I: 1 1/2 quart per hour Heat category II: 1 1/2 quart per hour Heat category III: 3/4 quart per hour Heat category IV: 3/4 quart per hour				
			Heat category V: 1 quart per hour Daily fluid intake should not exceed 12 quarts per hour.				
			5. Personnel with a previous heat injury will be identified with white tape prior to the training/ experiment and closely monitored.				
			6. At least one combat lifesaver will be identified to support the training/ experiment and monitored the wet bulb/ weather station at all times.				
	Fratricide/ Suicide	H	1. Ensure fratricide and inflicting bodily harm to self or others are covered in the safety briefing. 2. All range safety personnel will monitor the handling of weapons and ammunition.	M			
			3. Safety personnel will enforce that all weapons are cleared, selector on safe, and pointed in a safe direction .	L	Range OIC and RSO will enforce standards IA with MCoE Regulation 350-19 and range packet	OIC/RSO/All Range Safety Personnel	
			4. Only the correct amount of ammo will be issued for each firing rotation/order. 5. All live ammunition will be accounted for by ammo handler.				
			6. All firing will be conducted from a fixed/stationary firing position.				

ITEMS 5 THROUGH 12 CONTINUED:

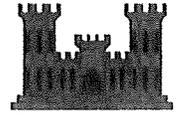
5. SUBTASK	6. HAZARDS	7. INITIAL RISK LEVEL	8. CONTROLS	9. RESIDUAL RISK LEVEL	10. HOW TO IMPLEMENT	11. HOW TO SUPERVISE (WHO)	12. WAS CONTROL EFFEC-TIVE?
	Loss of hearing or eyesight	M	1. brief everyone on the range the danger of low hanging branches 2. Ensure extra hearing protection is available 3. Ensure everyone wears hearing protection	L	Enforce Standards	OIC/RSO/All Range Safety Personnel	
			3. Safety personnel will enforce that all weapons are cleared, selector on safe, and pointed in a safe direction .	L	Range OIC and RSO will enforce stadnards IA W MCoE Regulation 350-19 and range packet	OIC/RSO/All Range Safety Personnel	
			4. Only the correct amount of ammo will be issued for each firing rotation/order. 5. All live ammunition will be accounted for by ammo handler.				
			6. All firing will be conducted from a fixed/stationary firing position.				
	Loss of hearing or eyesight	M	1. brief everyone on the range the danger of low hanging branches 2. Ensure extra hearing protection is available 3. Ensure everyone wears hearing protection	L	Enforce Standards	OIC/RSO/All Range Safety Personnel	
	Inclement Weather (Storms, lightning, tornados)	M	RSO/OIC will: 1. Suspend all range activities during electical storms	L	Enforce Standards	OIC/RSO/All Range Safety Personnel	
			2. Brief all pericipants on the range of electrical storm plans and point out a location of evacuation and maintain accountiability. Conduct AM weather brief				
			3. Ensure everyone understands thier individual responseability in case of an electrical storm. 4. Treat all casualties and evacuate to nearest medical clinic				
	Wildlife and insects bits	M	1. During the safety brief, inform all personnel of the various types of wildlife/ insects and ensure personnel do not harass or handle the wildlife.	L	Personnel will be briefed on wildlife and insects bites and bee stings.	Range OIC and RSO	
			2. Identify all personnel with allergies or allergic to insect bites and bee stings prior to training/ experiment.				

ITEMS 5 THROUGH 12 CONTINUED:

5. SUBTASK	6. HAZARDS	7. INITIAL RISK LEVEL	8. CONTROLS	9. RESIDUAL RISK LEVEL	10. HOW TO IMPLEMENT	11. HOW TO SUPERVISE (WHO)	12. WAS CONTROL EFFECTIVE?
			3. Ensure all personnel know the location of the first aid bag and designate a range safety personnel for vehicle medical evacuation.				
			4. Ensure first aid kits are available and the location is included in the range safety briefing.				
			5. Ensure that the aid bag is present and all equipment is included.				
			6. Designate one Range Safety personnel to control medical evacuation vehicle.				
	Minor bodily injury. (cut or fall)	M	RSO/OIC will brief everyone on tripping hazards(rocks, branches ect.)	L	Enforce Standards	OIC/RSO/All Range Safety Personnel	
	Ammo point/ammo detail personnel injury while lifting ammunition or equipment	M	1. Range OIC/RSO will identify the hazard during the safety briefing g. Personal will work in groups and use proper lifting techniques.	L	Enforce Standards	OIC/RSO/All Range Safety Personnel	
			2. Range OIC/RSO will ensure ammunition point is clear of all flammable material prior to stocking the ammo.				
			3. The ore will ensure that the proper HAZMAT placards are displayed at the Ammunition point IA WAR 385-64, TRADOC Reg 700-2, and TM 9-1300-2 06.				



RECORD OF ENVIRONMENTAL CONSIDERATION (REC)



Date Submitted: 10/24/2013

EMD Number: 1329711

Project#: Unknown

Project Title: MCoE Commanding General Small Arms Live Fire Demonstration

Description of proposed action:

Maneuver Battle Lab will conduct a Live Fire Small Arms Initiative Demonstration on Red Cloud Range with different calibers of weapons and ammunition to familiarize the MCoE Commanding General and other leadership on different technologies available for the war fighters and military community. This will provide the CG hands on familiarization with selected small arms weapons that are associated with the Army small arms strategy. This demonstration will be conducted IAW Fort Benning/ MCoE range regulation 350-19 and any other policies covering live fire exercises.

Project Location:

Red Cloud Range

Amount, Description, Location of Disturbance/Digging:

None

Number of Personnel:

50

Type of Ammunition:

9mm through .50 caliber; 40mm; 60mm; 81mm; 120mm Live

Number/Types of Trees:

None

Size of Project Area:

Duration of Action: Start: 12/2/2013 Stop: 9/30/2014

Proponent: Vincent Eberhart (706) 545-9773

Organization/Unit: Maneuver Battle Lab

Number/Types of Vehicles:

Number of vehicles:3
Types of vehicles:M113/GSA/Rental Truck
No-Vehicles will be going off road.

DECISION: Concur with conditions

This Action is adequately covered in the Existing EA titled: 'Ongoing Mission and siting Activities, USAIC, FT. Benning, GA.'

(NA): Training involving LIVE FIRE and tracked vehicles has NO CATEX -- "Ongoing Mission and Siting Activities, USAIC, Ft. Benning, GA."

REC APPROVED THROUGH 30 SEPTEMBER, 2014

Noise

Conditions:

Ellis Leeder (706 545 2400), 10/28/2013

This is training operations request for training. If there is any operational noise complaints received, the Environmental Management Division Installation Operational Noise Monitoring Program (IONMP) and or Public Affairs Office (PAO) programs will investigate and then recommending operational noise mitigation actions to the appropriate personnel for the training actions. In accordance with the Army's policy on environmental noise management, all efforts shall be made to minimize noise annoyances to the highest extent practicable with training operations without interfering with the proposed missions. Please visit the Range Operations website to obtain a list of approved weapons per Range or Firing Points. . Leave the training areas, firing range, latrines in a clean condition; contact Range Operations if unclean conditions are found or clean up costs or cleaning endeavors by proponent could occur to last user. If any assistance or a copy of MCoE Regulation 350-19 or the IONMP noise plan is needed for review, please feel free to contact Ellis Leeder at 706.545.2400 or email ellis.p.leeder.civ@mail.mil or visit the Range Control Website for the updated version of MCoE Regulation 350-19, range guidance and other materials for your range packet. This 144r must be present at the training site when occupying compartment or ranges.

Natural Resources - RCW

None

Michael Barron (706 544 7080), 10/24/2013

EMD Number: 1329711

IJO# Unknown

Project Title: MCoE Commanding General Small Arms Live Fire Demonstration

Hazardous Materials/Waste

Conditions:

Carlos Ariasochoa (706 545 1857), 10/29/2013

Considerations for Live Fire/Weapons Demonstration

1. Ensure personnel know the correct procedure for handling misfires at the range:
2. Closed containers (ammunition can marked 'MISFIRES") will be used for the collection of misfires at each firing range.

-The MISFIRE container will stay closed except to add or remove misfires.
 -Misfires SHALL NOT BE COLLECTED in any open container or cardboard box.

3. Ensure that all containers for collection of patches and swaps are kept closed unless weapons cleaning products are being added.
4. Defective, misfired, or otherwise unserviceable munitions must be managed IAW/MCOE Reg.350-19-5-10, Para 9-2 (Proper management of Misfired munitions). All excess, munitions must be returned to the Ammunition Supply Point after the field exercise is completed. Rubbish, empty containers and other waste (including used smoke/C2 canisters) should be removed from the training area. A dud shall not be removed from the range; it will be marked, called into range control and will be properly disposed of by EOD personnel IAW/MCOE Reg. 350-19, 23 Ju, 2010.
5. Any wastes generated must be evaluated for their hazardous characteristics and disposed of in accordance with all Federal, State and Fort Benning Hazardous Waste Regulations. Appropriate precautions must be taken to prevent hazardous material spills. Adequate quantities of spill response supplies must be on hand while work is being performed. If a spill occurs use notification procedures as outlined in the Fort Benning Hazardous Waste Management Plan. Contain and clean up any spill according to guidance provided by the Environmental Programs Management Branch. EPMB provides an 8 hours course covering Hazardous Materials/Waste Management, Hazardous Waste Minimization, Safety, and Pollution Prevention.

CWA - Training

Conditions:

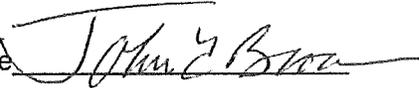
Leah Ropski (706 626 0492), 10/24/2013

Environmental Review: Caution within training areas and motor pools should be taken to protect all nearby waterways (including perennial, intermittent streams and wetlands); as well as ground surfaces and any other sensitive areas in the vicinity of the training areas. Potential spills/releases from this activity that may occur before and/or during the FTX include: 1. Discharge and/or improperly disposal of oil or hazardous substances into or upon land, water, or into ground water areas from storage, handling and/or transportation of hazardous materials/waste; 2. Vehicle/equipment/generators leaks; 3. Fuel loading/unloading/refueling operations; 4. Field mess facilities/equipment/operations, and/or 5. Ammunitions /explosives (as applicable, before and/or during the FTX).

General SPCC Requirements: Ensure all hazardous materials are properly storage to prevent spill/discharges, to meet safety requirements for storage, and that containers are not exposed to the weather. Have adequate spill response supplies available during exercise for any spills that may likely occur. Use drip pans under vehicles and provide secondary containment for any fueling activities and hazardous material/waste storage. Locate all refueling operations and storage of hazardous materials/waste away from waterways and sensitive areas. See attached section on prevention procedures and CHECKlist (Example Unit/Activity SOP for Training and Deployment) to be used during training exercise to comply with SPCC plan requirements. Ensure all wastewater from field mess equipment/operations particularly those involving oil/grease are collected and dispose properly. Do not discharge any wastewater into storm drains or dispose of oil/grease waste directly into land.

General ISCP Requirements: In the event of a spill/discharge -- notify Range Control by radio or call 544-6291, and they will notify E-911 for Fire Department/HAZMAT Team assistance and/or notification of the EMD office (Spill Beeper 706-317-6584). As appropriate, and if personnel are trained -- REACT to minimize spill damages. Submit a spill report to the EPMB Spill Program Manager (use Spill Response Report attached). All spills reaching navigable water must be reported immediately. The unit is responsible for the final cleanup of any spill during this exercise. Coordination with this office is required for clearance of the site.

Signature



John E Brown
NEPA Program Manager

Date

31 OCT 2013

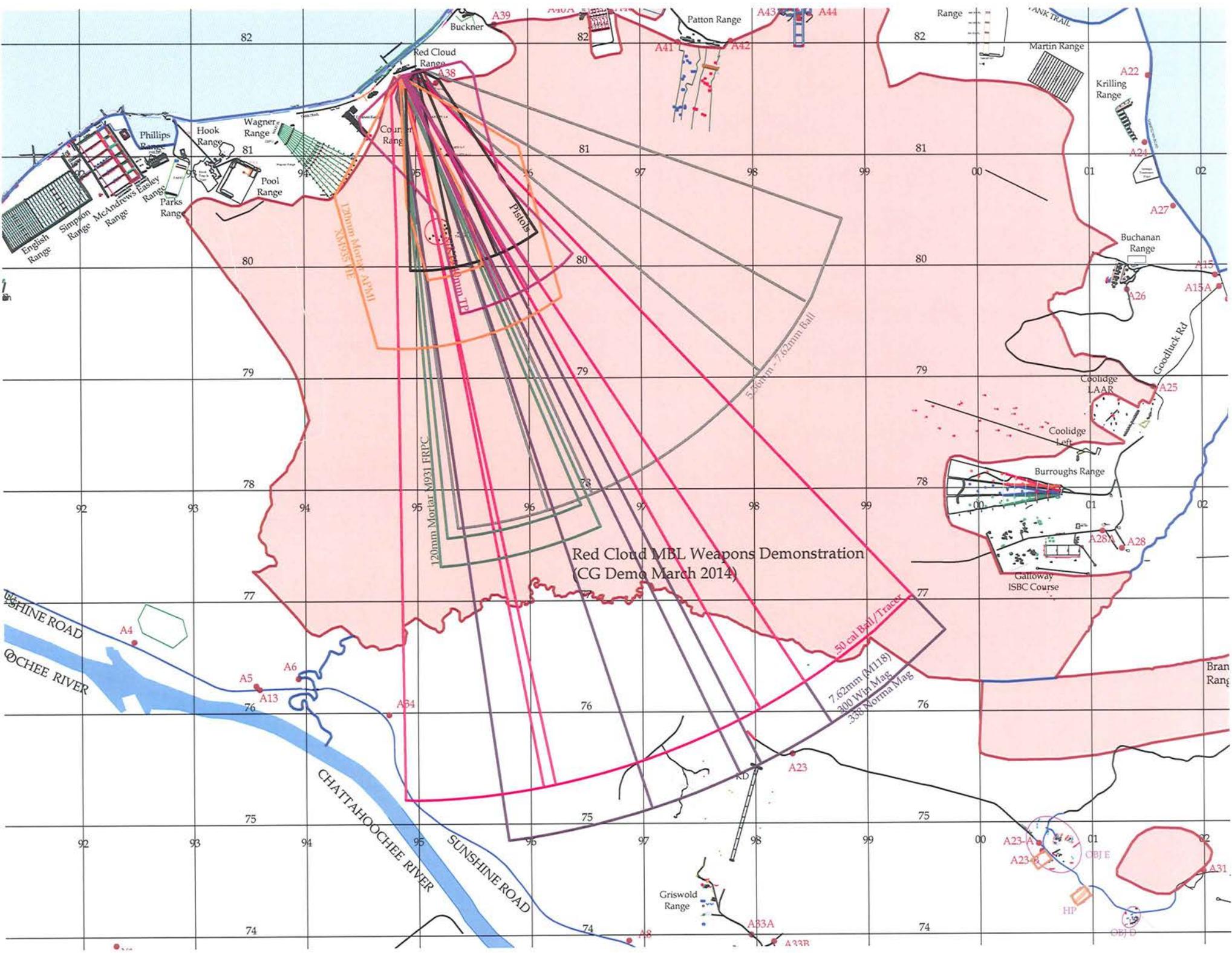
Signature



Christopher E. Hamilton, PhD

Date

31 OCT 13
EPMB Chief



Red Cloud MBL Weapons Demonstration
(CG Demo March 2014)

SUNSHINE ROAD
CHATTAHOOCHEE RIVER

CHATTAHOOCHEE RIVER
SUNSHINE ROAD

50 cal Ball/T tracer
7.62mm M118
300 Win Mag
338 Norma Mag

120mm Mortar M931 FRPC

50 cal Ball/T tracer

Tanah Mook AFM1
XRN955 TL

Fistols

