

# CHAPTER 1

## ADMINISTRATIVE

### 1-1 Visits to NTC

The NTC enforces strict rules limiting access to the training area during rotational exercises to achieve a high degree of realism and prevent disruption of scheduled training. Visitors to NTC must be approved IAW FORSCOM REG 350-50-1. The visitor section of the Fort Irwin Web Page provides detailed information regarding visits to NTC.

### 1-2 Rotational Unit Visitors

To enter the training area all rotational unit visitors must abide by the following restrictions:

- Visitors must wear BDUs, kevlar helmet, LBE, Man Worn Laser Detector (MWLD) MILES sets including Halo, and during Live fire body armor prior to entering the training area. The only exceptions to the MILES requirements are unit General Officers, their aide-de-camp(s), and personal driver(s) and Division and higher level Command Sergeants Major.
- Only “Tactical Vehicles” will be used for transportation. Avoid skylining vehicle on prominent terrain or in the line of sight of BLUFOR and OPFOR. TMP and civilian type vehicles are not allowed in the training area.
- Any use of aircraft in the maneuver area by visitors must be coordinated with the 52 ID(M) (DIOC).
- Visitor will abide by all current NTC ROE maneuver/excavation restrictions.
- Visitors will not use a tactical radio or give guidance during an engagement.
- With the exception of General Officers, if visitors want to view an AAR, they must watch the AAR from the overflow tent at the AAR site or make prior coordination with 52<sup>nd</sup> ID (M) TOC to view the AAR from building 988. This includes watching an AAR from a TAF.

### 1-3 Contractor Support Operations

Contractor Visits to NTC must be approved by the NTC G3. The visitor section of the Fort Irwin Web Page provides detailed information regarding contractor visits to NTC.

To enter the training area all contractors must abide by the NTC ROE and the following restrictions:

- All Contractors will obtain rotational range control passes and be cleared into and out of the maneuver area through the DIOC/TAF.
- All Contractors must wear a kevlar helmet, Man Worn Laser Detector (MWLD) MILES sets including Halo, and during Live fire body armor prior to entering the training area. The only contractor exceptions to the MILES requirements are NTC funded contractors.
- Contractors must coordinate with 52<sup>nd</sup> ID (M) and receive FORSCOM approval for any new or experimental equipment prior to deployment to the NTC. Unless FORSCOM and 52<sup>nd</sup> ID (M) specifically authorize an exemption to the ROE in writing, normal ROE restrictions during tactical and logistic operations will apply.
- Special contractor contact teams including LARS positioned forward with units will be treated as rotational unit personnel.
- TMP civilian type vehicles are not authorized in the training area. Only “Tactical Vehicles” will be used for transportation

52<sup>nd</sup> ID (M) TOC may apply further restrictions to both visitors and contractors because of scenario modifications, safety, environmental, or archaeological limitations. Personnel not wearing MILES will be directed to leave the training area.

### 1-4 The NTC Instrumentation System and MILES.

The NTC Instrumentation System (NTC-IS) and MILES facilitate realistic exercises by providing real-time feedback and extensive recording of the actions of soldiers, weapon systems, and vehicles. Instrumentation allows the Operations Center to track specific movements of units and key leaders, and to record engagement ‘firing events’ involving direct

and indirect weapon systems on a full effects battlefield and data retrieval and playback for use during After Action reviews (AAR) and other analysis.

All combat vehicles will have instrumentation installed prior to leaving the cantonment area. The instrumentation will remain on at all times unless specifically directed otherwise by an OC. The majority of combat vehicles are equipped with a “permanent” system. For vehicles without the permanent system and for dismounted operations, a limited number of man portable system (IPDD) are available. Strict adherence to MILES and Instrumentation policies is essential in maintaining fidelity both on the battlefield and in the data collected.

### **1-5 MILES Requirements**

All Personnel and vehicles/systems must have operable MILES at all times on the NTC battlefield while in the training area. Personnel and vehicles/systems with inoperable MILES will not participate in training. The training area is defined as extending from the BLUFOR light lines to the OPFOR rear boundary. The only exemptions to this requirement is listed below:

- OCs may exempt soldiers and/or systems from the MILES requirement when the wear or installation of MILES presents a clear safety hazard. For example, maintenance personnel operating in restricted areas where MWLD could become caught in machinery.
- Aerial platforms which the installation of MILES has not received air-worthiness certification
- M551 and FMP/BMP drivers while operating their vehicles
- Visitor/contractor exemptions outlined in chapters 1-2 and 1-3.

### **1-6 Maintaining MILES**

It is a rotational unit responsibility to maintain MILES equipment. Units will properly utilize their MILES equipment, identify malfunctioning MILES equipment, and correct MILES failures through the use of the MILES contact teams. Rotational units receive initial battery issue when drawing the equipment and are responsibility for ensuring operational nine (9) volt and 5590 batteries are kept in individual and vehicle MILES system battery boxes respectively at all times. During the rotation,

OCs will routinely test BLUFOR and OPFOR MILES to ensure fidelity of the NTC battlefield without compromising soldiers and systems. During night testing units may temporarily cover the CVKI to prevent possible location compromises. OCs will assist rotational units in correcting MILES failures, replace 5590 batteries on a one-for-one basis, and provide the unit with their MILES contact team location.

### **1-7 Individual MILES**

All BLUFOR and OPFOR personnel forward of the DSA/RSA will be equipped with and wear either a MILES I Man Worn Laser Detector (MWLD) or a MILES II Player Detection Device (PDD). Additionally, BLUFOR personnel will carry a MILES casualty card. The MWLD provides a near-missed and hit capability, but no integrated tracking or SAWE sensing ability. On the other hand the PDD has the capability of the MWLD plus a GPS position locating and SAWE sensing capability and is issued to every squad and each separate dismounted element operating on the battlefield.

### **1-8 Vehicle/System MILES**

1. All wheeled combat or reconnaissance HMMWVs going forward of the LD, or Company/Team areas, will be equipped with the MITS, and be instrumented or have an OC escort. MILES gear for vehicles and weapons consists of vehicle detector belts, coded laser transmitters, control boxes, and adapters. In certain cases the Mobile Independent Target System (MITS) will be used to enable non-standard vehicles and equipment, for example bunkers and bulldozers, to be fitted with a MILES system. On wheeled support vehicles without MILES, the MWLD of the vehicle occupants represents the vehicle MILES.

2. Other wheeled vehicles will receive MILES or MITS based on priority established by OC and availability. All OPFOR and BLUFOR aircraft will be equipped with operational MILES I or II (minimum be killed capability) and an operational SMODIM or OC/PDI (Position Location Device) at all times in the maneuver box for A2C2 deconfliction.

3. Master Switches and Turret Power. Master switches will be kept on at all times. Vehicles with separate electrical turret power systems (e.g. M2/3, M1A1) must keep turret power on also. Aircraft MILES will not remain operational when the aircraft is shut down.

4. Sensor Belt Visibility. Vehicle detector belt sensors must not be covered by camouflage nets, personal gear, or anything else when engaged in the direct fire battle. Vehicle sensor belts must be able to be engaged when a vehicle is in the forward level (firing platform) of a survivability position.

**1-9 Restricted MILES Equipment/Procedures**

1. Restricted Equipment

The possession of MILES controller guns and green keys at NTC is restricted. Rotational units will not bring MILES controller guns and green keys to the NTC with the exception of aviation FARPs which may have one green key to affect the re-arming of attack aircraft. OPFOR MRCs are authorized two (2) controller guns and four (4) green keys which must be in the physical possession of the MRC Plt Ldrs/SGTs during combat operations.

2. Restricted Procedures

OC Teams will coordinate for unit requirements to conduct zero and bore sight ranges. Dry Fire (MILES) is not permitted during force-on-force combat operations. Units may dry fire when boresighting ONLY! (“Dry Firing” a MILES weapon system requires an OC’s Green Key, which the unit must request from their OC.)

**1-10 Restricted Pyrotechnics**

1. Yellow Smoke. Yellow smoke is not authorized for rotational or OPFOR unit use. Yellow smoke represents “FASCAM”.

2. Red Pyrotechnics. Red pyrotechnics indicates an emergency situation, and is used in marking LZs for MEDEVACs.

3. Restricted Item Disposition. Any soldiers finding CS, simulators, or yellow smoke will turn them in to the nearest OC or firemarker.

**1-11 Vehicle Movement**

Vehicle accidents are the number one cause of injuries during training rotations at the NTC. Excessive vehicle speed is involved in most cases. Table 1-11 outlines rotational unit speed limits. However, personnel will not drive faster than is prudent, given road, vehicle, and driver conditions. Tracked vehicles will only cross paved roads at approved and marked track crossing points.

When units are in contact, vehicles may execute tactical evasion drills and other maneuvers IAW unit safety risk assessment. Temporary dashes at high speeds are permitted provided life, limb, eyesight and property are not placed at undue risk. Unit commanders will establish limits/guidance for their soldiers.

**1-12 Off Limits and Restricted Areas**

NTC has several environmentally sensitive areas within the training area. These areas are either off limits to all personnel or restrict the types of vehicles and operations that may occur in the area.

Off limits area within the NTC training area are listed in Table 1-12 Figure 1. These areas are off limits to all personnel at all times. They are marked with off limits signs or marked as “off limits” on the overprinted NTC map. All dry lakebeds are off limits.

Restricted Areas are listed in Table 1-12 Figure 2 and marked as “restricted maneuver” on the overprinted NTC map. Wheeled vehicles and dismounted operations are authorized in all restricted maneuver areas. However, tracked vehicles are not authorized in restricted areas without clearance from range control and the environmental section of NTC’s DPW. Bulk refueling is not authorized to occur on or within 500 meters of any dry lakebed.

Table 1-11 Out of Contact with Enemy Forces Speed Limits

Vehicle Type	Normal Day Time Conditions		Limited Visibility With NVGs		Limited Visibility Without NVGs	
	Paved/Unpaved Roads	Cross Country	Paved/Unpaved Roads	Cross Country	Paved/Unpaved Roads	Cross Country
Wheeled Vehicles	35 mph	25 mph	25 mph	20 mph	20 mph	15 mph
Convoys (3 or more Vehicles)	20 mph	15 mph	15 mph	10 mph	10 mph	Ground Guide Required
	Established Tank Trails	Cross Country	Established Tank Trails	Cross Country	Established Tank Trails	Cross Country
Tracked Vehicles	25 mph	20 mph	20 mph	15 mph	15 mph	10 mph

### **1-13 No Dig and Restricted Dig Areas**

NTC has several hazardous areas within the training area that either prohibits or limits any type of excavation.

No Dig areas prohibit digging due to the high risk of uncovering unexploded ordnance, hazardous materials or archaeological sites. These areas are listed in Table 1-13 Figure 1. These areas are marked as “No Dig” on the overprinted NTC map and “No Dig” signs are posted in the training area.

Restricted dig areas are former impact areas or portions of former impact areas that have been cleared and are authorized for excavation under a FORSCOM waiver. Table 1-13 Figure 2 lists these restricted dig areas and they are marked as “Restricted Dig” on the overprinted NTC map. The following restrictions apply:

- In the event of an accident or injury occurring as a result of this waiver, the waiver is invalid until reinstated by FORSCOM.
- The surface area will be inspected for unexploded ordnance before the start of digging.
- The rotational unit will designate and have an observer present while digging to identify unexploded ordnance.
- All control measures must be followed even in positions where fighting positions were previously dug.
- No digging will occur from sunset to sunrise.
- No digging of infantry fighting positions crew or individual.
- All Engineer equipment (all models of Dozers, ACEs, DEUCES, SEEs, Scrapers, Bucket Loaders), can dig in restricted dig areas as long as the operator and observers wear flak vest and kevlar helmets.
- In the event that unexploded ordnance is observed, digging operations at that site will cease until the area is cleared by EOD.

### **1-14 MSR Restrictions**

The following MSR’s must remain open for safety/evacuation purposes.

- East Range Road
- Barstow Road

- Langford Lake Road
- Silver Lakes Road
- Goldstone Road

With the exception of Barstow Road, digging may occur up to the edges, but not across these MSR’s. Barstow Road is further restricted that units may only dig up to the edges of the two tank trails which parallel each side of the main road. Units may restrict movement along these MSR’s during tactical operations by using concertina wire and mines.

### **1-15 Marking Of Excavation Sites**

1. Units will take the following measures to ensure that no rollovers are caused due to unfilled fighting positions:

- It is critical that all combat vehicles carry as a part of their basic load survivability position marking material that includes as a minimum four U-shaped pickets, white engineer tape, and chemlites.
- Combat vehicles must prove they have on hand proper vehicle fighting position marking materials, prior to start of digging. OCs/Blackhorse Liaison personnel will delay digging operations until this requirement is met.
- During limited visibility attacks unoccupied survivability positions (e.g.; alternate or supplementary positions) will be marked IAW NTC ROE in order to reduce risk.
- All excavations will be marked with a U-shaped picket at each of the four corners. White engineer tape will mark the two sides and the front edges leaving the entrance open. Chemlites will be placed on all four pickets.
- The safety observer will inspect the proposed digging site for unexploded ordnance prior to the start of digging.

2. Recording Of Excavation Sites. All survivability positions will be recorded with a six digit grid coordinate and forwarded through the engineer and maneuver channels to the DTOC.

3. Safety Requirements And Restrictions During Excavation In Restricted Dig Areas.

- All personnel involved in digging operations that are not in a combat engineer vehicle or armored combat earth-mover (ACE) will wear eye protection, a flak

jacket, and kevlar helmet. Armored vehicles will be “buttoned up” during digging operations.

- A safety observer will be present, but in a safe location during all digging operations. This observer should receive EOD training on identification of explosive ordinances.
- If unexploded ordnance is observed, all operations at that site will terminate until the area is cleared by Explosive Ordnance Disposal (EOD) personnel. Locations of unexploded ordnance, uncovered during digging operations, will be recorded by EOD for historical records using grid coordinates.
- The M9 ACE vehicle will be the primary vehicle allowed to dig fighting positions in units so equipped. Second choice of vehicle for digging is the combat engineer vehicle and/or a bulldozer.
- No digging at night or during electrical storms.

#### **1-16 Range Operations**

- Dragon Team OCs have the responsibility to assist the player unit in conducting screen and zero operations.
- The Dragon Team will conduct an in-brief for player unit master gunners at 0800 hours on RSOI Day 1. This master gunner in-brief will address all of the requirements for building and operating screen/zero ranges, both while the unit is conducting RSOI operations and in the live fire area.
- The designated master gunner will also serve as the point of contact between the Dragon Team for units calling from home station to make advance coordination for screen/zero ranges. This NCO will work through Operations Plans (Lizard 03P) to ensure that Ranges 25 and 10 are laid on in advance for each rotational units use during the RSOI week.
- When screen/zero ranges are “hot” during the RSOI week, Dragon OCs will provide range coverage to observe player unit screen and zero procedures and will provide feedback on range results.
- Player units may elect to use Range 03B or 217 in the live fire area. These ranges will normally be monitored by the Dragon Team. Dragon Team OCs will verify that the unit has met all of the requirements to operate the range and will report to the 52<sup>nd</sup> ID TAC that the range is ready for a Red

Direct Status. The 52<sup>nd</sup> ID TAC may then issue a Red Direct Status for Range 03B/217 to the player unit.

- OCs will not run any range for player units. They will assist the player unit and will oversee the range to ensure that the range meets applicable safety requirements.

#### **1-17 Environmental Clean-up Team (ECT)**

1. Purpose. The ECT “white cell” provides a means of rapidly responding to spills and other environmental situations without impacting on engineer support to the rotational unit. It is not part of the force structure and will not augment the rotational unit with survivability or battlefield restoration effort without specific approval from 52 ID(M) DTOC. Administrative. The ECT will locate in the BSA or RUBA. All support will come from the rotational unit. It is located with the unit to enhance responsiveness. To ensure battlefield continuity and safety, the ECT will wear MILES. ECT vehicles will display placards stating "ENVIRONMENTAL TEAM". The ECT will maintain continuous communications with Range Control

2. Procedures for Employment. The ECT will make runs as necessary to dispose of contaminated soil using the BLUFOR MSR. After coordinating with 52<sup>nd</sup> DTOC, Range Control will dispatch the ECT for routine spills as required and will maintain in communication contact with the ECT. For extraordinary large spills or spills with command interest, the ECT will (through range control) keep the DTOC informed of progress and projected completion times. Range Control & ECT will maintain a log of reported and completed spills as required.

3. Involvement in Tactical Actions. The ECT will avoid entering areas where tactical actions are in progress to the extent possible. The ECT will not be dispatched to these areas without DTOC approval. If this is unavoidable, DTOC will assign escort responsibility to a specific OC team. If engaged during the conduct of a clean-up mission, the ECT will insert yellow keys and continue clean-up. At no time will the ECT actively participate in combat operations or attempt to influence tactical situations.

Table 1-12 Figure 1 Off Limits Areas

Center of Mass Grid Coordinates	Feature/Marking	Legend
NV3246728580 to NV3251528630 to NV3256128670 to NV3268628730 to NV3289528750 to NV3309628690 to NV3326228600 to NV3333128520 to NV3335628500 to NV3337428430 to NV3333328290 to NV3325928190 to NV3317028130 to NV3299228100 to NV3280128140 to NV3258728260 to NV3246428400 to NV3243128500	Barbed Wire Fence and Seibert Stakes	Red Line
NV3873025910 to NV3880725880 to NV3888525780 to NV3888625700 to NV3885125620 to NV3877825560 to NV3867925560 to NV3858525600 to NV3854225690 to NV3855525800 to NV3862225890	Barbed Wire Fence and Seibert Stakes	Red Line
NV3824323140 to NV3826123630 to NV3898823640 to NV3897921600 to NV3860422130 to NV3855122380 to NV3840422590 to NV3831522690 to NV3823022780 to NV3815922810 to NV3745922840 to NV3746823140	Barbed Wire Fence and Seibert Stakes	Red Line
NV3192114000 to NV3196613960 to NV3198413940 to NV3202713850 to NV3206913660 to NV3207213480 to NV3201513330 to NV3192713230 to NV3193013220 to NV3177913190 to NV3161213260 to NV3147013440 to NV3137913600 to NV3137613900 to NV3140614110	Barbed Wire Fence and Seibert Stakes	Red Line
NV1524834950 to NV1531534880 to NV1527734560 to NV1530834440 to NV1529734390 to NV1527234450 to NV1520134480 to NV1510734470 to NV1505634410 to NV1504734490 to NV1500934570 to NV1497634650 to NV1498034730 to NV1501634820 to NV1508134910 to NV1517934960	Barbed Wire Fence and Seibert Stakes	Red Line
NV1511034470 to NV1520234480 to NV1527234450 to NV1529734390 to NV1527434290 to NV1519734230 to NV1510534240 to NV1506534340 to NV1505934410	Barbed Wire Fence and Seibert Stakes	Red Line
NV4384427890 to NV4389327800 to NV4389827740 to NV4385927690 to NV4378927670 to NV4372027680 to NV4365627770 to NV4366827850 to NV4371927900 to NV4378927920	Barbed Wire Fence and Seibert Stakes	Red Line
NV2063821600 to NV2072921530 to NV2075621430 to NV2074521340 to NV2068321270 to NV2058821220 to NV2046621230 to NV2038921300 to NV2035621380 to NV2037121500 to NV2044121590 to NV2054221620	Barbed Wire Fence and Seibert Stakes	Red Line
NV5260727320 to NV5260227310 to NV5253427290 to NV5247127290 to NV5242527330 to NV5239427400 to NV5242027480 to NV5248127530 to NV5254627540	Barbed Wire Fence and Seibert Stakes	Red Line
NV2143921010 to NV2151120990 to NV2159320910 to NV2161820810 to NV2160720740 to NV2155320660 to NV2145320610 to NV2134520620 to NV2128220660 to NV2123120730 to NV2122220840 to NV2126220940 to NV2134121000	Barbed Wire Fence and Seibert Stakes	Red Line
NV1387616320 to NV1386616230 to NV1386716230 to NV1390016150 to NV1389616060 to NV1383115990 to NV1368515970 to NV1364616020 to NV1362016250 to NV1367116350 to NV1375616380	Barbed Wire Fence and Seibert Stakes	Red Line
NV2030605050 to NV2057005070 to NV2071405020 to NV2085804870 to NV2100504680 to NV2102504470 to NV2094504250 to NV2074404090 to NV2054004110 to NV1996204360 to NV1994504360 to NV1973404490 to NV1956004620 to NV1954704780 to NV1961104940	Barbed Wire Fence and Seibert Stakes	Red Line

Table 1-12 Figure 1 (continued) Off Limits Areas		
Center of Mass Grid Coordinates	Feature/Marking	Legend
NU5176798550 to NU5188898480 to NU5202498340 to NU5213298220 to NU5214198130 to NU5203498010 to NU5187297940 to NU5177197980 to NU5163598100 to NU5153098210 to NU5148098480 to NU5155998530	Barbed Wire Fence and Seibert Stakes	Red Line
NU2015797290 to NU2026497010 to NU2026696820 to NU2017596620 to NU2003796550 to NU1986596550 to NU1974596710 to NU1970796870 to NU1978997040 to NU1988797240 to NU2001997310	Barbed Wire Fence and Seibert Stakes	Red Line
NV3902226220 to NV3907026180 to NV3915026120 to NV3916126010 to NV3906525970 to NV3901225960 to NV3894325950 to NV3890025980 to NV3892126230 to NV3900626340	Barbed Wire Fence And Seibert Stakes	Red Line
NV3849316171, NV5868516029, NV6157414558, NV6155209445, NV1680107185, NV1541228229, NV4945429570, NU3105199000, NU5265598986, NV2778401796,	Fenced Air Quality Sites	Red Dot
NU2653095480, NU2302099490, NU2300099500, NV1120328906, NV1540328198, NV1741831714, NV1920130800, NV2470032001, NV3100028093, NV3209929800, NV3660723203, NV3719821204, NV3849916190, NV3939920400, NV4091931802, NV4190830900, NV4210124702, NV4380436695, NV4669919611, NV4865129001, NV5060226101, NV5280821605, NV5561217884, NV5630717214, NV5850216001, NV3820125202, NV4035004500	450m radius Antenna and No Fire Areas	Red Circle
NV3870025750 - center of mass	200m radius wire/signs	Red Circle
NV5150033000 - center of mass	200m radius wire/signs	Red Circle
NV5435035350 - center of mass	100m radius wire/signs	Red Circle
NV5250027400 - center of mass	100m radius wire/signs	Red Dot
NV4237828277 - center of mass	Drinkwater Lakebed	Red Line
NV2122827586 - center of mass	McLean Lakebed	Red Line
NV2041920792 - center of mass	Nelson Lakebed	Red Line
NV0942813464 - center of mass	Goldstone Lakebed	Red Line
NV1332816481 - center of mass	Pioneer Lakebed	Red Line
NU3959492931 - center of mass	100m radius pickets	Red Dot
NU3982594025 - center of mass	100m radius pickets	Red Dot
NU4537695899 - center of mass	100m radius pickets	Red Dot
NV5887909190 - center of mass	100m radius pickets	Red Dot
NV5836106708 - center of mass	100m radius pickets	Red Dot
NV3086002399 - center of mass	100m radius wire/signs	Red Dot
NV2000097000 - center of mass	700m radius wire/signs	Red Circle
NV3266098550 - center of mass	100m radius wire/signs	Red Dot
NV5180098200 - center of mass	300m radius wire/signs	Red Circle
NV1515034350 - center of mass	100m radius wire/signs	Red Dot
NV3285033650 - center of mass	100m radius wire/signs	Red Dot
NV3655024955 - center of mass	100m radius wire/signs	Red Dot
NV3710025800 - center of mass	100m radius wire/signs	Red Dot
NV5137512661 – center of mass	100m radius pickets	Red Dot
NV5125312246 – center of mass	100m radius pickets	Red Dot
NV5077212045 – center of mass	100m radius pickets	Red Dot
NV3972728803 – center of mass	100m radius pickets	Red Dot
NV4158120041 – center of mass	100m radius pickets	Red Dot
NV4989905737 – center of mass	100m radius pickets	Red Dot
NV4927704819 – center of mass	100m radius pickets	Red Dot
NV4717500772 – center of mass	100m radius pickets	Red Dot

Table 1-12 Figure 2 Restricted Areas

Center of Mass Grid Coordinates	Feature/Marking	Legend
NV1652200000 to NU1692599908 to NU1752099422 to NU1769399019 to NU1765598379 to NU1754097989 to NU1736797694 to NU1698997234 to NU1650996882	Barbed Wire and Seibert Stakes Plant Line	Red Line
NU1648996567 to NU2323690000 to NU4683790000 to NU4744690773 to NU4821390985 to NU4892792810 to NU5025092810 to NU5025091911 to NU4866391884 to NU4868988656 to NU4710288577 to NU4710287042 to NU3419087069 to NU2617387069 to NU2612088577 to NU2291988603 to NU2283990323 to NU1963890270 to NU1963888630 to NU1805088656 to NU1802491911 to NU1648991937	Barbed Wire Seibert Stakes Signs posted 250m North of fence line Tortoise Line	Red Line
NV4573842740 to NV4573833240 to NV0667633210 to NV0674942610	Signs	Red Line
NV3400004000 - center mass	Bicycle Lakebed	Red Line
NU2876798993 to NU2946598089 to NU2846997225 to NU2775698160	ASP – Contact ASP	Red Line
NV2073819915 to NV2252519910 to NV2251419712 to NV2222219734 to NV2221715673 to NV2170019690 to NV2168319552 to NV2146319563 to NV2146919706 to NV2090319734 to NV2088119783 to NV2071019789	Nelson Airfield	Red Dotted Line
NV5808505017 to NV5951906000 to NV5964505800 to NV5821804800	Red Pass Lake Airfield	Red Dotted Line
NV4539331190 to NV4599731700 to NV4898431720 to NV4897631210 to NV4998431210 to NV5000730240 to NV5012230000 to NV5059629580 to NV5064129530 to NV5087129060 to NV5097028720 to NV5098528360 to NV4964827540 to NV4941927530 to NV4925127500 to NV4902227540 to NV4876227540 to NV4826627480 to NV4827327740 to NV4897627770 to NV4898429180 to NV4858629180 to NV4797530250 to NV4636330260 to NV4635629950 to NV4539329950	Wire and Seibert Stakes	Red Dotted Line
NV5299029200 to NV5301928230 to NV5389127210 to NV5463827210 to NV5442626220 to NV5389826240 to NV5389126660 to NV5298326990 to NV5269726990 to NV5209629180	Wire and Seibert Stakes	Red Dotted Line
NV2892208170 to NV2900308200 to NV2927008170 to NV2939608210 to NV2947708170 to NV2958407930 to NV2978607760 to NV2987007630 to NV2992007320 to NV2991207190 to NV2982407090 to NV2964507090 to NV2954507150 to NV2949607300 to NV2946507490 to NV2941207630 to NV2934307730 to NV2922807810 to NV2904507890 to NV2900307890 to NV2890307970 to NV2886108070	Wire and Seibert Stakes	Red Dotted Line
NV1348012610 to NV1359812500 to NV1361812490 to NV1370212390 to NV1371212270 to NV1356112310 to NV1342212420 to NV1338012550 to NV1342612620	Wire and Seibert Stakes	Red Dotted Line
NV1500331000 to NV1800531000 to NV1800529990 to NV1500329990	Wire and Seibert Stakes	Red Dotted Line

Table 1-12 Figure 2 (continued) Restricted Areas		
Center of Mass Grid Coordinates	Feature/Marking	Legend
NV4963597870 to NU4969397760 to NU4967597600 to NV4962974800 to NU4959097030 to NU4951196910 to NU4939396870 to NU4929396900 to NU4920097080 to NU4919797370 to NU4927897600 to NU4937597800 to NU4952997880	Wire and Seibert Stakes	Red Dotted Line
NU3253698580 to NU3246898570 to NU3224998610 to NU3209898650 to NU3194898800 to NU3177098980 to NU3155199120 to NU3137399270 to NU3138699390 to NU3153799470 to NU3187999450 to NU3213999200 to NU3249598870 to NU3263298710	Wire and Seibert Stakes	Red Dotted Line
NU3515193790 to NU3519293700 to NU3521993520 to NU3519293310 to NU3501493260 to NU3495993350 to NU3489193520 to NU3491893680 to NU3504193820	Wire and Seibert Stakes	Red Dotted Line
NV5698503730 to NV5712203760 to NV5727203770 to NV5738203790 to NV5740903740 to NV5738203690 to NV5723103620 to NV5706703590 to NV5697103590 to NV5693003690	Wire and Seibert Stakes	Red Dotted Line

Table 1-14 Figure 1 No Dig Areas		
Center of Mass Grid Coordinates	Feature/Marking	Legend
NV2458624904 to NV3077724904 to NV3474621915 to NV2744320274 to NV3474620195	Nelson Lake	Purple Line
NV1012212966	DERA	Purple Line
NV1873806852	DERA	Purple Line
NV3050602839	DERA	Purple Line
NV3053002522	DERA	Purple Line
NV5070912739	Concrete Barriers	Purple Line
NV5820002040 - center mass	Red Pass Lakebed	Purple Line
NV3420095500 - center mass	Langford Lakebed	Purple Line
NU3126998278 to NU3214497208 to NU3093296669 to NU3070797574 to NU3090898118	None	Purple Line

Table 1-14 Figure 2 Restricted Dig Areas		
Center of Mass Grid Coordinates	Feature/Marking	Legend
NV1875033230 to NV1876532200 to NV1912329990 to NV1990629140 to NV1990627550 to NV1293527530 to NV1294128430 to NV1293529250 to NV1287033210	Gary Owen Area	Purple Dashed Line
NV4174720250 to NV4558320100 to NV4454114850 to NV4256513230 to NV4109113250 to NV3970814900 to NV3977817400 to NV3983519340 to NV3984220250	Lucky Fuse Area	Purple Dashed Line
NU4746897210 to NU5003694550 to NU4200486950 to NU3668886930 to NU3663192000 to NU4460697190	Langford Lake Area	Purple Dashed Line
NV2744320274 to NV3474620195 to NV3474619031 to NV3048615617	Nelson Lake Area	Purple Dashed Line

# CHAPTER 2

## INTELLIGENCE

**OVERVIEW.** The National Training Center battle field provides brigades with as complete a spectrum of intelligence capabilities and connectivity as is possible consistent with current doctrine and systems availability. This BOS, (as with Battle Command), will continue to be extremely dynamic as the Army moves toward Force XXI, an information-based force of the future. New systems and added connectivity with existing systems provide an opportunity for significant growth. They also must be closely regulated to ensure the fidelity of the battlefield picture viewed by the rotational unit. Constraints such as administrative log sites to conserve OPTEMPO and greatly shortened or convoluted LOCs due to terrain restrictions must be transparent as possible to the rotational unit during the exercise. This Annex regulates the intelligence BOS to achieve these ends.

### 2-1 Intelligence Operation Fundamentals

**1. Safety.** Reconnaissance and surveillance (R&S), EW and other intelligence type elements generally operate in small groups forward of friendly units with limited life support. Safety of personnel is a primary concern.

a. **Requirement.** All elements will have a minimum of six quarts of water and one MRE per person per day through change of mission or until next resupply. If an R&S section has no water or food they will be extracted. All elements will maintain positive communication with parent headquarters, and consist of no less than two personnel at all times.

b. **Loss of Required Personnel.** If an element is reduced to a single soldier capable of movement due to MILES casualties, no further movement is possible. The survivor may continue operations from that point, but will not separate from the other soldier(s) in his element.

c. **Loss of Prime Mover.** If reconnaissance vehicles, EW assets or other intelligence type elements send out OPs, and the vehicle is a catastrophic kill, the OP must depart sector with the vehicle if needed Class I was on board as determined by Blackhorse Liaison/OC personnel adjudicating the engagement.

d. **Loss of COMMO.** If units lose radio contact and are unable to effectively link-up with

another element with commo within two hours, they must immediately report to the nearest OC or Blackhorse Liaison. If neither is available, report to the nearest enemy unit. If reconnaissance vehicles send out OPs, and the vehicle is destroyed or a commo kill, the OP must depart sector with the vehicle if the OP is relying on the destroyed vehicle's radio for communication to his parent unit.

e. **Loss of Mobility.** If a mobility kill is assessed, the dismounted element may remain for the duration of the mission as long as they are within 300 meters of vehicles. If authorized to remain in sector for the next mission and their location is within limits as specified by CBI/change of mission instructions for that mission, the element may remain for the subsequent mission provided all other safety restrictions have been met.

**2. Instrumentation.** Fidelity of the automated tracking and representation of R&S units for AARs is extremely critical due to the potential significance of the success or failure of even a single such unit.

a. **Requirement.** All mobile units (mounted or dismounted) will have a functioning DCI unit. Static OPs (e.g.: DRTs or dismounted infantry LP/OPs) for which PDDs are not available, must be approved by DTOC to operate without a tracking device. If approved, their position must be accurately reflected by the NTC-IS at all times. Any reconnaissance vehicle which crosses the RL/LD with a functioning DCI unit that later becomes inoperative may, upon approval by DTOC, continue to operate provided their position is accurately maintained in the NTC-IS by player positioning. The Black Horse Liaison or OC accompanying the element must call in its location to the appropriate TAF every 15 minutes or 400 meters. The NTC-IS icon must at all times reflect the true location of the vehicle. Any reconnaissance vehicle failing to adhere to these rules may be killed and removed from the battlefield at the direction of the DTOC ICW the affected OC team.

b. **Uninstrumented Element Movement.** Emplacement, relocation, and extraction will be replicated by real time player position. OCs or Blackhorse liaison will verify the OPs initial position and pass that information to the respective TAF. If the team relocates, they will report their new location every 15 minutes or 400 meters so they can be tracked on the NTC-IS instrumentation.

### 3. Dismounted OP Engagements.

a. **Access to Intelligence.** OPs that have been killed with small arms fire or stealth kills, or captured are considered compromised. OPs that have been compromised are not EPWs. Enemy forces are allowed to copy the compromised OPs graphics, and the frequency on his radio ONLY. They will not search the rucksack or any of his pockets, or his person. However, for items that are clearly visible, the unit may request to inspect them for intelligence value. An OC must be present in order to obtain access to information from enemy forces.

b. **Extraction.** Compromised OPs will become the responsibility of the nearest OC or Blackhorse liaison team. They will be transported to a link-up site coordinated between the affected OC team and Blackhorse liaison.

### 4. Mounted OP Engagements.

a. **Access to Intelligence.** OP vehicles that become catastrophic kills are destroyed, not compromised and contain no useful information to enemy forces. Captured vehicles become compromised and possess full intelligence value regardless of mobility or firepower kill status. Refer to the EPW EVENTS section of this chapter for capture/search procedures.

b. **Extraction.** OPs that have become MILES casualties must be competitively extracted to be reconstituted for the current operation. If OCs or Blackhorse liaison personnel must extract an OP, (e.g. for safety reasons), that element will be quarantined and information collected will not be passed to the unit.

## 2-2 Electronic Warfare

1. **Safety.** EW command elements will continuously monitor STOP BUZZER, frequency FM 41.95, during times when jamming operations are conducted, and cease operation immediately if so directed. All ICD/jamming will cease during air MEDEVAC operations.

2. **Restrictions.** EW assets will abide by the intelligence asset operations restrictions above. EW assets will adhere to the No-Jam and No-Collect frequency lists published prior to each rotation. See the IEW RESTRICTIONS section of the chapter for description of lists.

### 3. EW Asset Out Of Sector Positioning.

a. **Authority.** EW assets are normally not positioned out of sector. The 52 ID (M) will be the approving authority for the placement of EW systems outside the unit's sector or zone.

b. **Assessments.** To simulate battlefield effects for EW systems deployed outside of the unit's area of operation, one EW team, deployed outside the AO will be destroyed for every two EW teams destroyed by engagements with the enemy in sector/zone.

4. **EW Reporting Requirements.** In addition to unit SOP reporting requirements, the MI Bn will provide a resource status report (RSR) to the G2/G3 upon system status changes or at least once daily. RSRs will include asset operational status and location. The MI Bn will provide a copy of its collection and jamming matrix to the DTOC prior to the LD time of each mission. This matrix will reflect EA/ES priorities based on the 52d Mechanized Division OPORD. If there is no MI Bn deployed, there is no further requirement from the Rotational Unit.

a. Hand Emplaced Expendable Jammers (HEXJAM). HEXJAMs may be employed on the battlefield at the NTC under the following conditions (subject to approval IAW FORSCOM REG 350-50-1, Request for Exceptions):

- HEXJAMS will not be emplaced or used within a 1 KM radius of the following grids:

NO HEXJAM SITES			
NV112289	NU265954	NU382985	NV505259
NV104236	NU266952	NU406879	NV506261
NV175317	NV317308	NV570020	NV515261
NV167275	NV329310	NV548053	NV496268
NV248320	NV321298	NV561062	NV475275
NV252271	NV326090	NV556152	NV473293
NV265274	NV365232	NV564171	NV477293
NV262171	NV377214	NV556178	NV494314
NV149152	NV382252	NV556179	NV495320
NV181147	NV323017	NV553183	NV512950
NV180131	NV333029	NV468196	NV408321
NV174105	NV388036	NV528216	NV418311
NV177103	NV403045	NV606256	NV437269
	NV436054	NV540287	NV421247

- An OC (Bronco 75 or representative) will be notified in advance of emplacement and accompany player personnel deploying the HEXJAM units.

- An OC must be positioned in proximity to all employed and operational HEXJAMs. This is to allow the OC to shut down the units quickly should the need arise. This is for safety purposes only; the OC in no way will assume responsibility for damage control or property accountability of HEXJAM units.

b. Voice intercept and communications deception operations will only be conducted by personnel possessing the 98 series MOS and duty position. This restriction applies to both BLUFOR and OPFOR units.

c. Soldiers outside of the 98 series MOS who discover what they believe to be an enemy frequency are authorized to pass that frequency on to their higher command post who, in turn, may pass it to the appropriate MI command post.

d. Electronic attack (jamming) operations will only be performed if under the direct control of an MI headquarters. This is to ensure that all no-jam restriction are observed.

e. Only Electronic Warfare systems will be used to monitor, conduct Intrusive Communication Deception (ICD), jam enemy radio systems or conduct any EW operations. At no time will SINGARS radios or other communications equipment be used to conduct these operations. Examples include: using "off the shelf" scanners such as those purchased from local electronic stores to scan with, or the use of SINGARS to jam an OPFOR net.

## **5. EW Operations Against TACAIR**

### **a. Restrictions**

(1) Communications jamming/deception may be employed in all Force-on-Force areas of the NTC on both Blue and Red TACAIR.

(2) Only Raven OCs will participate in intrusion and deception activities. Intrusion and deception attempts may not be real-world call signs (i.e., Sundance or Fort Irwin range Control). No bogus real-world call signs or station identifications will be used.

(3) Jamming is prohibited on safeguard frequencies.

(4) Have-Quick equipment and procedures may be used if all players are Have-Quick equipped.

(5) Safety is of paramount importance. A safety call to terminate jamming will be made by an aircrew member, FAC, or controlling agency to terminate comm-jam whenever a hazard is imminent or an emergency is in progress. All electronic jamming and all intrusion/deception activity will be terminated when safety, Stop Buzzer, or cease jam is transmitted on FM frequency 41.95 MHz, UHF guard frequency 243.0 MHz, or VHF guard frequency 121.5 MHz.

### **b. Procedures**

(1) Pre-mission briefings, coordination and mission planning will include Chattermark and Brevity Code procedures. Additionally, the FAC/Fighter briefing at the Contact Point (CP) will include Chattermark procedures. A jam-free rendezvous frequency will be designated and briefed to all participants. This frequency will be used only to establish communications if radio contact is lost.

(2) When Have-Quick is to be used, frequencies and Word-of-the-Day (WOD) changes will be published in the daily and ENEMY FORCES ATOs. ~~Detachment 1/549<sup>th</sup> CTS Team Raven~~ personnel will brief Have-Quick procedures to all participants.

(3) There are four BLUFOR UHF strike frequencies allocated for Force-on-Force battles. Three of these frequencies may be jammed during any one CAS mission.

(4) The OPFOR TACP has three allocated UHF frequencies, any two of which may be jammed for any one CAS mission.

(5) There are two FM strike frequencies available for the Blue TACPs and two for the OPFOR TACPs. One of these frequencies may be jammed per mission for each force.

(6) Airborne Jammers are not to be used (such as Quick Fix helicopters) against TACAIR. Compass Call is authorized with prior detailed coordination between Operations Group and the USAF.

## **2-3 Division Level Asset Employment and Interface**

### **1. MI Battalion Assets**

a. **Command and Control.** If a Division DISE or any other element deploys to the NTC, this element will be GS to the 52d ID (M) and locate as part of the 52d ID (M) TOC.

b. **Communication.** SIGNINT and combat information from the DISE will be routed through the G2/G3, to the brigade. The DISE will report combat information and TACREPs to the 52d ID (M) DTOC. The G2 will evaluate this information, and based on the scenario, hold, modify, or disseminate the information to the brigade S2 and other divisional GS assets, e.g. DIVARTY G2

## 2. Long Range Surveillance Detachment (LRSD).

a. **Command and Control.** When authorized as part of the scenario, LRSD as a Division asset will deploy under 52d ID (M) DTOC control. LRSD positioning is the responsibility of the G2, not the Brigade.

b. **Communication.** The 52d ID (M) DTOC, is the only agency authorized to pass LRSD reports/information to the Brigade S2. No one from the brigade or other DS, reinforcing, or attached element, will monitor the LRSD net under any circumstance. The Brigade S2 can, however, submit RFIs or IR to the G2, who may task the LRSD to satisfy the Brigade's IR.

c. **Operational Support.** The division will be responsible for all normal support such as the coordination of No Fire Area's (NFAs) with DIVARTY.

## 3. Live Unmanned Aerial Vehicles (UAV)

**General.** Mission length and use of a Live UAV will only be constrained by rotational unit personnel and A2C2 requirements. Personnel limitations will affect launch and recovery operations. UAV pilot fighter management, and A2C3 planning responsibilities.

a. **Asset Baselines.** For planning and execution of UAV flights the following baselines will be used:

1. TUAV. 3/1
2. Hunter. 8/1

b. **A2C2.** In order to ensure Division Airspace is maintained IAW procedural requirements, all A2C2 measures will be forwarded to Lizard 16 at least 26 hours prior to execution.

1. **TUAV.** The Brigade TUAV will fly between 8000 and 10000 feet AGL.

2. **HUNTER.** The Division UAV will fly between 10000 and 14000 feet AGL.

c. **Controlled Resupply Rates.** UAV's destroyed by enemy ADA, crashing due to lack of fuel, or lost due to weather will be resupplied at the rate of 1 AV every 48 hours. Damaged or destroyed UAVs will shut down the video feed immediately and return to the L/R ROZ. Upon completion of a 30 minute ascent replication for the UAV on strip alert, the UAV will reestablish its video link and proceed to the target area. All supply requests must be completed IAW NTC ROE/RID to ensure timely resupply.

d. **Weather Limitations.** No UAV will be launched if sustained winds exceed 25 knots or winds are gusting higher than 35 knots. UAV's will be required to return to the Launch and Recovery Site, if Weather Advisories are received that would ground Army Aviation Assets.

## e. Launch and Recovery.

1. All A2C2 and ATC positive and procedural requirements must be in place prior to launch. UAV operators will maintain communications with Desert Radio and report IAW established A2C2 measures.

2. If the Launch and Recovery Site is targeted by the OPFOR, O/Cs will adjudicate and assess damage in accordance with ROE/RID. If the GCS is damaged, the UAV camera will be turned off immediately and the aircraft will return to the Launch and Recovery Site. The system will remain inoperative until the GCS is repaired.

## 2-4 Simulated Intelligence Assets

1. **Division and EAD Assets.** Selected Division and EAD assets will be available through simulation. The command relationship with these assets will be determined prior to the rotation. If approved for use, all flights will be conducted IAW the Division Collection Plan and Intelligence Synchronization Matrix. All requests for Echelon Above Brigade Assets will be submitted to Lizard 09 at least 26 hours prior to execution.

a. **National Collection Systems.** IMINT systems will provide continuous coverage of the battlefield. ELINT Systems will provide continuous coverage for deep operations and limited coverage in

the Division area of operations. Limited COMINT will be available.

**b. JSTARS.** JSTARS is available in theater for 11 hours of continuous coverage for every 24 hour period. The 11 hours includes live or virtual JSTARS or any combination of the two.

**c. ARL-M.** ARL/M is available in theater for 8 hours of continuous coverage for every 24 hour period.

**d. U2R/U2S.** U2 is available in theater for 12 hours of continuous coverage for every 24 hour period.

**e. SR-71.** SR-71 is available in theater for 8 hours of continuous coverage for every 24 hour period.

**f. RC-135 (Rivet Joint)** Rivet Joint is available in theater for 8 hours of continuous coverage for every 24 hour period.

**g. EC-130H (Compass Call).** Compass Call is available in theater for 8 hours of continuous coverage for every 24 hour period.

**h. GRCS.** GRCS is available in theater for 16 hours of continuous coverage for every 24 hour period.

**2. ASAS.** If authorized, approved and supported by the rotational unit, Echelon Above Brigade simulation TACREPs can be routed directly to the Single Source and/or All Source Stations in the Division ACE. Normally, the 52<sup>nd</sup> ID G2 will analyze the combat information and produce a Graphic INTSUM for distribution to the rotational unit. One graphic INTSUM will be produced daily (1800 hours). Lizard 09 will review and approve all products prior to dissemination to the rotational unit.

## **2-5 Simulated UAV Systems**

**General.** Mission length of each intelligence asset will be calculated from take-off of that asset each day. Flights will be conducted IAW the Division Collection Plan and Intelligence Synchronization Matrix. All requests for Simulated UAV and Echelon Above Brigade Assets will be submitted to Lizard 09 and/or Lizard 16 at least 26 hours prior to execution.

**a. Mission Length.** For planning and execution of Simulated UAV flights the following timelines will be used:

**(1) TUAV.** Each AV is capable of 6 hours of continuous flight to include ascent and decent from the mission altitude. Twelve hours of coverage is authorized for each 24 hour period without penalty. The TUAV can surge up to 18 hours for three consecutive days. Following a one day surge, the TUAV will be available for 12 hours of the flight following eight hours of maintenance. Following a two day surge, the AV will be available for 10 hours of flight following 12 hours of maintenance. Following a three day surge, the AV will be available for eight hours of flight following 16 hours of maintenance.

**(2) Hunter.** Each AV is capable of 8 hours of continuous flight to include ascent and decent from the mission altitude. Sixteen hours of coverage is authorized for each 24 hour period without penalty. The HUNTER UAV can surge up to 24 hours for two consecutive days. Following a one day surge, the HUNTER UAV will be available for 16 hours of flight following eight hours of maintenance. Following a two day surge, the AV will be available for 12 hours of flight following 12 hours of maintenance.

**b. Dynamic Retasking.** A rotational unit's immediate request for Division UAV support will be approved by L03 and the Commander of Operations Group on a case by case basis.

**c. Asset Baselines.** For planning and execution of UAV flights the following baselines will be used:

(1) TUAV. 3/1

(2) HUNTER. 8/1

**d. A2C2.** In order to ensure Division Airspace is maintained IAW procedural requirements, all A2C2 measures will be forwarded to Lizard 16 at least 26 hours prior to execution.

**(1) TUAV.** The Brigade TUAV will fly between 8000 and 10000 feet AGL.

**(2) HUNTER.** The Division UAV will fly between 10000 and 14000 feet AGL.

**e. Controlled Resupply Rates.** UAV's destroyed by enemy ADA, crashing due to lack of fuel, or lost due to weather will be resupplied at the rate of 1 AV every 48 hours. Damaged or destroyed UAVs will shut down the video feed immediately and return to the L/R ROZ. Upon completion of a 30 minute ascent replication for the UAV on strip alert,

the UAV will reestablish its video link and proceed to the target area. All supply requests must be completed IAW NTC ROE/RID to ensure timely resupply.

**f. Weather Limitations.** No UAV will be launched if sustained winds exceed 25 knots or winds are gusting higher than 35 knots. UAV's will be required to return to the Launch and Recovery Site, if Weather Advisories are received that would ground Army Aviation Assets.

**g. Launch and Recovery.** If there is a launch and recovery site within the rotational units AO, it must be secured in order to fly a UAV. In addition, all A2C2 and ATC procedural requirements must be in place prior to launch. At the time of launch, a white smoke grenade will be employed by NTC O/Cs to present a launch signature. Virtual UAV Procedural Controls will be followed as outlined below in Paragraph 2.

**h. Set Up and Tear Down.** For planning and execution of UAV flights the following timelines will be used:

(1) **TUAV.** One hour for set-up and preparation of the TUAV for launch. Thirty minutes for march order of the TUAV for movement.

(2) **HUNTER.** Three hours for set-up and preparation of the HUNTER for launch. One hour for march order of the HUNTER for movement.

**i. Fighter Management.** The following crew rest restrictions will be enforced to ensure UAV operators receive the proper rest prior to controlling Avs:

- Each crew can work a 12 hour shift, however,
- Each crew is restricted to eight hours of daytime flight per 24 hours or five hours of nighttime flight per 24 hours

## **2. Virtual UAV Procedural Controls**

**a. Responsibilities.** The following entities will perform the duties listed below for launch and recovery of the Virtual UAV:

(1) The DTOC will replicate the Launch and Recovery Section of the UAV Platoon.

(2) The DTOC will confirm the weather, the ROZ, and other required ACMs and launch the UAV.

**b. OC Coverage.** The OC Team covering the rotational unit will pass all information to the DTOC by OCCS radio.

### **c. Rotational Unit**

(1) Will prepare a Collection Plan and Intelligence Synchronization Matrix that requests UAV coverage and provide that information to Lizard 09 NLT 26 hours prior to mission execution.

(2) Will prepare the necessary documents and conduct the required coordination to ensure Airspace Control Measures are established.

**3. Miscellaneous.** One UAV will remain on Strip Alert during all flights. The aforementioned procedures will be followed to request take-off of the UAV on Strip Alert. Upon notification, it will take a minimum of 30 minutes for the new UAV to reach the coordinating altitude.

## **2-6 IEW Restrictions**

**1. General.** Frequency management at the NTC is closely regulated to ensure training objectives are met while preventing infractions of Federal, State, and Local regulations. The restrictions below will be followed during all rotational exercises. (These lists are provided to the rotational unit upon arrival at the NTC.)

**2. Restricted Frequency Lists.** Restricted Frequencies are broken into separate listings with specific limitations as shown below:

a. List 1 and 2 are Permanent Status 0 (no-jam/no-intercept/no-collect). They are labeled Permanent Status 0 and 02.

b. List 3 is a Rotational Status 0 (no-jam/no-intercept/no-collect) list. The frequencies in lists 1 through 3 are strictly off limits to OPFOR/BLUFOR at all times.

c. List 4 and 5 are respectively the 50 and 1500 watt restricted jamming lists. Collection operations are authorized against frequencies on these lists at all times.

d. List 6 is the sunset to sunrise restricted jamming list. Even though collection operations are

authorized against frequencies on this list at all times, jamming is only authorized while the sun is above the horizon. Ranges increase during the hours of darkness and interfere with civilian and other nearby military forms of communication.

**3. Unrestricted Frequencies.** All other frequencies not covered by the above mentioned lists are targetable for collection and jamming operations at all times.

## **2-7 EPW Events**

**1. Directed EPW Events.** Selected OPFOR soldiers (as designated by the CBI) will serve as EPWs during selected Force-on-Force battles (these events are not to be confused with PPG events – see Chapter 9). Prior to each mission, they will receive a briefing by the OPFOR and the OCs to establish their role. Operations Group's off-cycle team will provide augmentees to support this operation in order to provide continuous coverage for the duration of the event.

a. **Responsibility.** Tracking and accountability of the EPWs is initially the responsibility of the OPFOR (before capture). At linkup, responsibility is passed to the OC team. An OC will remain with the EPW from the time of capture until the EPW is returned to Blackhorse control to prevent mistreatment of EPW's. The OC teams retain responsibility until the EPWs are moved to the collection point. At the collection point, Broncos have the responsibility until passed back over to the OPFOR.

b. **Requirements.**

- The uniform of all EPWs is standard field uniform with MILES.
- EPWs will carry a MILES casualty card.
- The CBI will identify if any of the EPWs need to be linguist and the required target language.

c. **Capture.**

(1) Soldiers may capture only those soldiers designated as EPWs anytime during the tactical operation.

(2) OCs will supervise the capture of all EPWs.

(3) EPWs will not attempt to escape once captured and EPWs will begin to play their role once

player units close within 10 meters. EPWs will be *PASSIVE* EPWs.

(4) If the EPW's MILES harness is activated, the EPW will be handed his casualty card IAW ROE.

(5) The EPW's weapon will be deactivated using the weapon MILES key and the weapon will be slung facing toward the ground.

d. **Processing.**

(1) Soldiers may not strip search EPWs. The two hip pockets and two front pockets of the DCU trousers will be designated as "Safe Pockets" for the OPFOR soldier. To safeguard wallets, keys and other personal items, these pockets will not be searched. All other pockets will be subject to searches IAW the Geneva Convention.

(2) OCs will supervise all searches of EPWs.

(3) The Geneva Convention applies to the treatment of all EPWs. No binding, blindfolding, or abuse of EPWs, either physically or verbally is allowed. Personal and sentimental property may not be taken from the EPWs (e.g., wedding bands, watches and religious medallions). The EPW's equipment, sensitive items, food and water will be secured, and must remain with the EPW at all times. This prevents the loss of sensitive items and ensures that captured soldiers have food and water throughout detainment, and appropriate clothing in case of weather change.

(4) Any soldier violating the Geneva Convention will have the EPW he is mistreating assessed as a non-battle casualty and removed from the area.

(5) The OC of the capturing unit will notify the Brigade OC Team (Broncos) and coordinate the evacuation of any EPWs not evacuated within four hours of their capture. The EPW is assessed as a non-battle casualty.

(6) The capturing unit will coordinate with the brigade to have the EPWs evacuated to the forward PW Collection Point. Brigade will then coordinate with division to have the EPWs evacuated to the division central collection point by personnel from the division MP company.

(7) OCs will notify DTOC/Blackhorse TAF of the OPFOR capture or compromise.

e. **Questioning/Interrogation of EPWs.**

(1) OCs will be present during any tactical questioning or formal interrogation of EPWs. Any EPW interrogated without an OC present will be assessed as a non-battle casualty and evacuated. This questioning/interrogation may take place at the Brigade Collection Point prior to evacuation by DIV MPs.

(2) Each EPW may have some tactical intelligence that can be gained through interrogation. The OPFOR and Plans and Operations are responsible for providing the EPWs with the information that they will use in their role as an EPW.

(3) No one will place an EPW under duress (intentional sleep or water/food deprivation, verbal threats, stress positions, etc.). The OCs will notify the Brigade OC Team and unit chain of command of captors who place EPWs under duress, and the EPWs will be assessed as a non-battle casualty and evacuated IAW Chapter 7, Logistics.

(4) Real world classified documents will be clearly marked and are not subject to capture (e.g. USR reports).

(5) All training documents (maps, overlays, SOI data) are subject to capture during training period.

f. No identification documents (ID cards, casualty feeder form, DD Form 1156, etc.) will be confiscated. At no time will the captured soldier give up possession of his wallet.

g. All captured documents will be forwarded to the Brigade Trainers, through player command channels, once exploitation value is exhausted.

**2. Free Play EPW Events.** No soldiers of either side will be captured as the result of tactical operations. When situations arise where capture would be the tactical outcome (e.g.; a soldier without ammunition), the OC will adjudicate the outcome to safely effect separation of forces.

a. **Handling of Salvaged Equipment.** No weapons or equipment will be “stripped” from the dead. Dead soldiers will not give any weapons or equipment to any live soldier. Only ammunition can be removed from the dead, by soldiers of the same side. No equipment, supplies (all classes), or personal belongings of opposing players or units will be taken unless the items appear to be lost. In these cases, an OC or the DTOC must be notified immediately, and the items secured until a proper transfer can be made.

b. **Captured Equipment.**

(1) Capture Procedures. Catastrophic or safety killed vehicles, bunkers or fighting positions are completely destroyed and are of no intelligence value. Soldiers may not block a moving vehicle’s path in an attempt to capture it. Equipment on vehicles is captured when one of the following occurs: A successful Stealth Kill, an abandoned or cached vehicle is found, or all personnel on a vehicle being engaged are killed or combat ineffective. In these cases, graphics and radio information may be made available to the “capturing” unit.

(2) Search Procedures. Prior to any information being provided to the unit, the capturing soldier must first request to search the vehicle. Once this has occurred, the OC, accompanied by the senior soldier from the vehicle present, will check the vehicle. On tracked vehicles, the inspection will entail the OC mounting the vehicle and looking in the turret without entering the turret. On wheeled vehicles, the OC will inspect the vehicle by looking through the windows or other apertures.

(3) Information Provided. The OC will determine if any maps or overlays are reasonably available (visible) and direct the vehicle soldier to provide it to the capturing soldier. Radio frequencies set on any vehicle radio will always be considered reasonably available. At no time will capturing soldiers mount, enter, or remove any item from the captured vehicle. Material provided can be copied on site, but will be returned.

(4) Use of Captured Equipment. At no time will soldiers use captured vehicles or equipment. Upon request and DTOC approval, credit for issue of common usage items (such as barrier materials) may be granted to the capturing unit.

(5) Quarantine of Captured Equipment. All captured equipment will be evacuated to a quarantined holding area (monitored by Blackhorse Liaison personnel or OCs) for reuse/reissue as determined by the 07 of the affected OC team upon arrival at the holding area. Any personnel or vehicles that break the quarantine will be quarantined as well.

3. PPG EPW Events. (SEE CMO, CH. 9)

**2-8 Live Fire Restrictions**

**1. General.** All MI assets, to include GSRs, must be equipped with a manpack or under the immediate control of a qualified OC (Broncos) while operating in the Live Fire area of operations.

**2. Electronic Warfare (EW) Operations.**

a. EW operations may be conducted in Live Fire operations. EW operations will follow the established ROE used in Force-on-Force operations, with the following exceptions:

(1) Imitative Communication Deception (ICD) is not authorized during Live Fire operations.

(2) 52D ID (M) DTAC is the approving authority for positioning of EW assets out of sector during Live Fire operations.

(3) EW is not authorized against TACAIR during Live Fire operations. all TACAIR communications in Live Fire are BLUFOR/Friendly communications.

(4) The DISE will report all combat information and TACREPs 52 ID (M) TAC during Live Fire operations.

(5) Long Range Surveillance Detachment (LRSD) operations in Live Fire will be planned by the 52 ID (M) TAC.

b. Rotational units participating in Live Fire will ignore and avoid all NTC OPFOR personnel and activities. OPFOR soldiers are never used in Live Fire. There is no simulated Prisoner of War play in Live Fire; however, captured enemy documents should be treated as such and passed through proper channels.

# CHAPTER 3

## MANEUVER

### 3-1 Engagements

MILES outcomes have precedence when determining the results of actions on the NTC battlefield. The following assessments apply:

- **MILES rules the battlefield!**
- Personnel and vehicles/systems with inoperable MILES will not participate in training.
- If MILES become non-operational during a battle those soldiers/systems with operational MILES automatically win.
- In battles between soldiers/systems with MILES and those either without MILES (including exempted soldiers/systems) or inoperative MILES, those soldiers/ systems with operative MILES automatically win.
- OCs will assess engagements where all vehicles involved are without MILES or MITS.
- OCs will only set aside MILES outcomes when MILES sensors are obscured, MILES does not adequately replicate fragmentation or ricochet behavior, or MILES clearly does not replicate battlefield conditions.

**1. Direct Fire BDA.** Direct fire engagements will be governed by MILES results except where MILES does not adequately replicate battlefield conditions. Rules for normal events follow:

#### a. Near Miss

(1) Notification. When a system is engaged but the rounds are off target or the system was engaged by an inappropriate type weapon (e.g.; M16 firing on a tank), the Combat Vehicle Kill Indicator (CVKI) light will flash 2 times and stop. An audio message will be

played on the vehicle intercom, and the VDD will indicate a near miss (see Table 3-1 Figure 2 for VDD LCD display codes).

(2) Immediate Action. Personnel should respond with appropriate battle drill. Vehicle remains fully operation.

#### b. Firepower Kills

(1) Notification. When a system is hit and determined to be a firepower kill, the CVKI light will flash four times and stop. An audio message will be played on the vehicle intercom, and the VDD will indicate a Firepower Kill (see Table 3-1 Figure 2 for VDD LCD display codes). Vehicle weapon transmitter will be disabled.

(2) Immediate Action. Vehicle may continue to move and communicate. It will not discharge signature devices to simulate firing. Ammunition may only be cross-leveled under OC or Blackhorse Liaison supervision (see Chapter 7 - Logistics for resupply procedures).

#### c. Mobility Kills

(1) Notification. When a system is hit and determined to be a mobility kill, the CVKI light will flash four times and stop. An audio message will be played on the vehicle intercom, and the VDD will indicate a mobility kill (see Table 3-1 Figure 2 for VDD LCD display codes).

(2) Immediate Action. Driver will bring vehicle to an immediate safe halt. If the vehicle moves 25 meters, it becomes a penalty kill. This will be automatically assessed by the NTI-IS. The vehicle may continue to communicate and shoot. NOTE: In cases of emergency, the vehicle will still be capable of movement. This action, however, will be recorded automatically on the NTC-IS and the vehicle assessed as a penalty kill.

Table 3-1 Figure 1 SAWE-RF/MILES II BDA Assessment	
BDA Category	Battle Damage Assessment
Catastrophic	Vehicle is unsalvageable. All functions cease immediately. Note; Vehicles which are mobility kills and subsequently receive a firepower kill (or vice-versa) automatically become catastrophic kills.
Mobility	Vehicle may not move further. If moving at the time, the driver will bring the vehicle to a safe halt immediately. The vehicle may continue to fire and communicate.
Firepower	Vehicle may not continue to fire. The MILES transmitter will be disabled. Vehicle may continue to move and communicate.
Penalty Kill	Failure to take the directed action for mobility kills will be detected by the NTC-IS and the vehicle will automatically receive a catastrophic kill as a penalty. This action will be recorded on the vehicle VDD and passed through the NTC-IS to the TAF.

Personnel capable of movement may reposition to provide local security. They will remain within 300 meters of the vehicle unless they have an operational PDD. Ammunition may only be cross-leveled under OC or Blackhorse Liaison supervision (see Chapter 7).

**d. Catastrophic Kills**

(1) Notification. When a system is hit and determined to be a catastrophic kill, the CVKI light will flash continuously. An audio message will be played on the vehicle intercom, and the VDD will indicate a Catastrophic Kill (see Table 3-1 Figure 2 for VDD LCD display codes). This will also occur when a firepower kill vehicle receives a mobility kill or vice versa. The combination of firepower and mobility (in either order) results in being assessed as a catastrophic kill.

(2) Immediate Action. Vehicle occupants will come to an immediate safe halt if moving or if in a fighting position, pull out above ground, cease all radio transmissions and firing, and place the gun tube over the back deck. Failure to do this will result in being automatically assessed as a penalty kill by the NTC-IS. Crews will not use pyrotechnics to signal location of battlefield contact.

**e. Penalty Kills**

(1) Penalty kills are assessed for two categories MILES Not-To-Standard and BDA Limitation Violation. Infractions are assessed as follows:

(2) OCs will automatically assess a MILES not-to-standard penalty kill to soldiers/systems without a MILES casualty card, that knowingly circumvent the MILES system, remove batteries, or use a “shaved” key. Soldiers may be assessed as immediate DOWs. Cases of MILES not-to-standard involving suspected cheating will be reported through both the rotational unit chain of command and OC channels.

(3) Table 3-1 Figure 1 outlines MILES II BDA category and mobility restrictions. Violation of these limitations will result in a penalty pill. This is normally assessed automatically through the NTC-IS system.

**f. Subsequent Action for Catastrophic and Penalty Kills**

(1) Personnel. OPFOR personnel are considered KIAs and will remove kevlar/CVC and don **DCU boonie cap** and insert their yellow keys into their MILES harness (self-kill). BLUFOR personnel on the vehicle will remove their headgear,

self-kill, and put their MILES casualty cards into effect.

Table 3-1 Figure 2 Miles VDD Codes	
MILES II Code	Weapon
00	Controller Gun
01	Maverick Missile
02	Hellfire Missile
03	AT-3 (Sagger) Missile
04	60mm, 81mm, 4.2in Mortar
05	M15 AT Mine
07	TOW Missile
07	AT-5 (Spandrel) Missile
07	AT-8 (Songster) Missile
08	Dragon Missile
09	Javelin Missile
10	M21 AT Mine
10	125mm T72, T80 Tank
11	M18 Claymore Mine
11	M16A1-AP
12	105mm M1, M60 Tank
13	155mm Howitzer
13	122mm Howitzer
13	122mm Rocket BM21
13	152mm Howitzer
14	2.75in Rocket
14	57mm Rocket
14	73mm Cannon BMP1
15	VIPER LAW
16	120mm M1A1/2 Tank
17	90mm Recoiless
18	105mm, 152mm Howitzer
18	203mm Howitzer
19	40mm Grenade
20	Rockeye CBU
21	30mm A10 GAU-8
21	30mm AH-64
22	25mm M2/3 Bradley
22	ZSU 23-4
23	20mm Vulcan
23	30mm BMP2
24	M2, M85 .50 cal Machine Gun
24	12.7mm Machine Gun
25	SA-9
25	SA-13
25	Chaparral
25	ASET SA-8
25	ASET SA-9
26	Stinger
27	M16A1, M60MG, M240MG
33	SA-14
34	ZSU 23-4 Radar Mode
Codes subject to change due to MILES updates	

(2) Equipment. These vehicles are of no recovery or exploitation value. Ammunition may not be cross-leveled.

(3) Fighting Positions. If in a fighting position when destroyed, crews will pull out of vehicle fighting positions, but the position will be considered occupied by a burning hull.

g. **Recovery and Reconstitution.** No further action by the vehicle or crew is allowed until recovery and reconstitution procedures are conducted by the unit, or further guidance is received from an OC.

## 2. Re-key Procedures

a. OCs will control re-keys of BLUFOR systems. The 07 of the affected OC team on the ground will make final determination.

b. OPFOR re-keys prior to entering the close fight will be handled by Blackhorse liaison personnel/TAF after coordination with the DTOC. After joining the close fight, re-keys are not normally authorized. The 07 of the affected OC team on the ground will make final determination regarding any requests by Blackhorse Liaison personnel. All requests will be routed through the Blackhorse TAF to DTOC to affected OC team.

**3. Direct Fire Signature Requirements.** All weapon systems will emit a “signature” to replicate the ammunition discharge when firing. Vehicles not emitting a signature may be assessed as a Penalty Kill and those systems killed by such, may be re-keyed at the discretion of the Team 07.

a. **Systems with Automatic Signature Devices.** A HOFFMAN, ATWESS, FLASHWESS, or blank must be fired during direct fire engagements. If the system runs out of signature rounds, it is out of ammunition and may not fire. If the HOFFMAN or other approved signature device is non-operational, then the weapon system it represents becomes non-operational.

b. **Systems without Automatic Signature Devices.** Vehicular mounted machine guns which emit a MILES signature without firing blanks (example, the T80 coaxial machine gun ) must discharge a HOFFMAN for every 100 machine gun rounds fired.

c. **Reloading Procedures.** When the HOFFMAN rack is expended on vehicles in contact, the vehicle will immediately move to cover and reload. Defensive fire to provide protection while actively seeking cover is authorized.

**4. MILES Defilade.** Personnel and weapon systems must have the capability of being killed when they would realistically be vulnerable. Conditions which defeat the MILES laser beam but would be ineffective against actual munitions are referred to as MILES Defilade conditions. Rules follow:

a. **Camouflage Nets.** Camouflage nets are not authorized on systems or personnel when involved in direct fire battle. If a camouflage net is in use, those systems whose MILES sensors are masked by it will be assessed as a Penalty Kill immediately if fired upon by an operational and capable MILES system.

### b. MILES Berm.

(1) Intentional. Using inadequate cover to defeat the MILES laser such as brush, smoke, and dirt berms of insufficient dimensions to defeat actual projectiles is not authorized. Berms around vehicle positions that are not-to-standard will be corrected or removed, or the position will result in being assessed as a Penalty Kill immediately if fired upon by an operational and capable MILES system.

(2) Unintentional. At times, operational requirements will place inadequate cover between MILES belts and attacking weapon system. For example, a driver’s MWLD/PDD may be blocked by a door/canvas etc., inadequate to stop actual rounds. An OC assessment will be made for engagements in these cases.

c. **Ricochet and Fragmentation Effects.** An OC’s assessment will be made when direct fire weapons are shooting at concealed, but either uncovered or partially covered infantry. When such forces would be vulnerable, but are not because the MILES cannot replicate ricochet and fragmentation effects, they may be assessed as casualties by the OC.

## 5. Special Cases.

a. **5/10/50M “Safety Kill” Rule and Charging.** Due to safety considerations, close combat is not permitted. Engagements will not be allowed closer than 50 meters between vehicles and other vehicles or between vehicles and personnel and closer than 10 meters between dismounted soldiers in

other than MOUT conditions, or 5 meters in MOUT conditions. Accidental situations will occur when forces come into close proximity. These point blank engagements will be assessed by OCs. Rules follow:

(1) Immediate Action. When a target appears at less than the prescribed separation distance above, vehicle drivers will stop immediately and their TCs will cross their arms over their face to signify that they are engaging. Dismounted soldiers will halt and cross their arms to signify that they are engaging.

(2) Assessment. OCs will make a subjective evaluation based on the weapon systems involved and assess vehicles and/or personnel on either side as appropriate. The killing vehicle(s) or personnel will be directed to expend rounds in a safe direction to account for the kill(s).

(3) Minimum Arming Distances. Certain AT weapons (e.g.; Dragon, TOW, AT5, etc.), are ineffective within 50 meters based on minimum arming distances. Soldiers relying on these weapons within 50 meters will not be credited with a Safety Kill.

(4) Charging. Intentionally closing within the 5/10/50 meters to achieve a Safety Kill or cause enemy forces to reposition/expose themselves is defined as charging. This is not permitted. Soldiers who do so will not be granted Safety Kills, but will themselves be assessed as Penalty Kills for this unsafe conduct.

(5) Accidental Charging. Unknowingly closing within the prescribed distances is defined as accidental charging. This can occur when approaching well camouflaged positions, dug-in infantry, operating under limited visibility, etc. For safety reasons, OCs will halt units who accidentally charge. When possible, the forces will be separated, cautioned and permitted to continue. It may be necessary for an OC to Administratively Kill a vehicle to cause it to halt. In these cases, the OC will determine if re-keying the vehicle will present a bad signature on the battlefield, such as when under observation and being engaged by direct fire. The OC on the ground makes this assessment based on safety and the tactical situation.

b. **Stealth Kills.** BLUFOR and OPFOR soldiers under OC control can make kills of vehicle crews or sleeping dismounted soldiers. Rules follow:

(1) Preparation. An OC must be present before the silent kill is executed by the unit (OPFOR

or BLUFOR). The soldier informs the OC that he intends to make a silent kill and points out to the OC the vehicle crew or personnel. The OC confirms that the soldier has the appropriate weapon(s), such as a bayonet, and the soldier demonstrates the method he will use to accomplish the mission.

(2) Execution. The soldier, under the control of the OC, will then move to the vehicle/personnel until he is within five meters. At no time will the soldier climb on a vehicle or make physical contact with any soldier or vehicle during an attempted silent kill.

(3) Assessment. If successful, the OC will awaken the victim, tell him to put his yellow key in his harness, and assess him as a KIA. Soldiers killed in this way may not use any of the vehicle or other radios to communicate their situation. If the “killer” is compromised during his attempt, the OC will assess casualties as necessary.

**6. Special Conditions:** Bunker Engagements. Bunkers must be built to standard IAW applicable TMs. Direct fire against bunkers will be assessed in one of two ways:

a. **MITs Available.** When available, Mobile Independent Target Systems (MITs) kits will be mounted on the bunker. OCs will check MITs MILES prior to LD time to confirm that it is within view and operational. Assessments will be made based on MILES kills.

b. **MITs Unavailable.** If the bunker does not have MITs, the results will be determined by OCs using Table 3-1 Figure 3.

Table 3-1 Figure 3 Bunker Engagement Results		
RANGE	ELEVATION	ROUNDS TO DEST
2000m or less	Bunker level w/tank	1
2000m to 2500m	Bunker level w/tank	2
2000m or less	Bunker higher than tank	2
2000m to 2500m	Bunker higher than tank	3

**7. Interaction Between Enemy Forces.**

a. Enemy soldiers will never touch another person or their belongings except during NTC-directed PW events when an OC is present to supervise.

b. **Contact with Vehicles.** Enemy vehicles will not be touched or mounted, including simulated damaged (vs. destroyed) vehicles. A standoff of at least 50 meters will be maintained to avoid injury from blanks or HOFFMAN devices and to prevent any possible physical altercations. (Exception: See section 3-1.5.b (Stealth Kills) this Chapter.)

c. **Use of Projectiles.** Absolutely no object will be thrown or fired at opposing player, vehicles, or equipment.

### **3-2 Dismounted Operations**

#### **1. MILES and Instrumentation.**

a. **MILES.** Personnel will be equipped with one of the two types of MILES harnesses: Man Worn Laser Detector (MWLD) and Player Detection Device (PDD).

(1) MWLD. This MILES I harness provides a capability to be near-missed and hit. It provides no integrated tracking or SAWE sensing ability. All soldiers not equipped with PDD harnesses will be issued MWLD.

(2) PDD. The PDD has the capability of the MWLD plus a GPS position locating and SAWE sensing capability. Every squad and each separate dismounted element, up to squad size, operating on the battlefield will have a minimum of one operational PDD.

#### **b. Instrumentation.**

(1) Issue requirement. All squad-sized dismount elements, dismounted patrols, and local LP/OPs must each have an operational PDD or be accompanied by an instrumented vehicle (see Chapter 2 - Intelligence for dismounted R&S element requirements). Personnel must remain within 300 meters of a vehicle DCI, PDD, or an OC.

(2) Initial Position (PL) Checks. All PDDs used in dismounted patrols by either OPFOR or BLUFOR will be checked by appropriate TAF 30 minutes prior to LD. The dismounted patrol cannot LD unless the PDD is tracking or is accompanied by an OC. Dismounted TARP OPs must also have a functioning PDD or be accompanied by an OC.

(3) PL Lost Condition. When PL is lost on any dismounted patrol element, OCs or Blackhorse Liaison personnel will report location every 15

minutes or 400 meters of movement. This will allow the symbol to be player positioned for AAR purposes.

(4) Retention of PDD. Soldiers issued PDD harnesses who become casualties, will exchange them for MWLD harnesses with soldiers who have not been hit. All dismounted infantry elements must keep their PDD with them at all times, regardless of the casualties they suffer.

(5) Exceptions to PDD Requirement. Exceptions to PDD requirement for OPFOR units will be made by DTOC. Exceptions for BLUFOR units will be made by the senior team trainer.

#### **2. Restrictions.**

a. **Authorization.** Dismounted operations are authorized within the constraints of mission times as specified in the OPORD/FRAGOs and the boundaries/limits given to the BLUFOR/OPFOR through DTOC. Requests to conduct dismounted operations prior to established mission times, or out of sector, must be approved through the DTOC.

b. **Life Support.** A complete safety risk assessment will be conducted prior to each dismounted operation. Adequate means of life support will accompany dismounted elements or they will be OC/Blackhorse Liaison pulled back to unit assembly areas.

c. **Minimum Manning.** Single soldier OPs are never permitted. At no time will a unit designate an individual soldier patrol. Patrolling alone on the battlefield at the NTC is forbidden. Minimum manning for a dismounted OP is two soldiers.

### **3-3 Heliborne Operations**

**1. General.** Both BLUFOR and OPFOR units conduct air assault operations. OPFOR air assaults are referred to as Task Force Angel and authorization and mission specific instructions are found in the CBI.

#### **2. MILES and Instrumentation.**

a. **MILES.** All troop carrying aircraft in an air assault operation will be fully equipped with MILES. Those aircraft with MILES not to standard will not participate in the lift; or based on the OCs call the aircraft must stay with the flight. However, if any aircraft are killed in the lift, the non-MILES aircraft, including the soldiers on board, will also be assessed, and will return to the PZ.

**b. Instrumentation.**

(1) Helicopters. All OPFOR and BLUFOR aircraft will have an OC/DCI or SMODIM. OPFOR air assaults (UH-1/UH-60) are escorted by HIND VISMODs to provide visual recognition of an OPFOR air assault.

(2) Personnel. Dismounted infantry will have operational PDDs. BLUFOR DCI checks must be completed prior to departing the PZ through the respective TAFs. Once the dismounted elements depart the LZ, the OC team with responsibility for the sector in which the dismounts are operating, will have responsibility for controlling and making assessments on that dismounted element, with the assistance of the appropriate Blackhorse Liaison. Exceptions to instrumentation requirement must be approved by DTOC. In approved cases, player positioning will substitute for the instrumentation.

(3) DCI Checks. The TAFs will verify escort aircraft and platoon PDDs are tracking prior to departure from the PZ. Air assaults will not be authorized to depart the PZ until all instrumentation is properly tracking. Release must be given by DTOC prior to departure from the PZ on any exceptions.

**3. Restrictions.**

a. **Flight Routes.** The flight path and landing zone (LZ) for aircraft must be within the OPFOR and Rotational Unit sector. Air assault aircraft will be permitted to veer outside of the boundaries to avoid airspace obstacles presented by other aircraft for safety reasons. Non-emergency route changes must be approved by the DTOC.

b. **Aircraft Communication Requirements.** OPFOR aircraft will maintain contact with the Eagle OC or Blackhorse Liaison during all operations in the maneuver box. While transitioning active SAAFRs (activated and deactivated IAW the ACO) OPFOR aircraft will maintain communications with Desert Radio.

**4. Operations.**

a. **HIND Escort Requirements.** HIND VISMODs must provide a signature and security for OPFOR air assaults. Until the UH-60 aircraft are modified with a distinct signature, HIND VISMOD aircraft must remain within 1500 meters of the troop carrying aircraft to facilitate hostile identification.

There are no UH-1/UH-60 missions authorized without HIND escort aircraft.

b. **Division Early warning Net.** DTOC provides both BLUFOR and OPFOR tracking information on respective Division Early Warning (DEW) nets.

c. **Ground to Air Assessments.** All ground to air engagements will be assessed IAW the standard rules of engagement. Those aircraft that are successfully engaged during ingress will also have the troops onboard assessed.

**d. Multiple Lifts.**

(1) All air assault lifts are competitive.

(2) Lifts may go to separate LZs provided that the LZ has been coordinated through the DTOC 24 hours prior to ensure OC coverage at the various LZs. OPFOR will designate 1 Primary and up to 3 Alternate LZs. OCs will cover on all LZs to ensure adequate coverage. OPFOR may change from the Primary to any of the Alternate LZs in route.

e. **OPFOR out of Sector Air Assaults.** Upon approval of the Commander, Operations Group and Blackhorse 06, air assaults out of sector are authorized. DTOC must approve subsequent resupply operations through Regimental recon / CRPs.

(1) Air Assault will be a maximum of 100 personnel, and 3 AT-5s. AT-5 ATWESS rounds are limited to a total of 10 rounds per AT-5. Five rounds basic load, and five rounds resupply carried in tootsie rolls.

(2) In general, the rotational unit will receive spot reports of MTIs, penetration, and engagements by the adjacent unit and of the HIND squadron turning into the rotational unit sector.

**f. Reconstitution.**

(1) If a troop carrying aircraft is assessed as a MILES kill on ingress or in the vicinity of the LZ, it will remain with that lift but will not be authorized to offload its troops. Once the lift returns to the PZ the aircraft will be reconstituted and used again for the remainder of the air assault mission due to restricted aircraft availability, however, the troops and equipment cannot be reinserted on a follow on lift.

(2) If an escort aircraft is assessed to MILES, either on ingress, in the vicinity of the LZ, or egress, it will remain with that lift to present the TF ANGEL signature but cannot engage BLUFOR units. Once the lift returns to the PZ, the "assessed" escort aircraft can be

rekeyed (if authorized). The CBI will state how many "lives" SOKOL escort aircraft have for that day. If SOKOL uses all of its escort lives before completing the air assault, no more lifts will be authorized to depart the PZ.

### **3-4 MOUT Operations**

**1. General.** The NTC has limited MOUT sites which include several trailers to simulate a mining camp. Except when specifically authorized, the mining camp (MOUT site) is off limits to all personnel.

**2. MILES and Instrumentation.** Velcro patches have been emplaced along the sides of all the trailers so that MITS kits may be installed. Upon occupation by any force, three MITS kits will be installed on each trailer. Sensors will be draped over the sides of the trailers with the light being placed on the roof of the trailer. Each trailer is considered to have three rooms each, with each MITS kit controlling one-third of the building. MITS kits will be set on Position #4 (Bunker) for use on the trailers.

### **3. Restrictions**

a. **Eye Protection.** It is recommended that all personnel participating in MOUT operations wear eye protection.

b. **Building Type.** Each trailer will be considered to be masonry construction.

c. **Rooftop Operations.** Units will not conduct helicopter, fast rope, or rappel landings onto building tops. The only instance personnel allowed onto the roofs of the trailers are for the purpose of set-up/tear down of the MITS kits.

d. **AT Weapons Backblast.** AT weapons fired from inside the trailers must meet the backblast and clearance requirements listed in FM 90-10-A. Soldiers who are within the backblast area, or in an area that does not meet the clearance requirements when the weapon is fired, will be assessed as casualties IAW their MILES card.

e. **Open Fires.** No open fires (to include cooking fires, warming fires, and candles) are allowed within 25 meters of a building or in the buildings themselves.

f. **Flame Producing Pyrotechnics.** No flame producing booby traps of any type will be installed in the buildings. All other booby traps will be

dismantled when the element vacates the building. Anytime a booby trap is utilized in the building, a means to extinguish any possible fire will be present (i.e., fire extinguisher, filled 5 gallon water can).

g. **Latrines.** Units will designate latrine sites outside of the buildings.

f. **Police Call.** Units will conduct a police call of the trailers and the area surrounding the trailers prior to departure.

### **4. Operations**

#### **a. Assessments due to Building Damage.**

(1) For Direct Fire Weapons, that portion of the building that has an activated MITS kits will be destroyed.

(2) For Indirect Fire missions fired at the village, the Wolf TAF will assess which building or portions of buildings are destroyed and relay that information to the OC with the rotational unit or the OPFOR for the necessary actions.

(3) Based on which MITS kits is activated, the personnel in that third of the building will place their MILES casualty cards into effect.

(4) Destroyed sections of buildings may not be occupied.

(5) **Building Repair.** Destroyed buildings or sections of buildings are not repaired until End of Mission.

b. **Clearing Operations.** If dismantled personnel are utilized to clear buildings, an OC must be present for the mission.

c. **Engagements Under 10 Meters.** Because of the close in nature of MOUT fighting, engagements within 5 meters of a combatant can occur. When clearing rooms, the OCs will make the call on when direct fires between forces will cease. When direct fires have been ceased, the OC within the building will adjudicate all further engagements based on the procedures followed by the appropriate forces.

### **3-5 Special Operations Forces**

**1. General.** Special Operation Forces (SOF) will normally operate under direct 52 ID (M) control. Liaison teams with maneuver elements allow training

in coordinating force protection, CSAR, or infiltration/extraction type missions.

## **2. MILES and Instrumentation.**

a. All SOF players unit personnel will wear MILES and all equipment and weapons will be equipped with either MILES or MITS, unless otherwise specified.

b. If soft caps are worn by SOF soldiers, then MILES HALOS will be worn on the soft caps. SOF forces may wear DCUs while operating in support of either BLUFOR or OPFOR at the NTC.

c. SOF personnel train on weapon systems which do not have MILES, but are critical to mission accomplishment. If necessary, and coordinated in advance, special provisions/adjustments concerning MILES will be made.

## **3. Restrictions.**

a. All communication with Special Forces elements will be routed through the DTOC.

b. LNOs sent to brigades will not permit BLUFOR to monitor ODA team or other operational traffic on Special Operations nets.

**4. Escape and Evasion Operations.** Escape and Evasion (E&E) operations undertaken during the course of the exercise may be terminated at the SOF OCs discretion.

### **3-6 Special BMP ROE**

#### **1. BMP Searchlights.**

a. Device Description. The OPFOR BMPs are authorized a hand held searchlight to replicate the BMP searchlight.

b. Device Restrictions and Employment.

- BMP must be operational to employ searchlight.
- Searchlight may not be employed against airborne helicopters.
- Searchlights will not be operated remotely from the vehicle.

### **3-7 Pyrotechnics and Munitions Replication**

1. Pyrotechnics include standard smoke, booby traps, flares, etc. to include ATWESS, HOFFMAN.

a. **Device Restrictions and Employment.**

(1) Only NTC approved booby traps, trip flares, etc. are authorized for use by the Rotational Unit. All pyrotechnics to be used by the Rotational Unit must be approved by an OC prior to it leaving the RUBA.

(2) Rotational Units may expend smoke grenades, parachute flares, and star clusters per unit SOP with exceptions as noted below.

(a) Any color smoke other than yellow or red can be used by either player elements for signaling.

**2. Hand Grenades.** Hand grenades may be used during rotational exercises provided the following requirements are met:

a. **Device Description.** Each hand grenade will consist of an MRE bag filled one quarter full with loose sand. Rocks found in these bags will make the hand grenade unserviceable. The bag will be folded over a few times and taped shut. A Chemlight will be taped to the top to replicate the hand grenade pin.

b. **Device Restrictions and Employment.**

(1) Grenades may not be used against vehicles.

(2) Grenades are single use items and may not be reused. Expended rounds will be recovered following battles and materials may be recycled by returning to BSA for reconstruction and subsequent reissue. Goldminer OCs will certify fabrication. Rounds may not be constructed forward of the BSA.

(3) Grenades may be redistributed within the unit as per other items of ammunition.

(4) All hand grenades will be inspected by OCs prior to their use and only used when an OC is physically on site.

(5) To arm the grenade, the soldier will break the Chemlight (to replicate pulling the pin) and lob the grenade at the intended target

(6) Grenades *WILL NOT* be thrown "baseball" fashion and at a high velocity.

(7) Soldiers will yell "grenade", whenever throwing. This serves two purposes:

- Safety: To permit soldiers in the area to assume a proper protective position.
- Assessment: To notify the OC to permit positioning in order to make assessments.

(8) Incoming grenades may not be picked up and thrown back.

**c. Device Effects.**

(1) Grenades have the following lethal effects:

- In the open - 10 meter radius
- In a fighting position - All occupants
- In a trench line - All occupants of that section

(2) Soldiers who are below surface when a grenade goes off above the surface are not affected.

(3) All grenade casualties will be assessed by the OC.

**3-8 Special Equipment Replication**

**1. 90mm Recoilless Rifles.** The 90mm Recoilless Rifle is without MILES.

**a. Device Restrictions and Employment.**

(1) This weapon system has a variety of munitions. Inert rounds to replicate the approximate size and weight of the 90mm round will be carried by the soldiers for each round that is fired.

(2) Each 90mm round carried will be marked with the munition type.

(3) 90mm rounds are single use items and may not be reused. Expended rounds will be recovered following battles and materials may be recycled by returning to BSA for reconstruction and subsequent reissue. Fabrication will be certified by Goldminer OCs. Rounds may not be constructed forward of the BSA.

(4) OCs will discharge a hand grenade simulator to replicate the backblast.

**b. Device Effect.** OCs will assess casualties and weapons effects on the OPFOR based on the munition type selected.

**2. Javelin Anti-tank Guided Missile.**

**a. Device Restrictions and Employment**

(1) Additional missiles for the Javelin system are replicated by simulated rounds (SR) that constitute actual size and weight of the missile. In addition, one hand grenade simulator will be issued (exception to section 7-12 (Ammunition), Chapter 7 - Logistics to the NTC Rules of Engagement) and maintained with each SR to be used to replicate the firing signature of the Javelin. The BDE ammunition officer initially controls SR and hand grenade simulator stocks with subsequent allocation to BN S4s IAW the unit's ammo SOP. Expended SRs will be collected by Observer/Controllers (OCs) and re-issued to the brigade based on the approved CSR/RSR.

(2) In cases where the CSR/RSR exceeds the number of SRs available for replication and/or time constraints do not allow for the return of expended SRs to the ammunition supply point (ASP) the division and brigade, with appropriate documentation as well as adequate transportation (as referenced in 7-11 (Logistics), Chapter 7 – Logistics to the NTC Rules of Engagement) may issue paper ammunition (addition to section 7-12 (Ammunition), sub-section 4 (Paper Ammunition), Chapter 7 - Logistics to the NTC Rules of Engagement) with the appropriate number of hand grenade simulators. Task Forces would then receive, upon OC validation of documentation and transportation assets, the appropriate number of SRs. Paper ammunition will not be used to replicate SRs lower than Company/Team (CO/TM) level. Paper ammunition will only be used to replicate SRs while being transported on vehicles and/or aircraft and will not be used during dismounted operations. Paper ammunition must be exchanged for an SR by an OC prior to crossing the line of departure (LD) or defend no later than time.

**b. Simulated Battery Coolant Unit (SBCU):** Units receive credit for one SBCU per round (Field Tactical Trainer and/or SR). Javelin gunners may carry one additional SBCU (simulated) as an authorized spare. Expended spare SBCUs will be collected by OCs and re-issued after verification of appropriate documentation.

**c. The Javelin FTT Anti-tank Launch Effects Simulator (ALES).** The ALES system must be activated for the unit to receive credit for an engagement. ALES INOP constitutes MILES INOP and renders the weapon system INOP.

**d. Engagement criteria.** Units engage targets in accordance with (IAW) the following requirements:

(1) The MILES-equipped FTT with hand grenade simulator in a fiber container counts as a single round. OCs program additional rounds and SBCUs into the FTT based on the number of FTT/SR rounds with hand grenade simulators in fiber containers available at the firing location.

(2) Once the Javelin gunner is in position the fiber container, with hand grenade simulator inside, must be placed next to the Command Launch Unit (CLU)/FTT. Upon acquiring the target and engaging the hand grenade simulator must be taken out of the fiber container and detonated approximately five meters in front of the gunner's position (towards the enemy engaged), within 10 seconds to present a firing signature. The pull cord from the hand grenade simulator must then be attached to the SR (on sling), fiber container closed and placed beside the expended SR thus indicating an expended round and SBCU. Prior to engaging another target the CLU must be detached and then reattached to the FTT and the same steps followed as outlined above prior to engaging with additional rounds. SRs without hand grenade simulators in fiber containers present or vice versa will be confiscated by the OC as a violation of the ROE.

(3) OCs will recover expended rounds and fiber containers for unit re-issue and will reactivate expended rounds and fiber containers after verifying the proper procedures for request and receipt of additional ammunition has been met.

(4) By the no later than (NLT) time of units being ordered behind the new LD or forward line of own troops (FLOT), as issued in the continue the mission (CTM) instructions, any SRs and fiber containers (must be kept together) left forward in sector/zone will be considered out of play and retrieved by OCs for re-issue to the brigade.

**f. Bunker Engagements.** Assessed bunkers result in the bunker destroyed and all occupants become casualties. Bunkers not equipped with MITs are assessed on the first shot, provided the bunker is within range and can be engaged by the Javelin (line of sight), as verified by the covering OC.

**g. Back haul of dunnage.** The training unit is responsible for the accountability and back haul of dunnage (pallets and missile boxes) from forward units to the division ammunition supply point (ASP)

NLT CTM plus twenty-four hours to facilitate repackaging and re-issue to the brigade.

**h. Safety.** All training unit soldiers that may encounter or employ the hand grenade simulator must receive as part of their initial safety brief, prior to departing the cononment area, a class by the OCs on the proper handling and use of this pyrotechnic device. Prior to issuance to the individual Javelin gunner/crew level the hand grenade simulator (unaltered) must be inside the fiber container and remain there until it is time to detonate.

### **3-9 Live Fire Training Requirements**

1. Units that want to execute live fire without meeting minimum live fire requirements must submit a waiver not later than 1500 hours, RSOI 4 through their OC team for approval by the Commander, Operations Group, NTC.

2. The Brigade must conduct an FCX IAW TC 71-5 within six months of NTC rotation. FCX must be conducted down to platoon leader level.

#### **3. Individual weapons:**

a. All soldiers who will fire their individual weapons during live fire must qualify with their weapon within six months prior to the NTC rotation. Qualification must be IAW STRAC and the appropriate FM.

b. **Claymore mines.** Soldiers must have conducted training on emplacing, arming and disarming claymore mines IAW Soldiers Manual of Common Tasks (SMCT) within six months of the NTC rotation. Each squad must also have emplaced, armed and fired a live claymore mine to standard (ARTEP 7-8-MTP) during a squad or platoon LFX within three months prior to executing NTC live fire.

c. **Hand grenades.** Soldiers must have negotiated a hand grenade course within six months IAW FM 23-30 and thrown a live grenade within 1 year.

d. **Demolition.** Training with live mines, demolition munitions, MICLICs and bangalore torpedoes must be conducted within 12 months of NTC rotation IAW appropriate FM.

e. **Crew served weapons** (M60, M2 .50 cal, MK 19). All crews must qualify with their weapons within six months of the NTC rotation IAW appropriate FM. If weapons will be fired from a

vehicle mount, but the weapon qualification was conducted using a tripod, then a live fire familiarization exercise must be conducted firing the weapon from the vehicle mount (this can be done at the NTC prior to live fire, if necessary). In the offense, only stabilized platforms (M1/M2) will fire on the move. All crew served weapons must conduct test fire/head space and timing procedures IAW their respective FMs at the NTC prior to conducting live fire operations. This will be conducted during RSOI or NLT the live fire transition prior to the first live fire mission.

f. **Mortars.** 90% of all squad leaders, gunners and assistant gunners will have passed the mortar gunner's exam with a minimum score of 70% in each event. 90% of all section leaders, squad leaders and FDC personnel will have passed the FDC exam within the past six months. All mortar sections/ platoons will have completed an external evaluation to ARTEP 7-90 drill standards as part of a company/ battalion FTX within the past six months. Minimum manning for mortar crews:

60mm: 3 men (2 must be MOS 11C). If the tubes are consolidated then 2 men per crew with an NCOIC for the 2 tubes (5 soldiers total).

81mm, 4.2 and 120mm: 4 men (three must be 11C). FDC (four men, three of which are 11C).

**Artillery.** Each platoon, battery and battalion must live fire 80% of their METL related fire missions to ARTEP/MTP standards twice annually. Base home station safety certification on ARTEP standards in appropriate FMs. Manning requirements:

- M109A3-A5: 5 man crew
- M109A6: 4 man crew
- M119: 5 man crew
- M198: 7 man crew
- FDC (all) 4 man crew

4. Attack/Cavalry Helicopter Crew Training.

a. Individuals must be aerial gunnery qualified IAW FM 1-140 (Table VIII) within twelve (12) months prior to Rotational Training Day 14 (TD14).

b. All individuals identified to conduct live-fire exercises at the NTC will participate in a collective live-fire exercise equivalent to FM 1-140 Table X or Table XII within six (6) months prior to Rotational TD14.

c. Immediately before deployment, units must complete refresher training on all weapons systems. All aviation units will conduct mountain and desert flight technique briefings prior to deployment.

d. The unit will complete and return the Crew/ Individual Live-Fire Waiver memorandum, signed by the battalion/squadron commander NLT D-30 to Eagle03.

e. Live Fire Waiver Requirements

(1) Completion of aerial gunnery qualification (Table VIII) within twelve (12) months is mandatory - no waivers.

(2) Waivers for completion of the collective live-fire training event for periods exceeding the previous six (6) months, but within eight (8) months, will be considered.

(3) Individuals completing aerial gunnery qualification (Table VIII) within the previous six (6) months satisfy the requirement for a collective live-fire exercise and do not require a waiver.

(4) Waivers will be submitted NLT D-30 to Eagle03 IAW FORSCOM REG 350-50-1.

f. Units desiring to conduct hellfire "lane training" while at the NTC can contact Eagle07M NLT D-60. Hellfire lanes provide crews the opportunity to conduct live hellfire engagements outside of the tactical scenario. Units must provide missiles from their STRAC allocation. This is not a substitute for the collective live-fire training event.

5. Assault and general support door gunners will qualify IAW Appendix A, FM 1-140 (Helicopter Gunnery) within six months from Rotational TD14.

6. Tanks. Crews must qualify through TT VIII IAW FM 17-12-1/2 and STRAC within six months (ARNG battalions within one year). TC/gunner must have qualified together on this qualification. Minimum manning is four 19Ks. Non 19K substitute loaders or drivers must have successfully passed TCGST IAW FM 17-12-1 and require a written waiver approved by the Commander, Operations Group, NTC. **A full NOMEX uniform and leather boots are required by all tank crewmembers when conducting live fire operations at the National Training Center.**

7. Bradley's. Crews must qualify through BT VIII IAW FM 23-1 and STRAC within six months (ARNG battalions within one year). BC/gunner must have qualified together on this qualification. Minimum manning is three 11Ms or 19Ds. Non 11M or 19D substitute, as drivers must have successfully passed BGST IAW FM 23-1 and require a written waiver approved by the Commander, Operations Group, NTC.

8. All combat vehicle crews will train the following tasks IAW the appropriate vehicle TM and report completion to their OC after arriving at NTC.

- Vehicle fire evacuation drill
- Vehicle rollover drill
- Misfire procedures
- Actions in the event of a flareback
- View the no power thermal targets, compared to an M113 and M2 through the GAS, daylight and thermal sights.

9. All M1s/M2s must conduct screening/zero IAW FM 17-12-1/2 and FM 23-1 respectively at NTC prior to conducting live fire operations. This will be conducted during RSOI or NLT the live fire transition prior to the first live fire mission.

10. Infantry Squad and Platoon Level (Dismounted):

- Must have completed squad or platoon level Live Fire Training in accordance with DA PAM 350-38 (STRAC) within the last 6 months.
- Infantry units who will clear trenches and bunkers at the NTC must complete live fire exercises that include the following drills from ARTEP 7-8 DRILL:
  - (Platoon dismounted attack)
  - (Squad dismounted attack)
  - (Knock out a bunker)
  - (Clear a trench)
  - (Conduct initial breach)
- Units and OCs must verify the training level of these drills during RSOI 4, using the dustbowl trench complex.

11. Air Defense (Live Stinger):

- MANPAD squads must qualify 4 of 5 hostile presentations using either the STPT scenarios, IMTS scenarios or MTS reels within 12 months. Must have conducted and passed Stinger drills (ARTEP 44-117-11) within 3 months.
- Avengers/Linebackers crews must qualify 4 of 5 hostile presentations using either the STPT scenarios, IMTS scenarios or MTS reels within 12 months. Must have qualified on all Stinger drills (ARTEP 44-117-21) within 3 months.

### **3-10 Live Fire Restrictions**

**1. Body Armor.** All soldiers will deploy to the National Training Center with body armor per CTA 50-900. Soldiers will wear body armor during all live fire events. During defensive operations, soldiers will put on body armor not later than one

hour prior to the defend time as specified in the OPORD. During offensive missions soldiers will put on body armor not later than one hour prior to the earliest element's line of departure (LD) time.

### **2. Engagements.**

- No weapons will be fired on the move except from a stabilized firing platform. Tanks will not fire main guns or have rounds chambered on the move unless turret stabilization is on and functioning.
- BFVs series vehicles will not fire while moving unless turret stabilization is on and functioning.
- Direct fire weapons will not fire overhead of troops. This restriction includes MILES systems. Mortars must be positioned so that they do not fire overhead of troops IAW AR 385-63.

### **3. Sectors of Fire.**

- All vehicle positions will be marked with five stakes if not dug in and three stakes if dug in (Illustrations 3-10 Figure 1 and Figure 2). Two stakes will be used to mark the weapon's left and right firing limits. The third stake in the center of the position guides the driver. Also, in positions that are not dug in, two more stakes, at the #1 and #5 left side road wheels, will be used to ensure the vehicle is properly oriented upon occupying the position. Limiting stakes are required for all fighting vehicles (M1A1, M113s BFVs series, HMMWVs, etc.). OCs on the ground may grant exceptions for security forces.
- The drivers limiting stake will touch the front of the vehicle when it occupies its firing position (centered on the driver/driver hatch). The top of the stake will be at driver's eye level so the driver can ensure the vehicle occupies its correct sector.
- Limiting stakes will be placed on the left and right of the gun. Tank crews will ensure that the gun tube touches the limiting stake. BFV crews will place the stakes so that they are visible from the tank commander (TC) and gunner's vision blocks, and gunners unity window when buttoned up. Limiting stakes for main armament apply to all vehicle direct fire weapons systems.

Illustration 3-10 Figure 1  
Vehicle not Dug-in Stake Requirements

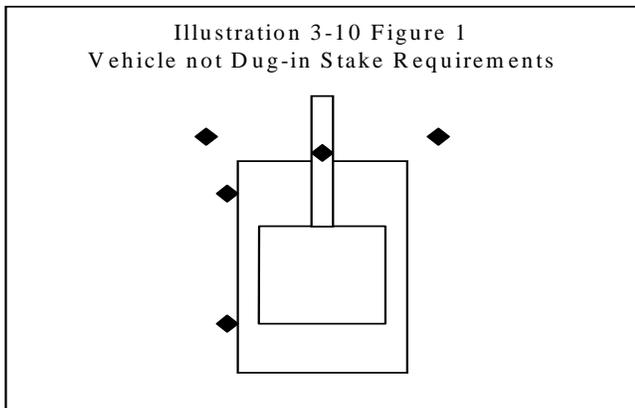
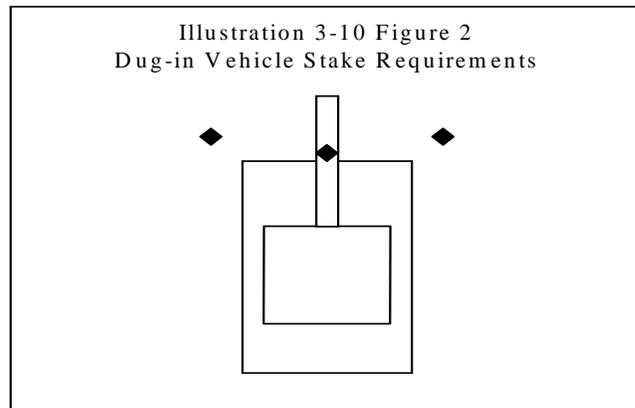


Illustration 3-10 Figure 2  
Dug-in Vehicle Stake Requirements



d. Additional stakes may be needed to make the stakes high enough to meet the requirements in paragraph 3-9.3.

e. Night Vision Aids: Chem-lights or colored lens flash lights, will be placed on all the stakes. Different colors will be used on the sector stakes and the drivers stop stake so the crew can quickly discriminate between the three stakes.

f. Crews will physically identify all the limiting and sector stakes, and vehicle commanders will ensure that all crew members understand the difference between the drivers limiting stake and the vehicle's sector stakes.

g. The rotational unit will inspect the left and right limits of every position. In order for a crew to fire from a position, they must proof that position with their platoon OC. Crews who have not proofed their own position will not be allowed to fire.

h. If any stake, or night visual aid is knocked down or repositioned, the crew will cease firing and lock and clear all weapon systems. An OC will kill the vehicle once this situation is identified. Once the battle begins, crews will not be allowed to fix stakes or night visual aids.

i. Stakes are not a replacement for the vehicle commander. The vehicle commander must make the final determination that the target he is about to engage is indeed, a plywood panel and not an actual vehicle. This determination is made regardless of the firing vehicle's position and sector of fire.

j. All fighting positions must be marked IAW Chapter 1-16.

k. Infantry fighting positions must be built to standards outlined in GTA 7-6-1, Fighting Position Construction – Infantry Leaders' Reference Card. Positions may be "built up" or "built down", but must include aiming and limiting stakes, stringers of adequate length, and 18 inches of overhead cover. Positions must demonstrate stability by holding the weight of a 200-pound man. Positions may require the use of support stakes and/or revetments to enhance stability. Fighting Position Overhead Cover (FPOC) may be used without stringers, but only if the FPOC exceeds the position width by a minimum of 12 inches on each side of the hole. Soldiers whose fighting positions that are not to standard or deemed unsafe will not use these positions.

l. Brigade Reserve/Security Force. There is no requirement to stake in the Brigade Reserve fighting positions if the action will take place during daylight hours. However, it is strongly encouraged. If the scenario is executed during daylight, the Brigade Reserve must conduct a full force rehearsal of the movement into position and conduct coordination with adjacent units. If the scenario is executed during the hours of darkness, every fighting position must be staked, marked, and proofed during daylight.

Occupation must be rehearsed in the same conditions, as it will occur during the fight. Security Force units are not required to stake in defensive positions if the execution of the scenario is during daylight hours (staking, however, is always encouraged and coached by OCs). If the scenario is executed during hours of darkness, all positions must be staked, marked, and proofed during daylight hours. Displacement from the security/screen to the main BP must be rehearsed under the same conditions, as it will be executed during the battle. If the Security Force mission is executed from the main BP, then all positions must

be staked and proofed during daylight, regardless of the time of execution.

**4. Infantry Operations:** Dismounted operations and reconnaissance may be conducted and are encouraged in Live Fire as long as adequate planning, coordination, and control are accomplished. Before mounted or dismounted reconnaissance is conducted forward of the Forward Line of Troops (FLOT), the unit will notify the 52 ID (M) TAC and their OC. No dismounted element will deploy without an OC.

### **3-11 Strong Point ROE**

The following special Rules of Engagement apply to the reduction of an enemy STRONG POINT. STRONG POINTs include bunkers, an extensive obstacle system and possibly trenches.

#### **1. Rehearsals**

Prior to conducting live fire trench and bunker clearing rotational units must conduct the following squad and platoon rehearsals at the NTC.

- Platoon Attack (Battle Drill #1, FM 7-8).
- Knock Out Bunkers (Battle Drill #5).
- Enter/Clear a Trench (Battle Drill #7).
- Conduct Initial Breach of a Mined Wire Obstacle (Battle Drill #8).
- If live grenades will be used during execution, rehearsals must include the use of practice grenades (M69).
- If live AT-4s will be used during execution units must rehearse putting an AT-4 into operation and misfire procedures IAW FM 23-25 under OC supervision,.
- If live Bangalore torpedoes will be used during execution units must rehearse this task under OC supervision.

#### **2. Execution**

a. All personnel will wear hearing protection and a flak vest. Machine gunners and assistant gunners are required to wear eye protection when firing in the prone position.

b. Indirect fires are authorized and any direct fire system may fire at the strongpoint complex from support by fire positions. Direct fires over the heads of troops are not authorized including personnel within the trench system. Units must ensure that the assault element is clear of the SBF position's direct fire surface danger zone. M2s and M60s in the SBF must use a tripod with metal to metal contact on the friendly side of troops.

c. 5.56mm and 9mm are the only authorized weapons in the trench/bunker system. All weapons must be on safe with muzzles pointed down when in the trench except when firing. Do not fire any rounds out of the trenches or point-blank firing into the firing ports of fighting positions (within 25 meters).

d. The unit will use internal SOPs to mark the lead man in a trench system. In addition, an OC with an orange flag will walk just behind and above the lead man in the trench.

e. Live grenades can be used to enter the trench system, around corners within the trench system, and into the bunkers. The unit will keep a running count off all grenades detonated. The unit cannot go green and clear until all grenades are accounted for. If the two-man trench entry is used (FM 7-8, Battle Drill #7), the soldiers dropping the grenades will lay feet-to-feet as they prep and drop (not throw) the grenades. After the grenades are dropped, the team leader will grab the grenade throwers as they roll away to ensure the throwers do not attempt to enter the trench prior to both grenades detonating. Hand grenades spoons will not be taped to the grenade body. Hand grenades are not authorized to be "Cooked Off" or thrown outside of the trenches and bunkers.

Every soldier will announce "Prepping frag!" when he removes the grenade safety clip and "Frag Out!" when he removes the pin. All personnel in the vicinity will get into the prone position and face the blast.

#### **3. Hand Grenade DUDs**

a. In the event of a dud hand grenade the mission will continue as soon as safely possible. EOD will clear all duds that can be safely by-passed after change of mission provided the following precautions are taken.

b. If a dud occurs at the initial entry, that leg of the trench will be avoided and another entry point will be identified and used. A soldier from the unit (as well as an OC) will position himself near where the dud is to prevent other soldiers from accidentally entering that portion of the trench.

c. If a dud occurs while clearing the trench, that leg of the trench will not be cleared. The unit will place a soldier on each end of that leg (along with an OC) to prevent other soldiers from accidentally entering that section of the trench. Depending on where in the trench system the dud occurs, the unit may move tactically

around the duded trench section and back into the trench at the next leg to continue clearing.

d. If a dud occurs in a bunker, the unit will not clear that bunker. The unit will position a soldier (along with an OC) to stand near the bunker entrance to prevent others from entering the bunker.

e. Unit guards will remain in place until directed to leave by an OC.

**4. AT-4 Duds.** If an AT-4 is fired and becomes a dud anywhere near the objective the scenario will be suspended while OCs identify the location of the dud. If the dud is on the objective EOD will immediately destroy it. The scenario will continue where it left off after the dud is destroyed. If the dud is located beyond the objective and outside the AT-4s SDZ, the scenario will continue without interruption.

## **5. Targets**

a. **WARNING. DO NOT ENGAGE THE PNEUMATIC FIRING DEVICES.** Pneumatic firing devices are normally used in conjunction with the dismantled target in strongpoint positions, along dismantled avenues of approach, or in dismantled terrain are highly explosive These devices are normally offset from the target mechanism.

b. Tactical OPFOR Multi-Purpose Targets (TOMIs) will be inside the trench system. Many of these targets are rigged to collapse when hit and even to “swing” around corners. After these targets are hit, it is the responsibility of the player unit to move aside any TOMI targets that are in their way.

## **3-12 Weapon Safety Postures/Weapons Control Status**

**1. Weapon Safety Posture (WSP).** Brigade level Commanders/TOC must request changes in Weapons Safety Posture (WSP) through the 52<sup>nd</sup> ID (M)TAC via FM command net.

**2. Green and Clear.** Firing is not authorized. 52<sup>nd</sup> ID (M) TAC may direct subordinate units to this status when tactical situations dictate. Vehicle commanders or first line supervisor have inspected and confirm that all weapons are cleared (to include any misfires) and on mechanical and electrical safe.

a. All BFV series weapons will be downloaded and their 25mm feeder assembly pulled, cleared, timed, and reinstalled.

b. Attack and armed reconnaissance helicopters have the Master Arm Switch and LASER switch in the OFF position, aircraft downloaded, including ATWESS.

c. MLRS - Pods on launcher with LLM in stowed position

d. MICLIC - Charge and rocket loaded and secured; rocket pin and rocket electrical cable disconnected.

e. GVLLD - Inhibitor plug installed and power switch off with handle locked in “up” position.

**3. Green.** Firing is not authorized. All weapons will be unloaded, breaches opened, and tubes cleared including ATWESS. All manual and electrical safes are engaged.

a. All BFV series weapons - ammunition may be uploaded in feeders for 25mm. However, **the Ghost round will not be cycled.** TOW launchers will be lowered and empty including ATWESS.

b. Attack and armed reconnaissance helicopters denotes the Master Arm Switch and LASER in the OFF position. OH-58Ds with weapons systems uploaded place the LASER in the STBY Mode. 30mm not visible in flex chute with gun cannon plug disconnected (cannon plug may be connected prior to take off from TAA/FARP for missions); M2 .50 CAL (prior to take off from TAA/FARP for missions, round placed in feed tray, master arm in STBY, gun switch safe, visually verify bolt to rear) all other times unloaded. Rockets and Hellfire may be uploaded providing the aircraft is properly grounded. If Rockets and Hellfire remain uploaded Surface Danger Zones (SDZs) will apply for the given weapon system.

c. Claymore/Demo – Blasting caps inserted and systems tested, firing device not attached.

d. MLRS – Pods on launcher with LLM in stowed position.

e. MICLIC – Tie-down straps removed from MICLIC system; rocket head pin installed; rocket electrical cable connected.

**4. Red Direct.** Direct Firing is authorized. 52<sup>nd</sup> ID will not grant this WCS until the Brigade level Commander/ TOC guarantees 100% accountability of all personnel and equipment. All weapons may be loaded, but must be kept on mechanical and electrical safe until a target is positively identified and the Gun Target Line is clear.

a. Lasers are considered direct fire weapons and may be used without eye-safe filters during live fire. Units must request “RED DIRECT FOR LASING” when not in a “RED DIRECT” status. When granted, lasing will only be executed upon an OC’s verification on the ground that the area is clear.

b. Field Artillery units can only engage targets with direct fire when approved by the Senior Field Artillery Trainer.

c. Attack Helicopters – Electrical arm switches on safe or stand-by.

d. BFVs – Electrical and manual safe engaged, ghost round cycled; missiles/ATWESS loaded in launcher.

e. M1s – Battle carry per unit SOP, electrical and manual safe engaged.

f. Machine Guns/COAX – Manual safe with bolt locked to rear.

g. Claymore/Demo – Firing device connected on safe with blasting cap inserted.

h. Javelin/AT4/Stinger/Dragon – Configured for firing with electrical and or manual safe engaged.

i. MICLIC – May raise rocket.

**5. Red Indirect.** Indirect Firing is authorized. 52<sup>nd</sup> ID (M) TAC will only grant this WCS to rotational units with 100% personnel accountability. Field artillery and mortar unit FDC/POCs must have the following information posted on situation maps and firing charts:

- All current operational graphics.
- All Fire Support Coordination Measures.
- All Active Air Corridors posted.

FA and mortars can execute fire missions against targets after receiving clearance from higher headquarters and FDC OC personnel. Units must verify target does not violate any restrictive control measure prior to firing.

e. **Check Fire.** All weapon systems cease all firing immediately. Electrical safe is engaged as a minimum.

f. **Check Fire Freeze.** This applies to field artillery units and mortar sections only. Cease all firing

immediately. Do not move anything on the howitzers or mortar tubes. All personnel evacuate vehicles and stand to the rear of howitzer, mortar, or FDC.

g. **Cease Loading.** Artillery and mortars only: continue firing current rounds in tube only, do not load additional ammunition.

**6. Weapons Control Statuses (WCS).** NTC allows the rotational unit chain of command to issue doctrinal weapon control statuses to subordinate commands. Subordinate units may authorize a more restrictive weapons control status without requesting a change through their chain of command. Weapons Control Statuses authorized for use at NTC are as follows:

“**Weapons Hold**” – Engage only if engaged or ordered to engage.

“**Weapons Tight**” – Engage only targets that are positively identified as enemy.

“**Weapons Free**” – Not used at the NTC.

### 3-13 Live Fire Transition Requirements

When the rotational unit is executing brigade operations, the entire brigade is considered to be in live fire and all soldiers supporting the Live Fire maneuvering force (FA BN, FSB, etc.) will comply with these instructions. Prior to conducting live fire operations rotational units will ensure that:

1. The brigade to include the BSA has downloaded and consolidated all blank ammunition except for ATWESS charges that will be used in Anti-Tank weapons during live fire.

2. Blank adapters for all weapons, and MILES transmitters must be removed from all weapons except anti-tank weapons (except Hellfire) prior to live fire operations.

3. All combat vehicles have completed screen/zero operations prior to live-fire.

4. Attach an EOD team to the Dragon Team prior to any live fire trench or bunker clearing operations to expedite the clearing of any and all misfires/dud rounds within the trench/bunker complexes.

5. The brigade is required to attach the following medical support from the FSB Medical Company to the Dragon Team prior to any live fire operations:

- 1) 1 - Physician or Physician Assistant

- 2) 2 - Qualified Medics
- 3) 1 - Wheeled Ambulance
- 4) 2 - Aid Bags and Trauma supplies sufficient for immediate stabilization and treatment of traumatic injuries

### **3-14 Live Fire MILES Requirements**

1. Vehicle and personnel MILES II/SAWE systems must work at all times in order to participate in Live Fire Operations. The MILES kill capability is used both as a safety control measure and to enhance combat realism.
2. MILES must be connected to the combat vehicle's intercom system so that an *AUDIO TONE* is heard in the CVC of the armored vehicle crewman. When an *AUDIO TONE* is heard through the CVC or the CVKI light flashes continuously, clear all weapons, and wait for an OC. Gun tubes should be elevated and kept pointed down range. *This is different from Force-on-Force.* It is a force protection requirement.
3. MILES contact teams will be in the area daily. Notify an OC immediately if you have a MILES problem. If directed to go to the MILES contact team, a rotational must accomplish this ASAP so that instrumentation equipment work can be accomplished. Failure to do so may result in that vehicle not being able to participate in the battle.
4. All targets are fitted with sensors to enable rotational personnel to engage with certain missile/anti-tank systems for which the BCT may not be issued live ammunition. The following are the only weapons systems that can kill targets during live fire with MILES:
  - 00 OC Kill
  - 07 TOW
  - 08 DRAGON
  - 15 VIPER/AT-4
  - 26 STINGERS (RPVT)

### **3-15 Live Fire Targetry**

1. There are no moving ground targets in Live Fire. RPVTs are the only moving targets.
2. If a target is engaged and it does not go down after hit twice (three times for 25mm), move to another target. If the target continues to emit direct fire signatures, it was not hit. Do not run over target mechanisms/target pits!

# Chapter 4

## Fire Support

### 4-1 Command And Control

#### 1. Command.

The force field artillery headquarters for all NTC rotational units is the 52d ID (M) DIVARTY/ X Corps Artillery Headquarters. The Senior Fire Support Combat Trainer (Wolf 07) is the 52<sup>nd</sup> ID (M) DIVARTY/ X Corps Artillery Commander. The Senior Fire Support Analyst (Wolf 70) is the 52<sup>nd</sup> ID (M) DIVARTY/ X Corps Artillery S3/G3 and DFSCoord.

#### 2. Control.

The Commander, 52<sup>nd</sup> ID (M) with the assistance of the DFSCoord controls DIVARTY support.

### 4-2 FA Organization

Rotational maneuver brigades will deploy with a direct support field artillery battalion and organic mortars. Corps or divisions will deploy a second field artillery battalion (O&I section) to reinforce the direct support artillery battalion. Additional fire support assets may not be added without the approval of the Commander, Operations Group.

### 4-3 Fire Control

1. BLUFOR. The FA battalion TOC will maintain FM voice and digital communications with the 52<sup>nd</sup> ID (M) DIVARTY/ X Corps Artillery at all times. Rotational units will process all fire support tasks IAW unit SOP. Only those fire mission requests that have been correctly executed through the fire support channels and fire direction centers will be processed for replication. An OC must be present in order to fire. Prior to firing a mission or subsequent corrections, the FDC must give the OC the artillery mission card listing for replication and casualty assessment during force on force operations and final clearance during live fire:

- Target number
- Target location
- Pieces to fire
- Special instructions
- Type of projectile
- Charge
- Fuze time setting when applicable
- Number of rounds
- Range to fuze function (ILL)
- Range to impact (ILL)

Artillery firing units must meet the five requirements for Accurate Predicted Fires to fire 1<sup>st</sup> round Fire for Effect (FFE) missions.

a. Target Location and Size: Target grids will not be closer than 800 meters of friendly troops.

b. Firing Unit Location: Firing positions will be surveyed to 5<sup>th</sup> order accuracy and have a direction common to all other firing elements. The only exceptions and restrictions will be the Hasty survey methods outlined in FM 6-50 or listed below:

(1) Location: Graphic traverse, graphic resection, or a Global Positioning System (GPS) may be used to attaining position location can be used. Map spotting is not an authorized method for Live Fire. When a GPS is used to attain directional control for a firing unit the following Figure of Merit (FOM) or Geometric Degree of Precision (GDOP) restrictions apply:

- AN/PSN-9 may be used provided the current COMSEC variable is loaded, the GDOP is 5 or less and FOM is A.
- AN/PSN-10 may be used provided the current COMSEC variable is loaded and location accuracy is within + or - 30 meters. Altitude must be scaled off the map when using the PSN-1AN/PSN-11, Precision Lightweight GPS (PLGR), can be used provided it is set-up and verified IAW FM 6-50 (Field Artillery Cannon Battery) and TM 11-5825-291-13. FOM 1 is the best accuracy estimation displayed by the system, and FOM 9 is the worst. For artillery and mortar positioning only, coordinates determined with a FOM 1 can be used. Current crypto keys must be loaded to achieve the necessary accuracy.

(2) Directional Control. Polaris 2 Method, simultaneous observation (SIMO), Polaris-Kochab Method, hasty astro techniques, and directional traverse may be used to establish directional control.

(3) Weapon and Ammunition Information: Ammunition information and muzzle velocities will be derived through calibration and appropriate inference for each powder lot and howitzer.

(4) Meteorological Data (MET): Current ballistic MET information IAW FM 6-15, Field Artillery Meteorology, will be maintained by all firing elements.

(5) FDC Procedures: The computational fire direction procedures used to determine firing data must meet the accuracy required for double checks (+ - 3 mils in deflection and quadrant and + - .01 fuze time setting). No emergency fire direction procedures will be used unless specifically directed by a senior OC and there are no overhead fires.

(6) If the firing unit cannot meet the MET, weapon and ammunition information requirements, the firing unit can only engage targets using adjust-fire missions or by conducting one of the registration methods described in FM 6-40.

#### 4-4 Artillery Movement

1. The movement and ready to fire times for an actual units is as performed. Notional units' movement is replicated on the NTC-IS. Units must designate SP, RP, and CPs as required. Notional battery commanders will provide OUTTIL times to the field artillery battalion. If a firing battery/platoon or radar is directed to conduct a hip shoot, the firing unit will be ready to fire within 15 minutes. The radar will be ready to radiate within 20 minutes. The unit will not proceed to the next position until directed by the field artillery battalion TOC. Table 4-4 contains notional unit movement and occupation times. Units, which are not ready to fire, will not be credited with the fire missions.

2. Prepare to March Instructions. Notional units may be issued prepare to march instructions which instructs the unit to prepare all equipment to move on a previously designated route. After a period of 10

minutes (which replicates the actual time taken to implement the order by loading all non-essential equipment) the notional unit displacement time is reduced to 7 minutes.

#### 4-5 Weapons Locating Radars

1. Actual radars and the controlling FA headquarters of notional radars must provide the following initialization data for all zone data to the 52<sup>nd</sup> ID (M) DIVARTY CFO (Wolf TAF). Updates are provided as needed. As with fire missions, operating data, and execution performance (survey accuracy, procedures, screening crests, etc.) is provided to the TAF.

2. Actual radars and the controlling headquarters of notional radars that are ready to observe will receive hostile fire unit locations and impact predict locations for

Type of Site	Cumulative Radiation	Continuous Radiation
Opt. Radar Site	15 min	2 min
Opt. Screening Crest (only)	8 min	2 min
Other Site	2 min	2 min

enemy fire missions which occur during cueing periods and are within the provided radar search sectors.

3. Optimum radar site for the AN/TPQ-36 is between 15 to 30 mils and the AN/TPQ-37 is between 5 to 15 mils. An optimum Screening Crest is located within 1,000 meters of your position and in friendly territory; no crest in enemy territory higher than yours within the enemy's normal direction finding operating range.

System	Displacement	Movement	Emplacement/Ready to Fire
M109A6	1 minute	3 minutes per kilometer	2 minutes
M1090A5	7 minutes	3 minutes per kilometer	15 minutes
MLRS	1 minute	3 minutes per kilometer	2 minutes
M119	15 minutes	3 minutes per kilometer	12 minutes
M198	15 minutes	3 minutes per kilometer	15 minutes
AN/TPQ-36	10 minutes	3 minutes per kilometer	15 minutes
AN/TPQ-37	20 minutes	3 minutes per kilometer	30 minutes
MRL	1 minute	3 minutes per kilometer	2 minutes
2S1	2:20 minutes	3 minutes per kilometer	5 minutes
2S3	2:20 minutes	3 minutes per kilometer	5 minutes
2S5	2:20 minutes	3 minutes per kilometer	5 minutes
2S7	5 minutes	3 minutes per kilometer	8 minutes
2S19	2:20 minutes	3 minutes per kilometer	5 minutes
MORTARS	3 minutes	3 minutes per kilometer	3 minutes
BM-21	1 minute	3 minutes per kilometer	2 minutes
ARC 1	10 minutes	3 minutes per kilometer	15 minutes

4. Acquisition is determined based on duration of radiation and type of radar site. Radar systems that radiate in excess of the maximums shown in Table 4-5 without displacing will be “acquired” and radar location reported through enemy fire support channels.

**4-6 Laser Operations**

1. Force on Force. The HELLFIRE GROUND SUPPORT SYSTEM (HGSS) and the MELIOS are the only laser range-finders/designators allowed to actually laze or designate in Force-on-Force. The HGSS devices may be used to replicate the capabilities of the G/VLLD.

2. Live Fire Operations

a. HGSS Capabilities and Restrictions

(1) The HGSS may be used in Live Fire to assist the maneuver systems to conduct bore sight verification.

(2) The HGSS can be used to obtain the distance for the maneuver systems.

(3) The HGSS will not be used to replicate the capabilities of the G/VLLD in the FISTV or in a dismantled mode at any time while in Live Fire.

(4) The HGSS will not be used to adjust conventional artillery (HGSS cannot designate for laser munitions)

b. GVLLD and AN/GVS-5 Capabilities and Restrictions

(1) The filters for the GVLLD and AN/GVS-5 will not be used in live fire to enhance Live Fire training. Follow prescribed safety procedures IAW TMs.

(2) An OC must be present and operators must receive “RED DIRECT FOR LASING” through the maneuver chain of command prior to conducting any actual laser operations.

Table 4-6 Laser Capabilities		
Designator Type	Moving Target	Stationary Target
G/VLLDs/ HGSS	3,000 M	5,000 M
RPV/UAVs	3,000 M	5,000 M
OH-58Ds and AH-64s	7,000 M	10,000 M

(3) When operating a G/VLLD laser, you must have a 10 mil buffer when lasing over a reflective surface, near personnel, or below sky line. If the personnel are moving and there is any chance that the 10 mil safety buffer will be violated, then lasing is not authorized.

**4-7 Ammunition Restrictions**

1. Copperhead Munitions during Force on Force. To successfully engage targets during Force-on-Force operations with the M712 projectile the target must be within the Copperhead footprint. Angle-T to the target must be less than 800 mils. Also, observers and firing units must meet the following conditions:

a. Firing Units.

- Possess a weapons system authorized to fire the M712 projectile.
- Possess a Copperhead training round and conduct proper unpacking procedures for all rounds to be fired. This can be done prior to receipt of Copperhead fire mission.
- Provide their FDC OC with target description, pulse repetition frequency (PRF) code, Message To Observer (MTO), and engagement commands.
- Properly conduct fire direction crew drill and howitzer crew drill.

b. Observer.

- Must Possess an operational designating (laser) devices and perform correct firing procedures IAW 6-30. Only HGSS equipped units will actually laze or designate targets. Units without HGSS with an operational G/VLLD will simulate lasing or designating.
- A line of sight to the target that is not obstructed or obscured.
- will provide their OC with G/VLLD, RPV/UAV or OH-58D location and PRF code.
- Must provide a target grid within the copperhead footprint of the actual target.

c. During the mission, OCs and analysts will verify the following items:

- Verify that the designator range to target does not exceed the capabilities of Table 4-6.
- The target is simulated as being lazed for the last 13 seconds of the projectile’s flight.
- The same PRF code is set on the Copperhead projectile and the G/VLLD or OH-58D laser designator.
- The target grid is accurate and within the copperhead footprint.

## 2. Live Fire

a. Illumination. Range-to-fuze function must occur at least 500 meters away from friendly units' positions. Range-to-impact must occur at least 800 meters from friendly units' positions.

b. Copperhead. No personnel are permitted within the SDZ. Copperhead is limited to ballistic mode firing only. OCs must accompany the laser designator teams. Copperhead rounds may not be fired over troops.

c. Rocket-Assisted Projectile (RAP). RAP rounds are not cleared for over head fire due to rocket motor particles.

## 4-8 Close Air Support (CAS)

### 1. Execution

a. Employment. Rotational units are authorized to employ CAS IAW Joint Pub 3-09.03, AFI 11-214 (with all ACC supplements) and appropriate 11-series AFIs for participating aircraft. AR 385-63, and NTC ROE. Multiple sets of Close Air Support (CAS) aircraft may operate in the maneuver box at a time. All aircraft must contact Sundance, prior to entering or departing NTC airspace (R2502 N/E "NTC Range-Complex").

b. Terminal Control. Aircraft will operate under the direction of a qualified Air Liaison Officer (ALO), Enlisted Terminal Air Controller (ETAC), Airborne Forward Air Controller (AFAC), or Air Mission Commander, Joint Air Attack Team (JAAT). However, only qualified USAF controllers may conduct terminal control. Direct or Indirect Control may be used during force on force operations. However, an ETAC or FAC-A is required for all live CAS engagements and must use Direct Control Procedures. Aircraft must be cleared to depart the IP by the final control authority (see table 4-8). An ALO or ETAC must provide final control for targets within 3 km of the FLOT. Aircraft must receive a "CLEARED HOT" call from the final control authority on each pass prior to releasing ordnance. CAS targets within 7,500 meters of the FLOT must receive a visual mark. Visual marks at NTC are limited to the following:

- 2.75 in WP or BDO rockets
- 25mm, 30mm TPT/HET
- 105mm, 155mm HE/WP/ILA/SMK
- 120mm TPCSDS, HEAT-TP-T

GP Bombs and inert ordnance are not an acceptable mark. All ABORT calls are given in the

clear (no authentication) by anyone observing an unsafe act.

ETAC/ALO/ AFAC will develop a CAS 9-line brief to the fighters prior to fighters departing the IP/CP for each CAS attack. Terminal Attack Controllers use the following considerations in developing their 9-line briefing:

- FLOT and other friendlies (COLTS, scouts, etc.)
- Fire Support Coordination Measures
- Artillery and mortar locations / GTLs

c. Restrictions. The following restrictions apply to both force on force and live fire operations:

- Air-to-Air engagements between opposing TACAIR forces are not authorized within the R2502 N/E airspace.
- Fixed wing engagements against flying helicopters are not permitted.
- Aircraft will operate with IFF systems activated at all times.
- The FLOT and individual positions forward of the FLOT must be marked to allow for quick aerial identification of the friendly positions during night CAS operations only. FAC-As and attack aircraft must usually confirm location of friendly forces
- Fixed-wing aircraft will fly appropriate tactics for the ADA threat level.
- VFR weather criteria is 1500/3 for force on force and 2500/5 for live fire
- During live fire CAS may over fly but not "hold" over friendly troops.
- AGMs and cluster munitions are not authorized.
- Raven/Rustic will direct aircraft that are unable to expend all ordnance in live fire to an alternative target greater than 7,500 meters from the FLOT or in Leach Lake Tactics Range.

### 2. Airspace Management

Rotational units must receive prior approval from the 52<sup>nd</sup> ID (M)/ X Corps TOC/TAC to use any airspace or conduct ingress / egress to outside of its sector/zone.

a. **Coordinating Altitude.** The Coordination altitude for R2502 N/E "The NTC Range-Complex" is 300 feet above ground level (AGL). All fixed wing aircraft must remain above 300 feet AGL. To ensure safe operations, all rotary wing aircraft must remain 200 feet AGL or below without coordination with Sundance. Violation of the Coordinating Altitude will result in a range foul for the aircraft.

CAS TGT	TAC (Terminal Air Controller)	TGT MARK REQD
FLOT 3 KM or less	ETAC	YES
FLOT 7.5 KM or less	ETAC/FAC -A	YES
FLOT > 7.5 KM	ETAC/FAC -A	NO

**4-10 Minimum Safe Distances**

The minimum safe distances for bombing and strafing at the NTC are:

b. **Airspace Coordination Area.** Formal and informal ACAs may be used during live fire. All ACAs will be activated through the 52ID FSE. Aircraft will not under fly indirect fire gun-target lines except during force on force operations.

(1) Lateral Separation: Indirect fires and CAS may attack different targets simultaneously if the indirect fire GTL and CAS target are deconflicted by an informal ACA.

(2) Time Separation: CAS, artillery, and mortars may attack the same target provided a minimum of 30 seconds separation between the last round on the ground and the first aircraft delivered ordnance over the target. Aircraft will not violate active GTLs.

(3) Altitude Separation: CAS, artillery, and mortars may attack the same target using Maximum Ordnance or ORD 1 procedures. Units may use the Maximum Ordnance procedure provided aircraft remain at least 1,000 feet above the direct and indirect fire trajectories and their effects. Units will not establish a single Maximum Ordinate over their sector/zone for an entire battle. ORD 1 procedures are authorized during live fire operations if the unit demonstrates proficiency during force on force operations and receives approval from the Commander, Operations Group. When using ORD 1 procedures aircraft will remain at least 25 degrees laterally separated from the artillery GTLs until crossing the target area.

**4-9 CAS Minimum Altitude**

The minimum altitude for all CAS employment during live fire operations is 10,000 feet MSL unless the altitude determined by calculating Vertical Hazard Distances (VHD) of active direct and indirect fire Surface Danger Zones (SDZs) is greater than 10,000 feet MSL. The VHD width is equal to the width of all active SDZs.

Ordnance	MSD – Restriction
MK –82 (500 lbs)	2,000 meters
MK – 84 (2,000 lbs)	2,500 meters
STRAFING	1,000 meters and Final attack heading (FAH) specified in the “9-line must be oriented parallel to the FLOT”

**4-11 Artillery/Mortar Safety**

Artillery/Mortar safety certification is a rotational unit responsibility. All commanders will ensure safety personnel and crews are certified IAW AR 385-63, understand NTC ROE, follow the procedures described in the weapon technical manuals, and are present during NTC LFX firing.

**4-12 Safety Violations**

Safety violations are broken into two categories, safety incidents and firing incidents. A safety incident occurs any time safety personnel or crews fail to follow procedures outlined in AR 385-63, the NTC ROE, or applicable technical manuals. A firing incident has occurred any time round impacts or functions at a location other than the intended place of impact or function.

**1. Safety Incident.**

a. The battery/platoon senior OC for will shut down a howitzer section for:

- Failing to properly conduct pre-fire checks to include bore sight requirements specified in the weapon technical manual.
- Failing to Conduct independent secondary checks.
- Failing to meet minimum manning requirements when firing.
- Personnel in the recoil path of weapon.
- Failing to wear helmet inside howitzer.
- Conducting an improper crew drill.
- Failing to verify fire commands by reading back, fuze setting, fuze-round combination, charge, PANTEL deflection and quadrant, PANTEL gunner’s sight picture, reload on loading elevation, properly swabing after each round is fire, announce bore clear, command “FIRE”, and properly ram round (auto and manual).

b. The battery/platoon senior OC will shut down an FDC section for failing to:

- Conduct independent secondary checks.
- Issue proper fire commands.

- Maintain positive control.
- Pass fire mission OC card to the FDC OC prior to firing.
- Have No Fire Areas, restricted fire areas, maneuver graphics, air corridors, and other FSCMs posted and maintained.
- Perform grid location checks for each mission and ensure that the effects of fires do not violate FSCMs or boundaries.
- FDO not ensuring that all-subsequent corrections do not violate FSCM or boundaries.
- FDO not checking intervening crest along the gun-target line.

**2. Firing Incident.** Upon notification of a firing incident, all field artillery units and mortar sections will immediately assume a “CHECKFIRE FREEZE” posture and conduct their own internal investigation IAW the FA Battalion and TF Commanders’ guidance to determine the cause of the incident. The investigation is a unit chain-of-command responsibility. OCs will observe and assist if required. Once the training unit determines the cause of the incident, the unit chain of command will take measures as appropriate to correct unsafe conditions and prevent recurrence. The training unit will make a courtesy preliminary (voice) report of findings and actions taken to the Commander, Operations Group through the Senior Combat Fire Support Trainer.

a. Final Action. At the conclusion of the rotation, the training unit will submit a letter through the Senior Combat Fire Support Trainer to Commander, Operations Group detailing each incident, the findings of the investigation and corrective actions taken.

b. The following example of firing incidents are the most commonly observed: Incorrect target location in BCS target file, incorrect charge; improper ramming procedures; improper fuze setting; set and fired incorrect fuze on a WP round; fire incorrect deflection after switching aiming points; not providing FDC OC card/target grid prior to firing; incorrect gun positions in BCS file; firing into a No Fire Area; etc.

#### **4-13 Home Station Equipment**

All mortar tubes, artillery howitzers, and tanks brought from home station must have their DA 2408-4 (Weapon Record Data), with current bore scope and pullover gauge data.

Artillery units must deploy with more than two operational M90 Chronographs to conduct powder lot calibration prior to live fire.

#### **4-14 Indirect Live Fire Operations**

1. Live fire has no predetermined firing points, range boundaries or predetermined safety data. The indirect fire impact area will consist of an area bounded on two sides by brigade or divisional boundaries, and any fire support coordinating measures (FSCMs) in effect. These graphics will be posted in all FDCs. All FDCs must perform target grid location checks before every fire mission. Fires outside the impact area defined above must be cleared by the 52<sup>nd</sup> ID (M) / X Corps TAC.

2. Effects of fire for artillery will not violate friendly unit locations. Minimum Safe Distances (MSD) for artillery is considered to be 800 meters. MSD for high angle fire is 1,100 meters. MSD for Charge 3 white bag low angle is 1,200 meters and 1,400 meters for high-angle fire.

3. Rotational units will request a 1000 meter radius no fire area through the 52d ID FSE for any unit, smaller than platoon size, which will remain stationary and operate forward of the line of departure or forward of the FEBA.

4. Battalion and fire unit FDOs will ensure that the current tactical situation maps with FSCMs and maneuver graphics are posted and kept current in the FDC, that all personnel comply with required safety procedures, and that known data checks are performed in each position area.

5. All DIV/BDE/TF FSOs, FA battalion FDC, and each firing unit FDC (or have communications with BN FDC on a separate net) will maintain and monitor, as a minimum, the FM fire support coordination net listed in the SOI.

a. This net will be used to disseminate ACAs, check firing, weapons status, and other live fire support coordination and instructions.

b. If any FDC and/or Paladin howitzer (M109A6) loses communications with its higher headquarters, it will immediately place itself and subordinate firing units in a “CHECKFIRE” status. It will then take all necessary steps to restore communications before it can resume firing again.

c. If FM communications are lost with the brigade FSE, the battalion TOC will place all of its

firing units into a “CHECKFIRE” status until communications are restored.

d. When the battalion TOC displaces, it will ensure continuous control IAW its TSOP.

6. Task Force or Squadron FSO/FSE Responsibilities.

a. Clear cross-boundary fires with adjacent and higher FSOs.

b. Pass FSCMs to subordinate FSE/FSOs and mortar sections.

c. Ensure when planning targets that no effects of fires (considered to be 800 meters for mortar and artillery) will violate a restrictive FSCM without prior coordination with 52 ID (M) TAC FSE.

d. HE munitions will be fired in place of actual FASCAM. For round marking procedures, contact the Fire Support CSS OCs (WOLVES).

e. Keep the Brigade FSO informed of mortar and FIST locations and any internal FSCMs.

f. Request from Brigade/Live Fire FSO for weapon control status based on need for mortars to go Red Indirect or Lasers to go Red Direct for Lasing.

7. Rotational Unit Battery Responsibilities:

a. Each firing element will ensure that the referred deflection between the safety circle and the lay circle are within 10 mils using a separate means of orientation. Lay of each howitzer will then be verified to + or - 2 mils. Bore sight will be verified before lay is verified. Gunnery Sergeants or above must verify the gunners reference card prior to firing.

b. XO's min QE will be determined for all charges fired.

c. The unit will ensure that Danger Area Echo is clear of personnel not involved in the firing.

d. Time settings on time and variable time fuzes are not authorized on HE or WP projectiles. Time fuzes must be set on point detonating setting IAW proper TMs and during live fire operations.

e. Each howitzer section chief and vehicle commander is responsible for the safe firing and clearing of his weapon system or weapon. Your tactical overlay will restrict your fires and maneuvers.

f. Follow the weapon control status outlined in Chapter 3.

g. The rotational unit will be directed through their chain of command to change weapons control status as appropriate. The unit chain of command will pass confirmation of weapons control status to their battery OCs.

h. Place weapons on SAFE when not engaging targets or when traveling.

i. Misfires will be handled IAW the appropriate TM.

j. No overhead fires in a direct fire mode.

k. There are no moving ground targets during the field artillery engagements. All ground targets are plywood or E-type personnel silhouettes. You cannot engage aerial targets with the howitzer main gun.

l. Cannon firing batteries can execute self-illumination and killer junior engagements upon Fire Support Senior Combat Trainer (WOLF 07) approval.

#### 4-15 Direct Fire Engagements

**1. Force on Force.** Actual artillery units will occasionally be employed in the direct fire mode. OCs will assess artillery (howitzer) direct fire engagements (when not equipped with MILES). They will observe whether howitzer sections conduct direct fire procedures IAW FM 6-50. The OCs will mark howitzer signatures with hand grenade simulators (unless HOFFMAN equipped), then make the appropriate assessment(s).

**2. Live Fire.** Battery leaders must have a plan to control direct fire engagements and ensure all soldiers understand the NTC weapon control status designations. Area E applies to everyone during direct fire engagements. Do not violate Area E. Battery leadership must coordinate with all adjacent units for sectors of fire and other mutual defense issues. Sectors of fire must be established, marked, and verified. Section chiefs must verify direct fire telescope bore sight and gun target line clearance prior to engaging targets.

a. Fighting positions must be to standard before soldiers can fire from them. After the battery chain-of-command reviews all fighting positions, the battery commander must point out to the senior battery OC each fighting position that he expects to

fire from. Sectors of fire must be clearly defined and marked.

b. Plan and Use of Self-illumination. Range to fuse function must be no less than 500 meters from friendly troops. Range to canister impact must be no less than 1,000 meters from friendly troops. Self-illumination targets must be pre-planned. The battery must select an observer per unit TACSOP and he must have eyes on the pre-planned illumination target in order to adjust. Use Charge 3GB or higher.

#### **4-16 Killer Junior**

The minimum authorized is Charge 3 GB. Do not plan or engage Killer Junior targets closer than 1200 meters due to explosion safety hazards (Danger Area E) in Live Fire. The battery chain-of-command must establish, verify, and distribute Killer Junior Rotational Tables for each howitzer IAW FM 6-50. HE time fuzes (MTSQ) may only be used during battery lanes. Warning. Failure to perform dual independent checks at the gun may result in injury or death from projectile bursting prematurely in front of howitzer.

#### **4-17 Mortar Platoon and Section Operations**

1. There are no overhead fires of mortars. Safety is the overriding consideration at Live Fire. The Mortar Platoon/Section Leader and chain of command are responsible for the safe firing of all platoon weapons systems. Anyone observing an unsafe act or a potentially unsafe act will command "CHECKFIRE". If the command "CHECKFIRE" is relayed, the mortar platoon/section will immediately cease firing and FDCs will cease any computation. If "CHECKFIRE FREEZE" is relayed to the platoon/section, the unit will do as above and command "TO REAR OF PIECE FALL IN". Following unit investigation and determination of the cause of safety violation, and a briefing on what measures are being taken to ensure that there is no recurrence of the violation, the OC chain-of-command may give them permission to resume firing. Mortar platoons and sections will have the following manuals and forms (as a minimum):

- FM 7-90
- FM 23-90/TO 11W2-5-13-21
- FM 23-91
- ARTEP 7-90 MTP
- Appropriate - 10 for mortar weapons systems
- DA Form 2408-4

2. Mortar firing positions requirements are the same as field artillery listed in paragraph 4-3. Map spots are not allowed in Live Fire.

3. Except as listed below, mortars can not fire within 800 meters of friendly troops or 500 meters left and right of gun-target line, except 81mm and 60mm mortars if certain conditions are met. 81mm and 60mm Mortars can fire up to 500/300 meters respectively from friendly troops if the following conditions are met:

- Valid Registration and sheaf adjusted. registration is not more than 4 hours old.
- Registration and sheaf adjusted with concurrent ballistic MET applied. A valid subsequent MET must be applied if registration is more than 4 hours old.
- 60mm mortars may fire up to 300 meters from friendly troops and 300 meters left and right of gun target line in the in direct lay mode if they have met the position requirements.

4. Mortars will receive all Fire Support Coordination Measures from their battalion FSO or FSE. FSCMs include NFAs, RFAs, ACAs, and Air Corridors. All coordination measures will be posted on situation maps.

5. The safe firing of service ammunition near troops will be controlled by the issuance of fire support coordination measures and boundaries. The TF FSE will disseminate the FSCMs and boundaries to the FDCs.

6. Airspace Coordination. If communication is lost with the TF FSO/FSE, the unit will place itself in a check fire until communication is reestablished.

7. An OC must be present in order to fire. Prior to firing a mission, the FDC must give the OC the mortar mission card.

8. The unit must have a redundant safety system to ensure safe execution of fires.

9. When using plotting boards, the left and right limits and minimum range will be posted.

10. Misfires will be removed IAW the appropriate FM/TM and unit SOP. Misfires will not put the entire unit in a check fire.

11. The unit's aiming circles and M2 compasses will be declinated using appropriate declination stations. The mortars must coordinate with the FSO to get a declination site. It is a requirement to lay the platoon section for firing with an M2 aiming circle. The lay

of the platoon/section must be verified with a declinated M2 compass.

12. Charges will not be exposed and will be in a sealed container prior to firing. Wood ammunition boxes are not acceptable. Rounds for FPF and Priority Targets (Max of 3 TGTs) may be pre-cut. If a unit pre-cuts ammunition, it will be done in the following manner:

a. To pre-cut ammunition, the unit must be in the firing position, have the target location, and have firing data.

b. The charges that are removed for the round will be placed back into the container from which they came, with the round.

c. If that round is never fired, the unit will be able to replace the original charges on the round from which it came.

d. No ammunition will be evacuated from the live fire area with either personnel or vehicles.

13. Units must have a secondary check system, this means a check computer.

14. To fire a direct lay mission, the unit must know its location and must have a four digit grid to the target to be engaged. All Ground mounted systems will fire a minimum of three rounds to settle the base plates.

15. 120mm Mortar Systems:

a. Must have a four-man gun crew, three must be an 11C MOS. The FDC must have a four-man crew; three being 11Cs.

b. Unit must have hard copies of the H2 and K2 Firing Tables on hand with each firing element.

c. Minimum charge fired will be 7 4/8. Units will ensure that the turntable stops and standard recoil clamp are present prior to shooting from the carrier.

d. The mortar carrier will not exceed a five degree (90 mil) slope.

16. 81mm Mortar Systems:

a. Must have a four-man gun crew, three must be an 11C MOS. The FDC must have a four-man crew; three being 11Cs.

b. Unit must have appropriate firing tables on hand with each firing element.

c. When the 81mm mortar is placed in the direct lay mode fires are then locally cleared by the Dragon OC and the Platoon OC.

17. 60mm Mortar Systems:

a. Must have a three-man crew, two must be an 11C MOS. If two 60mm Mortars are employed together, there must be at least two men per tube with an NCO to verify data on both mortars.

b. No firing short of troops along the gun-target line. Use only charge 1-2.

c. When the 60mm mortar is placed in the direct lay mode fires are then locally cleared by the Dragon OC and the Platoon OC.

#### **4-18 Notional Artillery**

Notional Artillery will be suppressed if a friendly unit drives through the notional unit. If an enemy force drives through the Notional Artillery Unit, the Notional Unit will be attrited by the Fire Support TAF. Observers will receive 6 digit grids during the day and 4 digit grid locations through OC channel of the type/quantity of equipment of notional artillery that is LOS compromised. Notional Artillery is visually compromised if an observer with LOS meets the following requirements:

	DAY	NIGHT
Unaided Observer	.5 km	1.5 km
Observer w/bino/map	5 km	3 km
Aided Observer	5 km	3 km

#### **4-19 Manual Artillery Assessment Tables**

SAWE is the primary method for assessing indirect fire engagements. However, in the case of SAWE malfunction or the requirement to assess vehicles which are not fitted with MILES II Table 4-19 Figures 1 through 7 standardize vehicle and personnel effects.

Table 4-19 Figure 1 Casualties For 60mm and 81mm Mortar High Explosive (HE)																		
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
TARGET TYPE	CASUALTY ASSESSMENT																	
TRPS IN OPEN (plt)	-	1	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5
TRPS IN OPEN (co)	2	3	6	6	7	8	9	9	10	11	12	12	13	14	14	15	15	16
TRPS DUG-IN no overhead (plt)	-	-	-	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3
TRPS DUG-IN no overhead (co)	-	1	2	3	3	3	4	4	5	5	6	6	6	6	7	7	8	9
TRPS DUG-IN w/ overhead (plt)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1
TRPS DUG-IN w/ overhead (co)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	3
WHEELED VEH	-	-	-	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2
ARTILLERY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ARMORED PSNL CARRIER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TANKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(PLT = 20 personnel, CO = 80 personnel)																		

Table 4-19 Figure 2 Casualties For 105mm Artillery, 107mm Mortar and 120mm Mortar (HE)																		
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
TYPE TARGET	CASUALTY ASSESSMENT																	
TRPS IN OPEN (plt)	1	3	4	5	6	7	7	8	8	8	9	9	9	10	10	10	11	11
TRPS IN OPEN (co)	3	6	12	15	18	20	21	22	23	24	25	26	27	28	29	30	31	32
TRPS DUG-IN no overhead (plt)	-	-	1	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5
TRPS DUG-IN no overhead (co)	-	1	3	4	5	6	7	8	8	9	9	10	11	11	12	13	14	15
TRPS DUG-IN w/ overhead (plt)	-	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2	3	3
TRPS DUG-IN w/ overhead (co)	-	-	-	-	-	-	1	2	2	3	3	3	3	4	4	4	5	5
WHEELED VEH	-	-	-	-	-	1	1	1	2	2	2	2	2	3	3	3	3	4
ARTILLERY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2
ARMORED PSNL CARRIER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2
TANKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(PLT = 20 personnel, CO = 80 personnel)																		

Table 4-19 Figure 3 Casualties For 155mm Artillery (HE)																		
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
TYPE TARGET	CASUALTY ASSESSMENT																	
TRPS IN OPEN (plt)	2	4	6	7	8	9	10	11	11	12	12	12	13	13	13	13	13	14
TRPS IN OPEN (co)	6	12	18	21	24	27	30	33	33	34	35	36	37	38	39	40	41	42
TRPS DUG-IN no overhead (plt)	-	1	2	3	3	3	4	4	4	4	5	5	5	6	6	6	7	7
TRPS DUG-IN no overhead (co)	1	3	6	7	8	9	10	11	12	13	13	14	15	16	17	18	19	20
TRPS DUG-IN w/ overhead (plt)	-	-	-	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4
TRPS DUG-IN w/ overhead (co)	-	1	2	3	3	3	4	4	4	5	5	6	6	7	7	8	8	8
WHEELED VEH	-	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	5	5
ARTILLERY	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2
ARMORED PSNL CARRIER	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2
TANKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
(PLT = 20 personnel, CO = 80 personnel)																		

Table 4-19 Figure 4 Casualties for 105mm and 155mm Artillery Anti-Personnel ICM																		
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
Target Type	Casualty Assessment																	
TRPS IN OPEN (plt)	4	6	8	9	11	12	13	13	14	14	14	15	15	15	16	16	16	16
TRPS IN OPEN (co)	14	21	28	32	39	42	46	46	49	49	49	51	51	51	54	54	54	54
TRPS DUG-IN no overhead (plt)	2	2	3	3	4	4	4	5	5	5	6	6	7	7	7	8	8	8
TRPS DUG-IN no overhead (co)	7	7	11	11	14	14	14	16	16	16	19	19	22	22	22	25	25	25
TRPS DUG-IN w/ overhead (plt)	-	-	-	-	-	-	-	-	1	1	1	2	2	2	2	2	2	2
TRPS DUG-IN w/ overhead (co)	-	-	-	-	-	-	1	2	3	3	3	4	4	5	5	5	5	6
Casualties For 155mm Artillery Dual Purpose ICM																		
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108
Target Type	Casualty Assessment																	
TRPS IN OPEN (plt)	3	6	9	11	12	13	14	14	15	15	15	16	16	16	16	17	17	17
TRPS IN OPEN (co)	9	18	27	32	36	39	41	43	45	46	47	48	49	50	51	52	53	54
TRPS DUG-IN no overhead (plt)	1	2	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9
TRPS DUG-IN no overhead (co)	3	6	9	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
TRPS DUG-IN w/ overhead (plt)	-	-	-	-	-	-	1	1	1	1	2	2	2	2	2	2	3	3
TRPS DUG-IN w/ overhead (co)	-	1	1	2	2	2	3	3	4	4	5	5	6	6	6	7	7	7
ARTILLERY	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4
WHEELED VEH	1	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	7
ARMORED PSNL CARRIER	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4
TANKS	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2
(PLT = 20 personnel, CO = 80 personnel)																		

Table 4-19 Figure 5 Dual Purpose ICM Casualties FOR 227mm Rockets													
ROUNDS	1	2	3	4	5	6	7	8	9	10	11	12	
TYPE TARGET	CASUALTY ASSESSMENT												
TRPS IN OPEN (plt)	4	8	9	11	12	13	13	14	15	15	16	16	
TRPS IN OPEN (co)	12	24	27	33	36	44	45	46	47	48	49	50	
TRPS DUG-IN no overhead (plt)	2	3	3	3	4	4	4	5	5	5	6	6	
TRPS DUG-IN no overhead (co)	6	8	9	10	11	12	13	14	15	16	17	18	
TRPS DUG-IN w/ overhead (plt)	1	2	2	2	2	2	3	3	3	3	4	4	
TRPS DUG-IN w/ overhead (co)	2	3	3	3	4	4	4	5	5	5	6	6	
ARTILLERY	-	-	1	1	2	2	3	3	4	4	5	5	
ARMORED PSNL CARRIER	-	-	1	1	2	2	3	3	4	4	5	5	
TANKS	-	-	-	-	-	1	1	1	1	1	2	2	
WHEELED VEH	1	2	2	2	3	3	3	5	5	5	5	6	
(PLT = 20 personnel, CO = 80 personnel)													

Table 4-19 Figure 6 Casualties For OPFOR High Explosive MRL Fires																				
ROUNDS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TYPE TARGET	CASUALTY ASSESSMENT																			
TRPS IN OPEN (PLT X 3 = CO)	1	2	3	4	5	5	5	5	6	7	8	9	10	10	10	11	11	12	14	16
TRPS, DUG-IN, NO OVERHEAD COVER (PLT, X 3 = CO)	-	-	-	1	1	2	2	2	3	3	3	3	4	4	5	5	6	6	7	8
TRPS, DUG-IN W/ OVERHEAD COVER (PLT, X 3 = CO)	-	-	-	-	-	-	1	2	2	2	2	3	3	3	3	4	4	4	4	4
ARTILLERY BTRY	-	-	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4
M2 / M3, IN OPEN	-	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2	2	2	2	2
M2 / M3, DUG IN	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	2
M60 TANKS, IN OPEN	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	2
M60 TANKS, DUG-IN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
M1 TANKS IN OPEN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2
M1 TANKS DUG-IN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
MLRS	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3
M113	-	-	-	-	-	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4
WHEELED VEH. COMBAT TRAINS	-	-	-	-	1	1	1	1	2	2	2	2	2	3	3	3	3	3	4	4
FIELD TRAINS	-	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
For Additional Rockets (Above 20) Add To Or Double Chart Figures																				

Table 4-19 Figure 7 Casualties For All OPFOR Indirect Fire Systems Except MRL																			
ROUNDS	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	
TYPE TARGET	TARGET CASUALTY ASSESSMENT																		
TRPS IN OPEN (plt)	1	2	3	4	5	5	5	5	6	7	8	9	10	10	10	11	11	12	
TRPS IN OPEN (co)	4	7	11	14	18	18	18	18	24	27	28	32	35	35	35	39	39	44	
TRPS DUG-IN no overhead (plt)	-	1	1	1	2	2	2	3	3	3	3	4	4	5	5	6	6	7	
TRPS DUG-IN no overhead (co)	-	4	4	4	7	7	7	11	11	11	11	14	14	18	18	21	21	24	
TRPS DUG-IN w/ overhead (plt)	-	-	-	-	1	1	1	2	2	2	2	3	3	3	3	4	4	4	
TRPS DUG-IN w/ overhead (co)	-	-	-	-	4	4	4	7	7	7	7	11	11	11	11	14	14	14	
WHEELED VEH	-	-	-	-	1	1	1	1	2	2	2	3	3	3	3	4	4	5	
ARTILLERY	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	2	2	2	
ARMORED PSNL CARRIER	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2	2	
TANKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
(PLT = 20 personnel, CO = 80 personnel)																			

# CHAPTER 5

## Engineer

### 5-1 General

1. Units will provide their OCs with locations of all obstacles and survivability positions. OCs will use this information to ensure that all obstacles are correctly entered into the NTC-IS computer system and to track post mission battlefield restoration.

2. Units will not construct obstacles that are inherently dangerous and have little tactical value (e.g., head high, single strand barbed wire.)

3. No fighting position (Live fire or Force-on-Force) will be used if it is determined that the position is unsafe.

4. Units will conduct post mission battlefield restoration. Battlefield restoration is an emplacing unit responsibility, defined as the clean-up or fill-in of all obstacles and survivability positions that they constructed. Restoration will begin after change of mission as directed by the DTOC. Units will complete restoration prior to the next mission unless DTOC authorizes a delay.

a. Units will return all obstacle materials to storage configuration, i.e., all mines disarmed and stored in containers if available, and all wire banded and palletized.

b. Units will fill in all survivability positions, ACE scoop areas, and antitank ditches and spread all berms and spoil.

c. BLUFOR and OPFOR units will coordinate battlefield restoration through DTOC if necessary.

d. Only the Commander of Operations Group (COG) may postpone battlefield restoration. Additionally, the COG may suspend training if battlefield restoration is inadequate and may adversely impact on safety or future training.

5. All conventional minefields will be marked IAW with 52<sup>nd</sup> ID SOP, a minimum of a single row or concertina or double strand barbed wire fence, with mine signs every 25m, and pickets every 15m. All minefields will have a DA1355 completed and forward thru the chain of command to 52<sup>nd</sup> ID (M) TOC: ATTN ADE. In addition, 52<sup>nd</sup> ID, requires red Chemlites on every picket for the live minefields.

### 5-2 Training Demolition

1. Units will not use live time fuse, fuse ignitor, detonation cord, blasting caps, and Demolition Explosion Simulation (DES) unless they request and receive a waiver from the COG. Units will not use any other live demolition materials in Force-on-Force training.

2. Units will handle training demolitions in the same manner as live demolition material. OCs may assess as casualties soldiers who mishandle demolitions materials.

3. Units must reorder expended demolition material through the Class V resupply system in order to receive demolitions for future missions.

4. OCs will mark simulated explosions from demolition material with a hand grenade simulator.

5. Training Aids. Both the BLUFOR and OPFOR will use TASC or other realistic training aids to replicate demolition material, detonation cord, time fuze, blasting caps and fuze ignitors. BLUFOR training aids must be approved by a Sidewinder OC prior to leaving the Rotational Unit Bivouac Area (RUBA). Examples of satisfactory training aids are listed below:

- demolitions: wood cut to approximate size and shape of live demolitions.
- detonation cord: training detonation cord (TASC item)
- time fuze: training time fuze (TASC item)
- blasting caps: training blasting caps (TASC item)
- fuze ignitors: expended fuze ignitors

6. To destroy Class IV/V the unit must have enough explosives and initiation systems on hand to complete the destruction. To destroy Class IV/V with non-explosive techniques the unit must explain to the OC on site how they will accomplish the destruction, (simulate rolling over pickets with a track vehicle). They must have the appropriate resources on-hand, then wait the appropriate amount of time as determined by the OC. Units will enclose destroyed Class IV & V points with engineer tape on all four sides and chemlights for night visibility. To use the training aids again, the BLUFOR must requisition the materials. After the requisition has been processed through the BDE S-4 and the FSB, with required paper work (ie DA581), trucks may move forward under OC control to recover the materials and transported to the required location.

**5-3 Conventional Minefields**

1. The BLUFOR have three mines available for use on the NTC battlefield, the M21 MES mine, the M21 and the M15 training mines. The M21 MES mine, a M21 training mine with a MES mine inside, is used to simulate conventional mine lethality. The M21 MES mine is the primary training mine and source of conventional mine kills. Units may use the M21, M15 training mines as an approved exception when total mine requirements exceed the number of M21 MES mines available to the unit, and the shortfall is not unit caused.

2. The BLUFOR will follow FM 20-32 doctrinal standards for minefield emplacement. Where full-width AT mines are prescribed, the units will install the tilt rod and bury or stake the mine for stability. Units must arm mines with the provided fuzes. When fuzes are not available, and with OC approval, the unit may substitute a piece of tape with the installation DTG and the arming soldier's initials for the fuze. With OC notification prior to departing the RUBA, units may install M5 pressure type firing devices to act as an anti-handling device. Units will handle training mines in the same manner as live mines. OCs may partially or fully disarm minefields or declare mines as unserviceable for units failing to meet these standards. In addition to assessing casualties to non-MILES II equipped vehicles and personnel, OCs will ensure minefield tactical realism by adjudicating non-MES mines. OCs may assess as casualties unprotected soldiers within 25m of a mine explosion.

3. Units may not exceed vehicle haul capacities listed in Chapter 7 - Logistics. OCs may assess simulated battle damage to vehicles exceeding the listed haul capacity. Units may not stack uncrated mines more than four high inside vehicles or trailers. During continuous operations, mines remain armed until disarmed by the unit. Since MES mines cannot be disarmed without producing a killing effect signature, OCs will re-key an individual's personal MILES/PDD

(only), who is actively involved in recovering mines for the purpose of battlefield clearance or restoration, and regeneration of those mines. Units must reorder replacements for competitively expended mines through their Class V resupply system in order to receive use of those mines for future operations (see Chapter 7 - Logistics.)

4. The OPFOR uses the OPFOR mine shell, which replicates the TM-89 mine. The OPFOR mine shell consists of an M21 plastic shell without fuse, painted tan in color. The TM-89 is the standard mine used in

Table 5-3 Mine Characteristics					
MINE	Delivery System	Fuzing	Warhead	AHD	Self Destruct
<b>BLUFOR Scatterable Antipersonnel (AP) Mine Characteristics</b>					
M67	155mm artillery (ADAM)	Trip Wire	Bounding Frag	20%	YES
M77	MOPMS	Trip Wire	Blast	0%	YES*
BLU-91B	Air/Ground VOLCANO	Trip Wire	Blast Fragment	0%	YES.
<b>BLUFOR Scatterable Antitank (AT) Mine Characteristics</b>					
M70	155mm artillery (ADAM)	Magnetic	M-S Plate	20%	YES
M76	MOPMS	Magnetic	M-S Plate	0%	YES*
BLU-91B	Air/Ground VOLCANO	Magnetic	M-S Plate	0%	YES
<b>OPFOR Scatterable Antipersonnel (AP) Mine Characteristics</b>					
POM-25	BM-21	Trip Wire	Bounding frag	Yes	YES
<b>OPFOR Scatterable Antitank (AT) Mine Characteristics</b>					
PTM-3	BM-21	Magnetic	4-linear Charges	Yes	YES
<b>BLUFOR Conventional Antitank (AT) Mine Characteristics</b>					
M15	Hand Emplaced	Pressure	Blast	Capable	No
M21	Hand Emplaced	Pressure/Tilt Rod	Shaped Charge	Capable	No
<b>OPFOR Conventional Antitank (AT) Mine Characteristics</b>					
TM-89	Hand Emplaced	Magnetic/Pressure	M-S Plate	Yes	No
<b>OPFOR Conventional Antipersonnel (AP) Mine Characteristics</b>					
OZM -3	Hand Emplaced	Pressure/Release	Blast/Shrapnel	Yes	No
PMN	Hand Emplaced	Pressure	Blast	Yes	No

all OPFOR conventional minefields, to include minefields executed by the Mobile Obstacle Detachment (MOD).

If any vehicle drives over or straddles a TM-89 mine, the vehicle will be assessed as a catastrophic kill. Any troops in the open within 25 meters of a TM-89 blast will be assessed as a casualty. OCs will remove TM-89 mines which have been detonated.

#### **5-4 FASCAM**

The NTC battlefield allows for the full employment by opposing forces of scatterable minefields by BLUFOR and OPFOR units. This paragraph outlines procedures for minefield identification, effects and casualty assessments. Both forces will be capable of employing both artillery delivered and ground emplaced scatterable minefields. BLUFOR is capable of employing air emplaced scatterable minefields. Also, BLUFOR units are capable of employing the Modular Pack Mine System (MOPMS).

##### **1. Rotational Unit Responsibilities**

- a. Report intention and request approval for planning of any anticipated FASCAM minefield through DTOC.
- b. A SCATMINWARN will be sent to the DTOC 30 minutes prior to execution of a scatterable minefield as a final request for release of emplacement authority. Failure to meet the 30 minute lead time requirement may result in delays in receiving execution authority.
- c. On an exceptional basis, both BLUFOR and OPFOR units may request and be granted authority to emplace long duration scatterable mines for any/all employment systems. Long duration scatterable mines will be limited to a 48 hour duration. Long duration scatterable mines remain in effect until self-destruction and are not normally subject to suspension of battlefield effects.
- d. For ADAM/RAAM and Air VOLCANO targets, units may only SCATMINWARN the number of available loads they have for that particular system. Example – if the BCT can fire 2 ADAM/RAAM targets, then they may only have 2 open SCATMINWARN targets at any given time.

##### **2. OC Responsibilities**

- a. Upon receiving notification from DTOC, the OC on site will manually assess casualties if the SAWE system is non-operational.
- b. Ensure that the RF signature is turned off prior to any attempts to reduce the minefield (coordinate through the Sidewinder TAF).
- c. Ensure that the RF signature is turned back on if the reduction attempt fails.
- d. Confirm that the RF signature is turned off after the 4-hour duration of the minefield has elapsed before removing the orange flags.
- e. Control reduction attempts IAW Chapter 5-5.

##### **3. Artillery/Rocket Delivered Scatterable Mines**

a. The BLUEFOR uses a 155mm howitzer to deliver the M67 ADAM and M70 RAAM mines. Each M731 projectile contains 36M67 mines and each M741 projectile contains nine M70 mines. The OPFOR uses the BM-21 to deliver the POM-2S AP mines and the PTM-3 AT mines. BLUFOR artillery delivered scatterable mines (ADAM/RAAM) are either 400x400 or 200x800 meters and are medium density. The OPFOR MRL delivered scatterable minefields are typically medium density (400x400 and 200x800) and may be 4 or 48 hours in duration IAW CBI/DTOC approval.

b. The RF signature will be turned on after 50 percent of the minefield has been fired and the leading enemy edge is marked. After the barber poles are set, a ground signature of approximately 800 Blue/Red wooden blocks will be placed on the ground (by OCs or fire markers) between the poles. The poles will then be removed and the only signature will be the wooden blocks. When the minefield self-destructs the mines will be recovered by OCs or firemarkers. During breaching operations, the RF minefield will be turned off and manual assessment of casualties will be made by the OC on site. If bypass marking is used, the SAWE RF minefield signature will continue to make assessments. The fire marker will throw five grenade simulators when the scatterable minefield self-destructs.

(1) All artillery delivered FASCAM minefields will be marked to their actual size. There will be no safety zone marking. Units should recognize doctrinal safety zone distances, understand the threat, and act accordingly.

(2) Adjudication starts when the following conditions are met:

(a) The corners which define the edge or edges that face the general direction from which the enemy is approaching, will be marked first:

200x800m = the corner points on the long edge of the minefield, on the enemy side will be emplaced first.

400x400m = the three corner points that define the closest corner to the enemy will be emplaced first.

(b) If tube artillery delivers the scatterable minefield, adjudication begins when 50% of the rounds are complete on the fire mission and marking is complete.

(3) No battlefield effects signature marking of the minefield will be emplaced prior to the artillery mission being fired. If possible, the firemarker will erect a center reference pole first upon arrival on site and then move to the first corner on the approaching enemy side of the minefield. When the artillery mission is fired, the firemarker will provide the initial pyrotechnic signature (yellow smoke and five artillery simulators) at the first corner location. The firemarker emplaces the first corner pole. The firemarker will then move to the second corner on the approaching enemy side and continue marking IAW Chapter 5-4 3b p.51.

(4) If SAWE is available at the time the artillery mission is fired, SAWE will provide adjudication for the duration of the minefield. If SAWE fails, manual adjudication will be conducted for the remainder of the duration. If SAWE is not available at the time the artillery mission is fired, manual adjudication will be conducted through the duration of the minefield.

#### **4. Volcano/UMZ.**

a. Overview. Units may mount the M139 Volcano mine dispenser on M548 cargo carriers, M977 CGO HEMTT, 5 ton vehicles or UH-60 Blackhawk helicopters. The live M87 mine canister is prepackaged with five AT mines and one AP mine; the mix cannot be altered. Units will replicate the M87 canister with the M89 training canister for all Volcano operations; logistics, canister load and reload, and system canister testing. There are sufficient canisters and honeycombs at the NTC for four Volcano systems. Additional air or ground Volcano systems constitute a FORSCOM Reg 350-

50-1 exception and require 160 canisters and four honeycombs per Volcano system augmentation. The OPFOR UMZ dispenses the PTM-3 AT mine and POM-2S AP mine. While neither the Volcano AT mine nor the PTM-3 have anti-handling devices, both are magnetic fused and therefore would detonate if moved. Therefore the mines cannot be lifted out of the way. The OPFOR UMZ minefield is dispensed in a manner similar to the BLUFOR Volcano minefield.

(1) BLUFOR units must process requests for Volcano canisters IAW Chapter 7-Logistics. The unit may upload the initial Volcano canisters on the M139 dispenser any time after the UBL DA Form 581 has been properly processed by the unit and verified by their OC. Units cannot execute Volcano minefields without the requisite number of "ready" M89 canisters uploaded on the M139 dispensers and proper systems checks conducted. The Senior Aviation trainer may grant exceptions to the proper number of uploaded canisters on air Volcano systems because of safety constraints.

(2) The correct number of empty honeycombs with a properly processed and verified DA Form 581 constitute a Volcano reload, and must be on-hand prior to a unit conducting reload operations. The unit must download the entire load of "expended" M89 canisters into the honeycombs prior to up-loading the same canisters, now "ready" on to the M139 dispensers. The empty honeycombs replicate honeycombs filled with "fired" canisters and must be backhauled. OCs will place 2402 tags on honeycombs and the dispenser panels to clarify current status of the canisters as "ready" or "expended".

b. Air Volcano Force-on-Force simulation. Air Volcano minefields will be simulated at the NTC utilizing the NTC Instrumentation System RF minefield signature. Casualty assessment is made by the NTC-IS RF signature through the vehicle mounted or individual PDD receiver. Minefields may be emplaced in one pass to produce up to a 1,000 meter linear frontage (fix/disrupt) or two passes in-depth (turn/block) for up to a 400 meter frontage. Additionally, a 200m x 200m minefield may be emplaced by dispensing only half the Volcano load. After the barber poles are set, a ground signature of approximately 960 Blue/Red wooden blocks will be placed on the ground (by OCs or firemarkers) between the poles. The poles will then be removed and the only signature will be the wooden blocks. When the minefield self-destructs the mines will be recovered by OCs. The RF signature will be turned on, and the duration time will begin when the

minefield has been completely emplaced and the leading enemy edge is marked. During breaching operations and after executing a breach lane obstacle reduction, the RF minefield will be turned off and manual assessment of casualties will be made by the OC on site. If bypass marking is used, the SAWE RF minefield signature will continue to make assessments. The OC will throw five grenade simulators when the minefield expires.

(1) All Air Volcano minefields will be marked to either 200m x 1,000m or 400m x 400m. There will be no marking of a safety zone. There is a doctrinal safety zone around all minefields which units should recognize, understand the threat and maneuver accordingly to avoid.

(2) Adjudication (both manual and SAWE) starts when the following conditions are met:

(a) The corners which define the edge or edges that face the general direction from which the enemy is approaching, will be marked first:

200x1,000m = the corner points on the long edge of a 200 meter by 1,000 meter minefield, on the enemy side will be emplaced first.

400x400m = the three corner points that define the closest corner to the enemy on a 400 meter by 400 meter minefield, will be emplaced first.

(b) Adjudication begins after the delivering aircraft completes its pass or passes and marking is complete.

(3) No ROE signature marking of the minefield will be emplaced prior to the initiation of the Air Volcano minefield. When the Air Volcano minefield is initiated, the controlling OC will provide the initial scatterable minefield signature IAW paragraph 2 and emplace the first reference stake at the initiation point. He will then proceed along the launch line, emplace the second reference stake, and provide the ROE signature. He will then move to the approaching enemy side of the minefield, mark those corners first, then continue marking as specified by the ROE. On 200m x 1,000m minefields, the controlling OC will also emplace two poles, one meter apart in the center of the 1,000 meter sides.

(4) If SAWE is available at the time the minefield is dispensed, SAWE will provide adjudication for the duration of the minefield. If SAWE fails, manual adjudication will be conducted for the remainder of the duration. If SAWE is not

available at the time the minefield is dispensed, manual adjudication will be conducted through the duration of the minefield.

(5) Logistical requirements/restrictions.

(a) The unit must bring a full load of M-89 training canisters per Volcano system. Units will still draw their first Volcano load in theater.

(b) The unit must fly missions with the bottom two racks (Rack 1 and 2) loaded with 40 M-89 canister each for a total of 80 canisters.

(c) Emergency jettison squibs must be installed prior to aircraft flight.

(d) The aircraft DCU must pass a canister bit test prior to the execution of each mission.

(e) The PIC must show the OC that the aircraft can carry the load of mines and the proper fuel on board IAW the PPC for the mission.

(f) Ingress speed is limited to -10 performance planning for the current conditions prior to launch.

c. Ground Volcano/UMZ Force-on-Force Simulation. The Volcano/UMZ minefield will be simulated by using 2"x4"x4" wooden blocks painted blue (BLUFOR) on all sides and red (OPFOR) on all sides, to replicate the actual mines. The mines will be dispensed by hand from the dispensing vehicle or supporting vehicle(s) trailing the dispenser. Once the VOLCAN/UMZ has run the centerline, the vehicle(s) dispensing the blue/red blocks are not subject to assessment while dispensing the blocks. The mines (blocks) on the ground give the minefield signature. The OC will throw a hand grenade simulator when the Volcano/UMZ begins dispensing and a second hand grenade simulator when dispensing is complete. The OC will throw five hand grenade simulators when the four hour duration expires. Mines (blocks) must be recovered during battlefield restoration. The controlling OC adjudicates all mine effects.

## **5. Modular Pack Mine System (MOPMS)**

a. Overview. The MOPMS is a man-portable, 162 pound, suitcase-shaped mine dispenser that can be emplaced anytime before dispensing mines. The dispenser contains 21 mines (17 AT and 4 AP).

b. Force-on-Force Simulation. The BLUFOR emplacing unit will simulate MOPMS at the NTC by placing a total of 21 wooden blocks, 2"x4"x4",

painted blue, in a scattered surface laid pattern out to 35 meters from the container in a 180 degree semi-circle. The unit must demonstrate proficiency with the RCU to the OC to the on-site to receive approval to use the RCU to emplace or command detonate the minefield. Following the employment of the MOPMS, the OC on site detonates a grenade simulator to mark the detonation; then places the 21 blue blocks. OCs will mark the minefield initiation with one ground burst simulator. The minefield becomes active once the wooden blocks are dispensed. Vehicles and personnel become casualties if they disturb or influence the mines using non-doctrinal breach methods.

c. Logistics Requirements. Unit draws Division authorized quantities of MOPMS containers from TASC per each engineer company and separate engineer platoon (light platoon). (See Engineer Annex, 52d ID (M) OPOD). Emplacing unit must have the appropriate batteries for the MOPMS dispenser and the RCU (if used). Once a battery is used to dispense mines, the battery used in the container cannot be used again. The unit must provide 21 2"x4"x4" wooden blocks, painted blue, for each MOPMS container prior to departing the RUBA. The unit recovers the mines and MOPMS container upon self-destruction of the mines or continue the mission.

## **6. HORNET – Hand Emplaced Wide Area Munition.**

a. General. The M93 Hornet is a single 35lb soldier-portable anti-tank / anti-vehicular smart munition. Hornet munition can be used independently or in support of conventional or scatterable minefields and will automatically search, detect, recognize, and engage moving targets using top attack at a standoff distance of up to 100 meters in a 360 degree circle around the munition. The Hornet is a one-time use munition capable of destroying vehicles using sound and motion as the detection method. This munition is non-recoverable once it has been armed. The Hornet can be employed manually or remotely using the M71 Remote Control Unit (RCU). The RCU is a hand held encoding unit that interfaces with Hornet when the remote mode is selected at the time of employment. After encoding, the RCU can be used to command arm, reset self-destruct times, and command destruct the Hornet munition. The Hornet has five self-destruct times: 4 hours, 48 hours, 5 days, 15 days, and 30 days. The target switch on the Hornet gives the operator the choice between detecting and destroying only heavy armor vehicles or all armored vehicles. The Hornet is packaged in PA160 containers. Thirty

PA160 containers are stored on one pallet with a total weight of 1700 pounds for the pallet (each PA160 with munitions is 55 pounds).

b. Request for Planning/ Execution. The Hornet smart munition is subject to the same procedures for authority to emplace as all scatterable mine systems. Hornet must be replicated on the NTC battlefield by the M98 and M97 Hornet training device. The number of Hornets that will be allowed on the battlefield is defined by the initial allocation as stated in the 52<sup>nd</sup> Infantry Division Operations Order or the quantity of available M98 and M97 Hornet training devices, whichever is less. Hornet munitions must be grouped in a minimum quantity of five munitions. Emplacing units must demonstrate technical proficiency by using the M71 RCU or manual method to arm a minimum of one M98 (fully functional) Hornet Trainer for each separate row or cluster of M97 Hornet (non-functional) trainers. To request approval for planning for the Hornet, units must provide the DTOC / ADE Cell with the following information for each planned Hornet employment:

### All Hornet Munitions

- Hornet munition Obstacle Number
- Planned time of Arming / Planned Self-destruct time.

### Hornets emplaced in Rows

- 6-digit Grid location of start point and end point of each row
- Quantity of Hornets emplaced in that row.

### Hornets emplaced in Clusters

- 6 digit Center of mass grid location of each cluster and radius size to the to the farthest Hornet Munition in that cluster
- Quantity of Hornets emplaced in that cluster.

Whether emplaced in rows or in clusters, the unit must provide the DTOC / ADE with the required information, grids, and the planned time of arming as soon as this information is available. At that time, the DTOC / ADE will then give approval for planning to the unit. Units will mark Hornet munitions emplaced rear of the FLOT with fratricide fence as specified in FM 20-32, Mine-Countermining Warfare, Chapter 4, page 415 (150 meters from the closest Hornet munition). Marking must be complete before emplacing the munition. The unit must then request and receive approval for execution (Scatterable Mine / Munition Warning) from the DTOC/ADE at least 30 minutes prior to the time of arming. After arming is complete, the unit must submit the 19-line Scatterable

Mine/ Mmunition Field Report and Record per FM 20-32, Page 8-23 and submit a DA 1355 Minefield Record per FM 20-32, Page 4-15 to DTOC/ ADE.

(1) DTOC / ADE must approve any self-destruct time setting other than 4 hours. Units must submit a request through DTOC/ ADE prior to remotely re-setting (recycling) the Hornet munition self-destruct time.

(2) Once Hornet munition emplacement is complete, the emplacing unit must provide the OC on-site with the following information to ensure a successful Hornet engagement:

- Hornet munition Obstacle numbers
- Individual Hornet munition serial numbers and grid locations (8-digit)
- Target Setting (heavy or all)
- Arming Date-Time Group
- Self-Destruct Time
- Type of control (manual or remote RCU operational mode)
- RCU group number (if appropriate)
- Start and end point grid locations of the Hornet munition row or center of mass of Hornet munition cluster and radius size to the furthest Hornet munition.
- Quantity of Hornet munitions emplaced in the row or cluster

(3) After the Hornet M98 (fully functional) trainer is armed, the OC will check the feedback light and report the Hornet munition's operational status to the Sidewinder TAF. If the Hornet M98 trainer does not have the active battery, a piece of tape will be placed in the Hornet munition battery compartment over the switch activating the green status light. If the Hornet M97 (non-functional) trainer is used, the person installing the active battery pack will place a piece of tape on the Hornet munition with the DTG and his initials of the person to simulate battery pack installation. If the total pre-arm, employment, and safe separation time exceeds ten hours, the Hornet munition will not be allowed to be armed until a new battery pack is installed.

(4) In the manual mode, an Area of Effect signature (100m radius circle) will be activated once the self-separation time has elapsed (5-6 minutes after arming). In the remote mode, the Area of Effect signature will be activated once the self-separation time has elapsed (30-36 minutes) and the Hornet munition has been command armed using the RCU.

(5) The remote mode must be used to extend the self-destruct time or to command destroy the Hornet. When performing remote commands to control the Hornet, emplacing personnel and vehicles must be at least 360 meters (safe stand-off distance) away from the Hornet munition and the RCU operator must be within 2000 meters of the Hornet.

(6) The Hornet, as well as personnel / equipment may be assessed by the OC if the appropriate care is not taken when handling and transporting the Hornet.

c. Assessments.

(1) The Instrumentation System will govern which vehicles are destroyed by the Hornet. The signature for a Hornet engagement of a vehicular target will be a hand-grenade simulator thrown in the vicinity of the Hornet and an air-burst simulator employed in the vicinity of the targeted vehicle. The simulators will be employed even if the Hornet does not destroy the vehicle but is only given credit for a near miss. Once the Hornet has engaged a target or the self-destruct time has been reached, the Area of Effect signature will be turned off by the OC on site calling the Sidewinder TAF. If instrumentation is non-operational, and upon approval from DTOC, the OC on site will manually adjudicate Hornet engagements based on the following:

- (a) Sidewinder TAF notification of a vehicle entering the targeted area of influence
- (b) Vehicle location determined by CIS and RDMS
- (c) WAM area of influence (determined by system capabilities and OC provided GPS accurate point of location).

(2) The OC on site may re-key any vehicle that is inappropriately destroyed by the Area of Effect signature. Specifically, if the Hornet munition is set to target only heavy armor vehicles and anything other than an M1, T80, or other armored vehicle based on similar chassis is destroyed by the Area of Effect signature, then that vehicle may be re-keyed.

(3) Each Hornet can only engage one target. When the Hornet is employed in rows or clusters, the OC on-site will adjudicate the appropriate munition decrement and ensure that the number of vehicles destroyed by the Area of Effect signature does not exceed the number of Hornets that engaged targets. As a result, if more than one vehicle is destroyed per Hornet expended by the Area of Effect signature, vehicles may be re-keyed. If more than one vehicle is

destroyed by the same Hornet instrumentation area of effect signature, then the first vehicle killed remains killed. If unknown, then the OC will re-key the lightest vehicle (BMP before T80).

(4) Destruction of the Hornet can be accomplished by dismounted personnel approaching quietly on foot, emplacing, and then detonating at least one pound of explosives next to the armed Hornet munition. When the explosives detonate, any exposed personnel in the open within 360 meters (as determined by demolition safety data tables) of the Hornet munition may be assessed as casualties by the OC on-site.

(5) An armed Hornet munition will self-detonate if it reaches the self-destruct time, if it is disturbed or if any tracked or wheeled vehicle drives within 15 meters of the armed Hornet munition (self-protect mode). Handling an armed Hornet munition will also cause it to self-detonate and will result in that soldier being assessed as a casualty. As a result, any exposed personnel within 25 meters (as specified by technical manual) of the exploding Hornet munition may be assessed as casualties. OC's may also assess appropriate damage to vehicles within 25 meters of the exploding Hornet munition.

## **5-5 Breaching Operations**

### **1. Explosive**

a. The MICLIC must be fully operational; electronically as well as hydraulically. The "Smokey Sam" subcaliber device will be fired to replicate the launching of the rocket and an OC will detonate a hand grenade simulator to simulate line charge detonation. If at no fault to the unit, that a subcaliber device cannot be used, an OC will detonate a grenade simulator ten seconds after the rocket arm is raised to firing elevation to simulate rocket launch and detonate a second grenade simulator to simulate detonation of the line charge. Unprotected personnel within 200 meters of the line charge when detonated will be assessed as casualties. Once the 'Smokey Sam' has been fired, OCs will adjudicate effects for the MICLIC charge. After the 62 meter standoff is taken into account, OCs will remove any destroyed mines in the 14m x 100m path credited to the line charge. Any mines left in the lane by the OC must be removed using appropriate proofing/breaching techniques. For multiple MICLIC launches, failure to overlap cleared areas from successive launches will result in the OC assessing vehicles in the uncleared areas. The SB-MV minefield may not be considered to be

completely reduced until the lane has been proofed by a MCB, Mine-Clearing Roller (MCR), ACE, or CEV.

#### **b. "Smokey Sam" Procedures.**

##### **(1) Transportation.**

(a) Smoky Sam sub-caliber devices will be transported inside their inner packing (i.e., foam containers) or they will be unpacked and placed in storage containers so they do not roll or bounce around.

(b) Units must comply with these transportation guidelines to prevent broken fins, damaged ignitors, moisture on the base of the rocket and damage to the frame - -- which all contribute misfires of the Smoky Sam sub-caliber device.

##### **(2) Safe Handling.**

(a) All pyrotechnic devices employed at the NTC are explosive in nature and produce extreme heat. This presents a hazard to both personnel and equipment.

(b) Units will comply with all directions and safety warnings printed on the Smoky Sam sub-caliber device.

(c) No spark or flame - producing items will be used within 50 feet of the Smoky Sam sub-caliber device. Do not store Smoky Sam sub-caliber devices with flammable or combustible material.

(d) All pyrotechnic safety devices (i.e., shunting wires) will remain in place until the device is initiated as per Chapter 5-4 3b, p.47.

##### **(3) Train-up.**

(a) Units must conform to the following train-up procedures before employment of Smoky Sam Sub-caliber device in force-on-force operations:

- Inspect the Smoky Sam sub-caliber device for damage (knicks, cuts, dents, moisture).
- All components of the MICLIC launcher must be present regardless if mounted on a trailer or AVLM.
- Operator's manual (-10) with all current changes must be available.

- PMCS must be completed to -10/-20 standards and a DA Form 5988E or 2404 properly filled out.
- All MICLIC crews must know misfire procedures and safe distance requirements.
- Units must conduct a training/verification firing, with all MICLIC crews present, prior to first force-on-force mission.
- Unit Observer/Controller (O/C) will be notified of scheduled training and verification firings.
- Surface danger zones (SDZs) must be calculated as if firing a live MICLIC rocket and line charge.

(b) If the Smoky Sam sub-caliber device is not used or the unit fails to conduct required train-up, the alternate provisions of the NTC ROE will be in effect for MICLIC employment. Lack of preparation/training on the Smoky Sam sub-caliber device may result in a higher misfire rate.

(4) Employment/Safety During Firing.

- (a) Units will implement live rocket and line charge MICLIC safety procedures during employment.
- (b) Units will prepare Smoky Sam sub-caliber devices at the engineer assault position.
- (c) Units may not use the Smoky Sam sub-caliber device if dismounted soldiers are within the SDZ. The unit O/C will detonate a grenade simulator to provide ground signature of rocket launch.
- (d) Units will not fire the Smoky Sam sub-caliber device if damage to the rocket occurs during transportation.
- (e) The unit O/C will make the final check to insure the area is safe before the Smoky Sam sub-caliber device is fired.

**2. Mechanical**

- a. Units may use any type blade asset to reduce anti-tank ditches and berms or move other physical obstacles.
- b. Units may not use the “bull through” or “push through” technique, i.e. pushing a deadline or

destroyed vehicle, to breach minefields. If a vehicle is destroyed in an existing lane, it is considered to be blocked by a burning hulk. The unit must execute proper doctrinal breaching/clearing techniques to establish a bypass at a safe distance from the destroyed vehicle to allow for continued use of the lane.

c. Mine Clearing Blade (MCB). The MCB will clear a lane through a minefield. If the MCB does not maintain appropriate spoil on the blades (up to the top of the moldboards), the first mine that comes in contact with the MCB will destroy the blade on the appropriate side of the tank. OCs will use a hand grenade simulator to replicate the mine’s detonation of the blade. The second mine that comes in contact with the MCB on that side of the tank will destroy the tank. In this case, an OC will manually assess the tank as a Catastrophic Kill. Additionally, if the MCB comes completely off the ground the tank will be assessed as a catastrophic kill if a mine is encountered by the tank. If the main gun of the tank is not traversed to the side during plowing, and a mine is encountered by the tank, the tank will be assessed as a firepower kill upon completion of the breach. It is recommended that the MCB be set at the 8” depth setting for peacetime (i.e. training) operations. This reduces wear and tear on the MCB and M1A1; however, the chain of command can authorize use of the 10” and 12” depth settings based on METT-T analysis.

(1) Scatterable Minefields (no ground mine signature). Scatterable minefields delivered by BLUFOR artillery (ADAM/RAAM), BLUFOR Air Volcano, and OPFOR MRL (BM-21) have no ground mine signature. In this case the MCB is assessed on proper technique alone. If the plow loses spoil or comes completely off the ground, the OC assesses the tank as a catastrophic kill.

(2) The OPFOR will simulate plowing operations by utilizing a T-80 with mudflaps mounted on each fender and “plow” stenciled on the front. The TC will dismount the tank and walk the tank through the minefield, removing mines as he encounters them (only the mines directly in front of the tank will be removed). If the OC determines that the terrain is not suitable for the appropriate build-up of spoil, he will assess the plow as destroyed and signify this by throwing a hand grenade simulator. If the tank continues to move, the OC will throw a second hand grenade simulator and assess the tank as a Catastrophic Kill.

d. Mine Clearing Roller (MCR). MCRs are best used to proof lanes in obstacles breached by other means, such as the MICLIC or MCB. If units use the MCR to detect, proof or reduce minefields, the following applies:

(1) Conventional Minefields: Each roller bank can withstand two mine strikes. The second mine strike on the same roller bank will destroy it (each mine encounter is signified by a hand grenade simulator). If the tank/MCR continues and a third mine is encountered on the side of the destroyed bank, then the tank is assessed as a catastrophic kill. In addition, a TM-89 (OPFOR MES mine) which passes between the roller banks also catastrophically kills the tank.

(2) Artillery Delivered Scatterable Minefields: Yellow smoke will be thrown when the MCR is 100 meters from the minefield as per Chapter 5-5. A hand grenade simulator will be thrown when the MCR reaches the forward edge of the minefield signifying its first encounter with a mine. If the MCR continues to move forward, it will be assessed as a casualty by the OC after it has traveled approximately 200 meters.

(3) Air Volcano: Yellow smoke will be thrown when the MCR is 100 meters from the minefield as per paragraph 6.d. A hand grenade simulator will be thrown when the MCR reaches the forward edge of the minefield signifying its first encounter with a mine. If the MCR continues to move forward, it will be assessed as a casualty by the OC approximately 80 meters into the minefield.

(4) Volcano (Ground)/UMZ/ MOPMS: Each roller bank can withstand two mine strikes. The second mine strike on the same roller bank will destroy it (each mine encounter is signified by a hand grenade simulator). If the tank/MCR continues and a third mine is encountered on the side of the destroyed bank, then the tank is assessed as a catastrophic kill. In addition, a full-width (i.e. tilt rod or magnetic influenced fuze) AT mine which passes between the roller banks also catastrophically kills the tank.

(5) The tank that the MCR is attached to will be assessed as a Fire Power Kill if the MCR makes contact with a mine while the gun tube is not traversed to the side or rear.

e. ACE/D-7/DOZER/CEV. These blade assets may be used to reduce a minefield. The blade must maintain enough spoil to prevent blade to mine contact. If appropriate spoil is not maintained and a

mine contacts the blade, the blade is destroyed and the vehicle can no longer be used for breaching operations. The OC will throw a hand grenade simulator and manually assesses the vehicle as a catastrophic kill.

f. OPFOR IMR-2M. The OPFOR will simulate breaching with the IMR using procedures similar to that of the T-80 with MCB. The TC (or third crew member) will dismount the vehicle, and walk through the minefield, removing mines as he encounters them (only mines directly in front of the vehicle). If the OC determines that the terrain is not suitable for the appropriate build-up of spoil, he will assess the blade as destroyed and signify this by throwing a hand grenade simulator.

### **3. Manual**

a. Conventional Minefields. Manual reduction will be conducted IAW unit SOP. When using explosives, at least a 1 pound charge, must be placed next to but not touching the mines. Handling the SB-MV will result in that soldier being assessed as a casualty by an OC. Failure to take appropriate safeguards against anti-handling characteristics may result in OCs assessing casualties.

b. FASCAM Minefields.

(1) Antipersonnel Mines. Proper grappling techniques will result in the AP mines being detonated without casualties (i.e., grappling hook has 60 meters of line attached, soldiers seeking cover after throwing hook, soldier moving to the end of the excess rope before pulling hook towards him and throwing the hook three times before moving to the end of the grappled area to begin process again). Failure to adhere to this procedure will result in an OC casualty assessment of the grappler. For the MOPMS minefield, the OC will remove the MES mine when the soldier has successfully cleared the AP mine.

(2) Antitank Mines. Only a line main will be used to destroy the AT mines once the AP mines have been cleared. One explosive charge is required on the line main per 30 meter depth of the minefield: (Example: if the Volcano/UMZ makes one pass, four charges will be required. The OC on site will direct where the charges must be placed.)

(3) Command Detonation. If the MOPMS was emplaced using the RCU, then the RCU can be utilized to command detonate the mines. The RCU must be within 1 km of the minefield.

(4) MES Receiver. In preparation for breaching operations, OCs will direct and supervise the unit disconnecting cables from the MES receiver on the following vehicles: M9 ACEs, tanks with operational MCBs or MCRs and CEVs (when available). Blackhorse Liaison will disconnect cables from designated OPFOR breaching vehicles. This prevents breaching assets from being assessed by MES mines. MES receivers will be reconnected after breach operations are complete. Manual OC adjudication takes precedence when the MES receiver is disconnected.

### **5-6 Digging**

1. All training units will comply with no-dig and controlled dig areas listed in Chapter 1 - Administrative.
2. Units will not dig dismantled fighting positions in Restricted/No Dig areas.
3. Digging to create survivability positions must comply with requirements outlined in Chapter 1 – Administrative.

### **5-7 Road Craters**

1. BLUFOR and OPFOR engineer units can create road craters (the number of OPFOR craters is specified by CBI) using shape and cratering charges, or with assigned mechanical assets, where digging is permitted. Once executed, mark the perimeter of the crater with a single row of concertina wire marked with engineer tape. A tripod of three U-shaped pickets wrapped in engineer tape marks the center of the crater. A sign indicating a road crater can be hung at the site. OCs will direct the unit's emplacement of the perimeter marking based upon emplacement and quantity of demolitions and soil conditions. The unit is responsible for providing and erecting the required pickets and concertina for marking.
2. Units may reduce or breach Road Craters (RCs) using a blade asset, tactical bridge, or any tracked vehicle. Vehicles with mine rollers and plows cannot reduce RCs. In the case of simulated RCs (RC with perimeter marked with concertina and center with U-shape picket tripods), blade assets, any vehicle with a front blade, and tracked vehicles move to the edge of the obstacle and replicate reduction by continuously moving forward and backward for five (blade asset) or ten (other vehicle) minutes. The AVLB must actually place the bridge across the simulated or actual gap. A squad must be on site for 30 minutes with at least 6 each D/handle shovels to breach a road crater before the OC will remove the pickets and engineer tape simulating the crater.

## **5-8 Live Fire Restrictions**

### **1. General**

a. Live Fire engineer activities are to be conducted as if in battle. All engineer missions, whether mobility, counter-mobility, or survivability, will be conducted in as real a combat environment as possible.

b. No simulated engineer activities or effects are permitted except where specifically approved in advance by the Senior Live Fire Trainer.

c. The intent of Live Fire is to allow the unit, to the maximum extent possible under a peacetime training environment, to realistically replicate combat engineer capabilities.

### **2. Administrative**

a. Report: The following engineer reports will be sent to the 52 ID (M) TAC during operations from rotational units:

(1) Report obstacle intention, (obstacle overlay and obstacle matrix) before emplacing any obstacle.

(2) Report obstacle initiation, progress every two hours and completion.

(3) DA Form 1355s are required for all obstacles with mines.

b. Emplacing units must report all obstacles to the Engineer OC to ensure battlefield effects are properly replicated.

c. All engineer and engineer related activities will be conducted IAW this ROE, OPORDs, TSOPs, and in compliance with established procedures and Army regulations.

d. Rotational units may emplace any type of mobility, counter-mobility, or survivability positions so long as the following criteria are met:

(1) At the conclusion of Live Fire, all rotational unit obstacles and individual/vehicle fighting positions will be cleared and filled by the responsible rotational unit.

(2) Any and all excavations must be filled.

(3) All Class IV and V materials will be removed at the end of Live Fire, or as directed by the Senior Live Fire Trainer.

(4) All training mines will be returned to the directed location.

e. Yellow smoke will not be used in Live Fire operations by rotational units. Yellow smoke is only used to identify OPFOR FASCAM.

### **3. Obstacle Effects**

#### **a. OPFOR Obstacles:**

(1) All OPFOR mines have a full width vehicle kill capability. Any vehicle which drives over or hits an antitank (AT) mine will be assessed as a Catastrophic Kill.

(2) If an anti-handling device or mine is activated, any individual within 25 meters may be assessed as a casualty. This includes soldiers not buttoned-up in hardened vehicles.

(3) All minefields that have been under the control of the OPFOR will be treated as OPFOR minefields.

(4) The unexploded ordnance area is activated if touched or driven over. Individuals not buttoned up within 25 meters may be assessed as a casualty.

b. Rotational Unit Obstacles: All rotational unit obstacles emplaced will be evaluated by the Engineer OCs for effectiveness and be given a computer delay time. Delay times are based on obstacle quality, density, and location. Delay times once input into the computer, affect the advance of the enemy.

(1) Training mines will be treated as real mines (i.e., transporting, handling, emplacing, and explosive capabilities).

(2) Rotational unit mines will be armed IAW the following rules:

(a) Pressure AT mines are considered armed once the pressure plate is set to "arm", or the M607 fuze is installed.

(b) Tilt rod mines are considered armed once the tilt rod assembly is properly installed and the safety collar is removed.

#### **(3) FASCAM:**

(a) Artillery delivered FASCAM may be planned based on the allocation from higher headquarters.

(b) Time of emplacement is the actual time of fire for the rounds being fired by 155mm howitzers.

(c) FASCAM minefields will have a four hour duration, starting from the time the last round is fired.

(d) Rotational units may employ MOPMS and Volcano, provided all equipment is operational and the unit has the training mines available.

### **4. Live Mines:**

a. Training mines will not be considered available for use until the rotational unit submits a DA Form 581, takes possession of 500 live M15 mines, and emplaces (lays/arms) all 500 live mines. There are 500 live M15 mines available for the brigade each rotation. All live minefields will be fenced on all four sides. The minimum standard is single strand concertina fence (six foot pickets every 25 meters) or two strand barbed wire cattle fence (six foot pickets every 25 meters) installed at least 15 meters from any mine and minefield signs (one red Chem-light at night) 10 to 25 meters apart. The fence must be installed before the mines can be fused, and cannot be removed until all mines are removed.

b. Live mines will be installed only in the directed area.

c. Live and training mines will not be mixed.

d. Live mines will not be buried.

e. Anti-handling devices will not be installed on live mines.

f. A no fire area (NFA) must be placed around any live minefield. The NFA is defined by the 8-digit grid coordinates of the corner points of the minefield safety buffer.

g. Live minefields are required to be observed at all times.

h. Prior to installation, the senior engineer commander must certify that his soldiers are trained on the task of arming and disarming M15 mines.

i. The rotational unit commander will establish procedures to prevent fratricide. Three examples are:

- Signals established to warn vehicles heading toward the minefield
- Requiring subordinates to brief all vehicle drivers on the location of the minefield
- Limiting movement during darkness

j. The installing unit must report intention, initiation, progress every two hours, and completion to the directing headquarters.

k. A DA Form 1355 must be completed IAW FM 20-32 standards and verified by an Sidewinder OC before any live mines are armed. A DA Form 1355 is required at the directing headquarters NLT 1 hour after completion of the minefield.

l. The installing unit will maintain 100% accountability of the live M15 mines. Prior to leaving the Live Fire Area, the senior commander will report that all mines have been removed or destroyed.

m. The installing unit will destroy any damaged or unserviceable mines. The mines will be blown in place under the observation of the Engineer Observer Controller.

**5. Demolition:** Demolition is inclusive of the following; detonating cord, TNT, military dynamite, C-4, cratering charges, shape charges, bangalore, live charges, blasting caps, expedient demolitions, and CEV main gun 165mm.

a. Demolitions will only be used when an Engineer OC is present.

b. Engineers may pre-prime demolitions with detonating cord at any time (State I). Engineers will not connect or emplace a blasting cap to any demolitions (State II) without an Engineer OC's permission.

c. Engineers can build ignition systems at any time. A minimum of two minute of time fuse is required. In addition, a test burn must be conducted in the presence of an Engineer OC.

d. If an electrical system is used, the electric blasting cap and firing wire must be shunted until used. No transmitting military radio will be within 100 meters of the unshunted electrical blasting cap. The Engineer OC will verify the testing of the electric wires, blasting caps and circuits.

e. The rotational engineer unit is responsible for notifying the TF chain of command to clear the danger safety zone. After the danger safety zone is cleared and the TF verifies accountability of all personnel, the senior engineer on site will notify the Engineer OC and request permission to arm the demolitions. Prior to granting permission to arm, the Engineer OC will also verify that the danger safety zone is clear. Once the emplacing unit receives permission to ignite the demolition from the chain of command, the senior engineer will request authorization to detonate from the Engineer OC. Only after the Engineer OC grants permission will the engineers ignite the demolition system.

f. The Engineer OC will be the first person to inspect the demolitions site after the charges have detonated. If all is clear, normal operations will continue.

g. In the event of a demolition misfire, the engineer OC determines what actions will be taken. Demolition misfire clearing operations are conducted as stated in FM 5-250, Explosives and Demolitions, Chapter II, Firing Systems.

h. If there is a non-electrical misfire on the offense, under realistic combat conditions and when required for safety, the senior engineer OC on site will wait at least five minutes after the expected time of detonation prior to investigating the site by himself. At this time, the Senior engineer OC will determine what action is required.

i. Due to concern for effective engineer OC control, the "Pop and Drop" method of breaching will not be conducted during Live Fire operations.

j. Combat engineer Vehicle (CEV) may fire its main gun 165mm HEP round if the crew is qualified and the borescope and pullover is current (DA Form 2408-4).

k. The CEV may fire TPT to verify bore sight after proper coordination has been made through the Task Force and the Engineer OC.

l. Prior to firing the CEV main gun during the combat operation, the platoon leader must notify the TF chain of command to begin clearing the surface danger zone. After the danger zone is cleared, and the TF

verifies accountability of all personnel, the senior engineer on site will notify the Engineer OC and request permission to fire the CEV. Prior to granting permission to fire, the Engineer OC will also verify that the danger safety zone is clear. The Engineer OC will tell the TC of the CEV that he may fire after he verifies the safety zone is clear. Only after the Engineer OC grants permission to fire will the CEV engage the target with its main gun.

(1) All vehicles must be behind the CEV and all must be buttoned up.

(2) All dismounted soldiers and wheeled vehicles must be 1,000 + meters behind the CEV prior to firing.

m. Prior to firing the MICLIC during the combat operations, the platoon leader must notify the TF chain of command to begin clearing the surface danger zone. After the danger zone is cleared, and the TF verifies accountability of all personnel, the senior engineer on site will notify the Engineer OC and request permission to fire the MICLIC. Prior to granting permission to fire, the Engineer OC will also verify that the danger safety zone is clear. Once done, the Engineer OC will grant permission to fire. Only after the Engineer OC grants permission to fire, will the MICLIC be fired. All dismounted soldiers and soft-skin vehicles must be 200 meters behind the firing MICLIC.

n. MDI (Modernized demolition initiators) can not be used with conventional demolition initiation systems (M7 nonelectric blasting cap, M6 electric blasting cap, M60 fuse ignitor, or M700 time fuse). The unit must either use all MDI or all conventional initiation systems but not both. All soldiers must be certified by their company commander as being trained on MDI prior to use at the NTC.

## **6. Survivability Positions**

a. The survivability of constructed vehicle fighting positions will be evaluated based on FM 5-34, FM 71-1, FM 72-1 and FM 5-103.

b. Individual fighting positions must have 18 inches of overhead cover. Company commanders must ensure the fighting positions are safe.

c. All fighting positions must be marked IAW Chapter 1.

# CHAPTER 6

## Air Defense

### 6-1 COMMAND AND CONTROL

1. **BLUFOR.** The 52d ID (M) DTOC will replicate the actions of the SHORAD BN TOC to include transmitting Air Defense Warnings/Weapons Control Status information to the field. This will be done on the FM Division Early Warning (DEW) Broadcast Net. Each rotational maneuver brigade deploys with a direct support SHORAD battery. The Corps deploys with a Patriot Battalion. HIMAD overlays (Patriot Coverage) will be distributed to the Brigades from the Division ADADO (Lizard 16).

2. **OPFOR.** Blackhorse 06 acts as MRD commander with operational control of OPFOR air defense assets.

### 6-2 AIRCRAFT

1. **Rotary Wing.** The OPFOR Currently utilize the UH-1 VISMODO to replicate the MI-24HIND. Also unmodified UH-1s/UH-60s to replicate the MI-8 Hips in conjunction with the MI-24 mockup for air assault operations. Types of BLUFOR RW are based on FORSCOM Reg 350-50-1 and approved troop list. All OPFOR/BLUFOR RW must be MILES instrumented.

2. **Fixed Wing.** BLUFOR and OPFOR fixed wing Aircraft are based upon availability. All services routinely support both red and blue forces with CAS, through the Air Warrior program at Nellis AFB. FW aircraft that are not MILES equipped will be assessed by L16 in conjunction with the Ravens. (See 6-4 ADJUDICATION AND BDA ASSESMENT)

#### 3. Unmanned Aerial Vehicle (UAV).

a. **General:** The specific requirements of the live and simulated UAV are found in Chapter 2, para 2-3, 2-5. Air coordination and planning must be conducted in an identical manner. UAV coordination measures will be recorded on the daily ACO.

b. **UAV Blanket Altitude** A blanket altitude can be established to deconflict the UAV with other fixed wing and rotary aircraft while operating in the mission area or orbit box IAW FM 34-25-2 (Example 7,000 to 9,000 MSL). The UAV Blanket Altitude does not relieve the brigade's A2C2 cell from its responsibility of airspace deconfliction (see airspace coordination).

c. **Airspace Coordination:** The Brigade must coordinate for UAV airspace just as it would for any other aerial asset. The brigade S-3 Air cell is responsible for submitting a preplanned aviation request at least 26 hours prior to execution of the mission (at a minimum it must include: 1) Route, 2) Required Altitude, 3) Orbit Box, 4) Loiter Time, 5) Task and Purpose, and 6) Start/End Time). This information must be included into the Airspace Coordination Order. If the requesting unit requires the UAV to fly outside of the pre-arranged a UAV Blanket Altitude (change in altitude or outside of the unit's boundaries) then the unit must submit a UAV Recon request 48 hours prior to execution of the mission. Units must process "Immediate" request in the same manner as other brigade aerial assets, i.e., helicopters. Also, the UAV unit must establish a UAV ROZ to achieve correct mission altitude prior to entering the UAV blanket altitude.

d. **Dynamic Retasking Of the UAV:** Dynamic retasking of the TUAV while in flight is possible as long as the retasking does not cause the UAV to leave the Brigade's area of operations (AO) and is within the UAV's prearranged blanket altitude or pre-approved mission altitude.

e. **Flight Area:** The flight area of the Brigade TUAV is the Brigade AO. The TUAV will not leave the Brigade AO without permission from the Division Collection Manager and ADO.

f. **Request for Division UAV:** Brigades may request assistance from the Division's UAV. It can be approved or denied based on the previous Division UAV taskings or requirements.

### 6-3 AIR DEFENSE

1. **Active Air Defense.** A valid engagement is determined when the gunners acquire, track and properly fire the weapon system at the target when within range. Gunners must have operational systems to be able to engage. Linebackers, BSFVs, MANPADS and Avenger systems must fire the designated blue marked ATWESS cartridge to achieve a valid engagement. The maximum effective range of the Stinger MILES is 3750 meters for rotary and 5000 meters for fixed wing aircraft. The maximum effective range of the Linebacker and Avenger MILES is 5000 meters for both rotary and fixed wing aircraft. OC's will replicate the firing of an ADA weapon system with a white star cluster when available.

**2. Passive Air Defense.** Passive air defense measures are monitored by both air defense OCs and maneuver Co/Tm OCs. Use of passive air defense measures such as obscuration, dispersion and other limiting measures impact on the assessment of BDA during air attacks.

**3. Early Warning.**

a. Early Warning is provided predominately by the rotational unit's organic early warning systems (i.e., Sentinel or LSIDIS radar). Rotational units may provide a white cell to the DTOC with FAADC3I equipment to function as a divisional Air Battle Management Operation Center (ABMOC). The ABMOC is the ID authority for all aircraft in 52<sup>nd</sup> ID AO. This cell in coordination with L-16 will replicate the early warning functions of Division through theater. Under these circumstances, primary means of transmitting early warning to the BCT is the digital Sensor Broadcast Net with FM transmission being the alternate. If the ADA battery does not have organic radar, early warning will be transmitted over the FM DEW net in the format listed below:

FM Division Early Warning Format  
Local AD Warning (i.e., Dynamite)  
Track Update (Track designator \_\_\_\_)  
Type A/C  
Friendly/Hostile/Unknown  
Location (4 digit grid)  
Heading

Radar used to acquire aircraft for early warning purposes and that are operating in the competitive zone are required to have MILES and be instrumented. If they cannot be instrumented then an OC is required to update TAF with their location so they can be players positioned.

**4. ADA Operations Forward of LD.** Avenger/MANPADS/EW sensor teams may be positioned forward of the line of departure/line of contact depending on the tactical situation and intent of the Brigade commander. The following rules of engagement apply to AD units operating forward of the LD/LC.

- a. The basic MILES system must be operational and capable of being killed.
- b. Dismounted teams must be escorted by an OC and have the following equipment:  
Operational communications equipment  
IPDD

DCI (NTC-IS tracking)  
2 days of supply (class I & water)

- c. Mounted ADA elements will have operational communications equipment and an operational DCI.
- d. During air assault operations, space for an OC (for each team) on the aircraft must be provided. See equipment list for dismounted teams in paragraph b.
- e. Two teams located forward of the LD may be covered by one OC, however, the teams are required to remain within 300 meters of each other. This ensures the OC is able to rapidly respond in the event of an accident and can adjudicate engagements (aerial or ground).

5. These requirements will ensure safe operations and will provide coverage for ground/aerial engagements. ADA aircraft engagements must also be monitored by an ADA OC to provide feedback to the TAF for firing credit.

**6-4 Adjudication and BDA Assessment**

Ground to air and air to ground engagements by ADA and rotary wing aircraft are completely instrumented through the NTC-IS. However, adjudication of ground to air and air to ground engagements by ADA and Fixed Wing aircraft are not automated and thereby are not captured by the NTC-IS system. These engagements are assessed IAW guidelines listed below.

**1. Ground To Air.** CAS and rotary wing aircraft without MILES become casualties based on the quality and/or quantity of fire directed at them relative to the tactics that the aircraft uses. Some examples are:

- Volume, accuracy and distance of Air Defense fires
  - Volume, accuracy and distance of CAFAD (Combined Arms For Air Defense) fires
  - Countermeasures employed by the aircraft; speed, maneuvering, and attack profile
- a. Lizard 16/Eagle 7T/ Raven 03 will assess all engagements and coordinate on final adjudication.
  - b. Combined Arms for Air Defense (CAFAD) U.S. Army units' employment of CAFADs represents the unit using its organic assets as protection against air attack. CAFADs increases a unit's chances of

survivability and may cause the pilot to abort the attack or disrupt pilot aim. Combined arms air defense measures may be employed throughout the battlefield. Engagements will follow the safety and ammunition restriction appropriate to type of weapon system. CAFAD engagements (5.56mm through 120mm) of rotary wing aircraft are adjudicated with MILES and recorded in the Tactical Analysis Facility (TAF). CAFAD engagements of fixed wing aircraft are adjudicated manually. Valid CAFADs Engagements will follow safety and ammunition restrictions appropriate to the type of weapon system. OCs will adjudicate CAFAD effects using the following criteria: (High and Low Probability of Hit)

(1) High Probability of Hit. High probability of hit occurs when a CO/TM fires are massed with correct lead angle and distant from the A/C. (IAW FM 71-1)

(2) Low Probability of Hit. Low probability of hit occurs when a CO/TM whose fires are not massed and at a distance greater than max effective range of the weapon system.

**2. Air To Ground.** Valid air to ground engagements are adjudicated by the Raven 07, in coordination with Lizard 16 and the 549 CTS Air Warrior supervisor. Adjudication is based upon the weapon employed, aircraft type, delivery parameters, and the relative effectiveness of the air strike, to include aircraft threat reactions and survivability. The Ravens will pass to Lizard 16 appropriate BDA for each strike and Lizard 16 will coordinate with OC teams to remove appropriate vehicles. Team 07s have final say in what vehicles are destroyed.

**3. UAV.** All engagements will be adjudicated within the DTOC. The system is based on the CAS BDA (dice roll) system used at the National Training Center to adjudicate all fixed-wing ground to air engagements. For the actual UAV once the UAV flies within the pre-established range fan/altitude of the OPFOR's ADA weapons system, it is subjected to actual ADA OPFOR fires and the ADA Value Table 6-4. For the VUAV, everything remains the same except it can be engaged only once by each OPFOR ADA system within range for each assessment time period (60 minutes for the first assessment time period, 30 minutes for the second assessment period, and every 15 minutes after that). If the total OPFOR ADA fires and the ADA Value Table numbers is equal or greater then the pre-determined dice roll numbers, then the UAV is considered destroyed. If the total ADA Value Table numbers is less than the pre-determined dice roll numbers, then the UAV is not destroyed and will be allowed to continue

its mission. For the real UAV, if the engagement is valid (UAV destroyed), the DTOC will notify the UAV A2C2 cell and the B75 team that the UAV has been destroyed. Upon notification, the B75 team will immediately order the UAV to stop reporting and return to the UAV reconstitution /substitution point (TBD). The UAV will be allowed to re-launch after 30 minutes if the UAV is on ramp alert and 60 minutes if it is not. After the 30-60 minute window has passed, the VUAV will be allowed to re-launch and continue its mission.

Example: The UAV flies within the engagement ranges of two SA-8 and two SA-14 during the day. DTOC then adjudicates the engagements. If the pre-determined dice roll is 9 (this is equal to 5 required ADA hits). Step #1 is the total the PK's from both the two SA-8s (two SA-8s X 2 = 6) and the two SA-14 (two SA-14 X 2 = 3). The total is 9 (four more than the 5 ADA hits). The UAV is considered destroyed.

Table 6-4  
UAV / VUAV Battle Damage Assessment Table

WEAPONS SYSTEMS	RANGE	DAY PK	NIGHT PK	RADAR DESTROY
Direct fire to 14.5mm	1km	.5	0	
ZSU 23-4	2km	1	.5	
SA-14	3km	1.5	1	
SA-9	6km	1.5	1	
SA-18	7km	1.5	1	
SA-8	12km	3	2.5	.5

DICE ROLL	3	4	5	6	7	8	9	10
ADA HITS	1	1	1	2	3	4	5	7
DICE ROLL	11	12	13	14	15	16	17	18
ADA HITS	8	9	10	11	12	14	16	18

### 6-5 Live Fire Restrictions

**1. Remote Piloted Vehicle Target (RPVT).** The only flying targets that may be engaged in Live Fire are the (RPVTs) which are 1/5<sup>th</sup> scale models that replicate the MIG-27 FLOGGER-D, the SU-25 FROGFOOT, MI-24 HIND-D, or simulated threat RPVs/Drones. 25mm and below are authorized to fire at the RPVT. Tank main gun, AR/AAV main gun, CEV main gun, and artillery howitzers in the direct fire mode may not engage the RPVT. (NOTE: All other fixed/rotary wing aircraft are "friendly" and will not be engaged).

**2. Avengers/Linebackers/Bradley Stinger Fighting Vehicles.** Fire machine guns and 25mm in IAW engagement procedures outlined in Chapter 3.

**3. Stingers.** Stinger engagements must be conducted either dismounted from a vehicle or standing outside of a prepared fighting position. The avenger may be fired from the vehicle or dismounted.

**4. Division Early Warning (DEW).** The Live Fire “Division Early warning” (DEW) frequency is the 52d ID (M) DEW frequency listed in the SOI.

5. A rotational unit (mounted or dismounted) that does not take active or passive air defense measures, may have vehicles and personnel assessed as casualties. The OC closest to the observed action will assess the appropriate casualties.

**6. Live Stinger Shoot.** Live stinger shoots are fully integrated into the BCT missions. The typical live fire mission includes air defense in support of a screening mission, Defense in Sector (DIS), and a deliberate attack. However, Live stinger shoots are not normally supported from BPs because of SDZ (Surface Danger Zone) restrictions.

# Chapter 7

## Logistics

**Overview.** The NTC battlefield provides brigades challenging and realistic training on all aspects of logistical operations. Time constraints and reporting procedures regarding personnel and vehicle reconstitution are closely monitored in order to replicate actual combat. This chapter will discuss procedures for CSS operations that can be expected to be conducted throughout a NTC rotation.

### 7-1 Personnel

**1. Strength Accountability.** Each unit will provide a battle roster to his OC counterpart before deployment from the RUBA. Each TF will also provide a daily strength report showing personnel strength figures of their subordinate units to their OC. The breakdown for the Unit Strength will be by officers, warrant officers and enlisted soldiers, with totals.

#### 1. Casualty Assessment

a. When an individual soldier's MWLD/PDD sounds continuously, the individual is considered to be a casualty. If a vehicle's CVKI or MITS light flashes continuously, the occupants of that vehicle are considered to be casualties. If a non-MILES'd vehicle is assessed by an OC (artillery, CAS, safety, etc.) or when the MILES of any person on board a non-MILES'd vehicle goes off due to enemy contact, all personnel on board are assessed as MILES casualties. Casualties will immediately stop the vehicle, remove their kevlar or CVC helmets and insert their yellow keys into the MWLD harness (self-kill). The individuals will then take out their MILES casualty cards and follow the directions printed on them.

(1) Aircrews. Aircrews will comply with instructions on their MILES casualty cards and follow unit downed aircraft recovery procedures. If a unit aircraft arrives to extract the downed aircrew, the downed aircrew will not leave with the extracting aircraft. A minimum of one soldier will remain with the aircraft until recovery is complete. Each guard will have 2 quarts of water, three 12-hour Chem-lights of any color and at least one MRE.

(2) Individual soldiers are never left as casualties on the battlefield. An individual soldier who becomes a casualty is to take his helmet off (during Live Fire, the helmet remains on), cease play, sling arms and follow along behind the element until such time as there are a minimum of three casualties

(daylight) or five casualties (night or limited visibility). Once in groups of three or five, the soldiers are then told to sit down and wait for evacuation. Soldiers are authorized to move to safer ground if there is a danger posed by vehicular movement. All groups are required to have communication with their parent unit, a map and an NCO before being left behind. OCs will confirm group locations before leaving them alone; he is not required to tell the soldiers their location.

(3) At no time will all soldiers in a group of casualties go to sleep. As a minimum, one soldier will stand guard by being fully awake, standing and having in his possession a way of signaling armored vehicles in day or night.

b. Vehicles assessed penalty kills will have their crews (TC, driver, and gunner) assessed as MILES casualties. The dismounted portion of infantry/engineer squads and other vehicle occupants will be allowed to continue the battle if their MWLD/PDD were not activated.

c. Medical vehicles and personnel that have been assessed as casualties will continue to monitor radio traffic in case there is a real world emergency so they may move freely to the scene to render assistance.

d. **All OPFOR casualties** are considered KIA unless specified or PPG. OPFOR reconstitution of dead will be dictated in the Combat Battle Instructions (CBI). As a rule, OPFOR personnel in the defense will be rekeyed five hours after they move behind the reconstitution line if destroyed prior to midnight the day before the attack. Recon will not be reconstituted in sector, but must be recovered by a "like" vehicle or better and allowed to reconstitute, or if scheduled, to leave sector, and may be escorted out of sector by an OC/Blackhorse Liaison.

e. Letters of sympathy and request for awards will be generated as per SOP and forwarded to the unit's appropriate higher headquarters after review by the unit's OC. Letters of sympathy and request for awards will be clearly marked For Training Only.

## 7-2 MILES and NBC Casualty Cards

There are five types of casualty cards as listed below.

**1. Return To Duty (RTD).** These soldiers require only self/buddy aid and are not required to be evacuated to a medical treatment facility. These soldiers are considered casualties and will not continue to fight, but they may assist fellow casualties. However, after receiving medical attention, they may be re-keyed at the discretion of the senior OC and given a new MILES casualty card to continue with the current mission. The crew members that were RTD on the Simulated Battle Damaged (SBD) vehicles may be re-keyed if their vehicle is reconstituted, and they may reenter the mission.

NOTE: Even though the individual RTD is not required to go back to a medical treatment facility, their DA Form 1156 will be processed per unit SOP. This is required because RTDs are still considered casualties.

**2. Walking.** Most are routine precedence casualties and, IAW the MILES casualty card, can walk, talk, and/or provide assistance to the unit after first aid is completed. Wounded will be tactically evacuated IAW the unit's SOP and/or OPORDs. They must be evacuated to a medical treatment facility (Level I Aid Station). When being transported, wounded soldiers can remain seated.

**3. Litter (L).** Litter casualties will be carried on a standard or field expedient litter only. Litter casualties will be either "Priority" or "Urgent" as printed on their MILES casualty cards. The litter casualty must be evacuated to a medical treatment facility (Level II Aid Station). These casualties can provide assistance to the unit within the limits specified on the MILES casualty card. The only difference between a litter urgent and a litter priority patient is the available time to evaluate the casualty.

**4. Killed In Action (KIA).** This casualty must be evacuated to the appropriate collection point designated IAW unit's graves registration (GRREG) SOP. The location of the collection point will be identified by the unit to the appropriate OC. KIAs should not be moved with "wounded" soldiers and should be segregated from other casualties. KIAs will be evacuated on vehicles with sufficient cargo capacity. They must be processed prior to the next mission. KIAs will remain dead for five hours after the last KIA is evacuated to the appropriate collection point by each respective company and/or

separate platoon. Before being reconstituted and sent back to their units, the OC will verify the DA Form 1156 is completed. KIAs will not be rekeyed if the unit does not report these losses to their higher headquarters.

5. Any of the five MILES casualty cards may also be an NBC casualty card. Any individual taking improper protective measures will be assessed as an NBC casualty. OCs may assess NBC casualties based on protective equipment failures. In addition, casualties will also be assessed in the downwind vapor hazard area for incorrect actions. There will be instances when both casualty cards will be in effect. Contaminated soldiers who subsequently become conventional casualties (i.e., place their MILES casualty card into effect) will have their MILES casualty card annotated by an OC with a large C, date/time, agent and call sign denoting that they are also contaminated. NBC KIAs are treated the same as a normal killed in action, except that the remains may also be contaminated. Soldiers within an arms length or handling the remains of an NBC KIA must be in the proper protective posture (MOPP-4) or they will be assessed as an NBC casualty. Generally, remains will be consolidated at a central point, marked and reported through CSS channels for recovery by a corps unit. Unit SOPs may require evacuation to an NBC GRREG site.

## 7-3 Medical Care Echelon Levels

1. Echelon I (Level I) Medical Care. The first level of medical care a soldier receives is provided at this echelon. It includes the following:

a. Self-aid/Buddy aid. This treatment enables the soldier or buddy to apply immediate care to alleviate an injury or life-threatening condition. These procedures include aid for chemical casualties.

b. Combat Lifesaver. The combat lifesaver provides enhanced first aid for injuries based on his/her training before the combat medic arrives.

c. Combat Medic. The combat medic (aidman) provides treatment and applies clinical protocol based on medical MOS specific training. The combat medic is trained to emergency medical (EMT) level.

d. Primary Care Provider. The physician and the physician's assistant in a treatment squad (aid station ATLS team) are trained and equipped to provide advanced trauma management (ATM) to the battlefield casualty. All MILES casualty precedence categories, with exception of routine, must be

evaluated by a primary care provider and DD Form 1380 completed as required. The DTG annotated on DD Form 1380 is considered the definitive care time. Authorized medical sets, kits, and outfits must accompany the treatment team. Like-elements provide this echelon of care at ambulance exchange points augmented with treatment teams, chemical casualty decon sites, and forward/main support medical companies.

2. **Echelon II (Level II) Medical Care.** This echelon of support duplicates level I and expands services available by adding x-ray, laboratory, dental and patient holding capabilities. Emergency care, including continuing resuscitation procedures, is provided. These functions are performed by medical companies organic to:

- a. Support Battalions of separate maneuver Brigades
- b. Support Squadrons of ACR's.
- c. Support Battalions of DISCOM's
- d. Medical Battalions (area support and corps)

#### 7-4 Casualty Evacuation

**1. Time Requirements.** Time required for evacuation begins at the time the casualty is assessed. When casualties are evacuated to the medical treatment facility, they must bring as a minimum, their LBE, kevlar, protective mask, MOPP gear, MILES, MRE and their sleeping bag. All sensitive items are to remain with the unit.

**2. Casualties.** Casualties will be loaded IAW Chapter 10, FM 8-10-6. Litter patients will ride seated after being properly loaded and secured when non-medical vehicles are used for casualty transport and medical evacuation. Units will not exceed the casualty carrying capacity of the evacuation vehicle. Litters and all equipment required to properly transport the casualty will accompany casualties through the evacuation. Upon arrival at the medical facility, litter patients will be properly configured and secured prior to the casualty being downloaded from the vehicle. Soldiers may use an appropriate manual carry technique to evacuate casualties to collection points if a litter is not available and an OC is present.

**3. Aviation Casualty Evacuation.** Casualties may also be evacuated via aviation assets, either medical or non-medical. The casualties must physically be loaded on those assets dedicated to this operation. All aviation assets so employed must have MILES and are subject to all battlefield effects encountered. The evacuation time requirements remain the same

whether casualties transported via ground or air assets. Litter casualties transported via air assets will be moved in litters if the aircraft is MEDEVAC equipped. If not, litter casualties will be transported with their litters to and from the aircraft on litters IAW their injuries and MILES casualty cards. They will comply with seating instructions of the aircrew for air transport. Units must prepare their aircraft for CASEVAC. In a UH-60, the prep will be accomplished under the supervision of an OC by removing the aft facing seats. The maximum number of casualties which may be evacuated for a UH-60 is four ambulatory and three litter. IAW FM 8-10-6, CH-47 are limited to the following ambulatory/litter combinations:

Ambulatory	Litter
31	0
25	4
19	8
16	12
10	16
4	20
1	24

**4. Died Of Wounds.** Walking wounded or litter casualties, will be declared "Died of Wounds" (DOW) when:

- a. The casualty receives improper medical treatment.
- b. Improper transportation methods are utilized in an evacuation phase.
- c. Casualty evacuation times are not met.
- d. Casualty arrives at a medical treatment facility having lost his/her MILES casualty card or without a DD Form 1380, Field Medical Card. This assessment will be made only by the OC at the respective medical treatment facility. The DD 1380 will be annotated and accompany the DOW to the designated collection point.
- e. Casualty is a failure to evacuate (FTE) if he remains at the point of injury and never receives treatment or evacuation. These personnel are considered died of wounds (DOW).

**5. Casualty Precedence.** Casualty evacuation times are as follows: (includes NBC): All casualty evacuation times are based on precedence (Urgent,

Priority, and Routine). The time allowed for evacuation starts at the point of injury and depends on the type of initial care provided. Times are not cumulative. An urgent casualty that receives combat medic, combat lifesaver, and buddy aid at point of injury still has only two hours for evacuation to Level I care.

a. Evacuation to Level I primary care provider (BAS):

Urgent: If treated by a combat medic at the point of injury the casualty has 2 hours for evacuation. If treated by a combat lifesaver, the casualty has 1.5 hours for evacuation. If treated by self/buddy aid, the casualty has 1 hour for evacuation.

Priority: If treated by a combat medic at the point of injury the casualty has 4 hours for evacuation. If treated by a combat lifesaver, the casualty has 3 hours for evacuation. If treated by self/buddy aid, the casualty has 2 hours for evacuation.

Routine: If treated by a combat medic at the point of injury the casualty has 12 hours for evacuation. If treated by a combat lifesaver, the casualty has 8 hours for evacuation. If treated by self/buddy aid, the casualty has 6 hours for evacuation. After proper treatment at Level I, routine casualties are RTD.

b. Evacuation from Level I primary care provider (BAS) to Level II (BSA)

Urgent: After proper treatment at Level I, the casualty has an additional 2 hours for evacuation to Level II care.

Priority: After proper treatment at Level I, the casualty has an additional 4 hours for evacuation to Level II care.

Routine: Routine casualties are RTD after proper treatment at Level I and do not require evacuation to Level II.

6. Unit medics will fill out DD Form 1380, Field Medical Card, IAW FM 8-10-6, Medical Evacuation in a Theater of Operations, for all casualties requiring evacuation.

7. Contaminated casualties located within a persistent contaminated area must be evacuated to a PDS. After decontamination, then they may be treated for their conventional injuries. KIAs will follow instructions from the OC on site and the reconstitution instructions.

8. Unless informed otherwise, rotational units will execute individual replacement operations evacuating all casualties to a Level 2 medical treatment facility, e.g. the medical company of a forward support battalion.

a. Companies must provide their OCs with a list of current combat lifesavers prior to departing from the RUBA. OCs will inspect the combat lifesaver bags and will make the initial issue of combat lifesaver cards to be carried in the bag. Combat lifesavers must place a card with the casualty after rendering treatment and the card must remain with the casualty during evacuation.

b. Combat lifesavers must receive class VIII resupply through normal channels. OCs will issue additional combat lifesaver cards as resupply is accomplished

## 7-5 Individual Reconstitution

A DD Form 1380, Field Medical Card will be completed on all casualties requiring evacuation (except RTDs and KIAs). DD Form 1380 will remain attached to the casualty until evacuation /medical treatment play ends and will then be processed IAW unit SOP.

### 1. Personnel Reconstitution.

a. A DA Form 1156, Casualty Feeder Report will be completed on all casualties, including RTDs. The unit will collect the DD Form 1156 and process IAW their SOP. Units will submit all completed DA Form 1155/1156s to their OC for review prior to submission to higher headquarters.

b. After being released from the medical treatment facility or hasty GRREG Point, as appropriate, the individual will be taken to the unit's BDE Personnel Section holding area. The Bde S-1 or representative will control the individuals and take them to the OC conducting reconstitution.

c. All unit casualties (except RTDs) will be processed through the OC conducting personnel reconstitution.

(1) For casualties not declared DOWs or KIAs, after verifying that medical treatment has been rendered, and the DA Form 1156 is completed, the OC will reactivate the individual's MWLD/PDD harness and allow these personnel to return to their unit.

(2) DOWs. After verifying, the MILES card is annotated with DOW, the OC will require the unit to transport these personnel back to the GRREG Point located in the BSA. After processing through the BSA GRREG Point, DOWs will remain with the unit field trains in the BSA until the unit's next day scheduled LOGPAC or 24 hours, whichever comes first. DOWs will not be rekeyed if the unit does not report these losses to their higher headquarters (i.e., brigade S-1 section).

**2. Vehicle Reconstitution**

a. Destroyed Vehicles (Catastrophic and Penalty Kills).

(1) When the vehicle/equipment is considered to be a total loss, a replacement vehicle/equipment must be requested by the unit through the unit S-4 IAW the unit SOP. The S-4 or his representative must report the combat loss of the vehicle/equipment to the designated logistics OC by bumper number and type vehicle. No specific format is required and the report may be either verbal or written.

(2) Five hours after the data has been received by the logistics OC, the vehicle/equipment will be rekeyed by the using unit's OC. Vehicles/equipment that are destroyed after LD/Defend NLT time will not be rekeyed any earlier than "continue the mission". Vehicles and equipment will not be rekeyed unless losses are reported to the unit's higher headquarters.

(3) The requisition process may start immediately upon the destruction of the vehicle. No classes of supply will be taken from destroyed

vehicles. Destroyed vehicles will remain in place until collected by the OC. The OC will control their movements until reconstitution. Rearming, boresighting and refueling is permitted while the vehicle is awaiting rekey.

(4) During continuous operations, once destroyed vehicles are out of direct fire contact, they may be moved under OC control to a secure area to await their rekey time. Re-keyed combat vehicles are considered to have all equipment and supplies which were onboard at the time of its destruction

b. Simulated Battle Damaged (SBD) Vehicles.

(1) NTC SAWE/MILES II generates three possible damage states when a system is successfully engaged. They are:

- Mobility Kill
- Firepower Kill
- Catastrophic Kill

A fourth condition is the "Penalty Kill" when the crew violates a restriction placed on them due to the first three categories. (Commo Kills are disabled at the NTC) An SBD card will assign fault symptoms and crew instructions for each damaged state.

(2) The maintenance fault and the repair time is annotated on the SBD placard. Repair times are based on the repair time found in the maintenance allocation chart for the SBD damaged vehicle.

(3) The following items must be presented to the OC at the repair site in order to get a rekey time:

- The SBD placard

Table 7-5 Recovery Vehicle Towing Capabilities ( NO TANDEM TOWING is AUTHORIZED )		
Vehicle	Towing Capability	Limitations
M88A1	One M1 or One M2/M3 or One M113	One trailer is authorized to be towed
M578	One M113 or One M109 or One M548	
5T Wrecker	One M113 or One Wheeled Vehicle up to 5 Tons	
M984 Wrecker	One of the following to include: M977,M35,M520,M880,M1008,M915, M839,M996,M996,M1001,M911 OR One M113	
M1	One M1 or One M2/M3 or One M113	One trailer is authorized to be towed
M2/M3	One M2/M3 or One M113	One trailer is authorized to be towed
M113	One M113	
M548	One M113 or One M548	
M109	One M109 or One M548 or One M113	One trailer is authorized to be towed

- DA Form 2404 (Training Only)
- DA Form 2765-1 or DA Form 2407/5504

(4) The OC will check to ensure:

- The part is present or properly requisitioned
- Required manual is available on site
- Appropriate tools are on site
- Appropriate Class III (p) is on site
- Required lift is available
- Appropriate skilled mechanics present.

(5) During continuous operations, vehicles destroyed forward must be recovered behind friendly lines in order to be reconstituted. Destroyed vehicles will be OC escorted out of direct fire of the enemy as a function of the unit's effort to recover the casualties of the crew/passengers on the vehicle. Behind friendly lines is defined as being out of contact and behind a terrain feature to the rear of the forward line of contact. Upon successful evacuation of the casualties, the vehicle reconstitution follows normal ROE procedures. Otherwise, the unit's ability to use the crew in question does not occur until the crew is behind friendly lines due to movement of the combat units.

(6) To conduct BDAR operations, the vehicles' crew or unit's mechanic must have a copy of the appropriate BDAR manual on site. IAW the manual, the individual performing the repair must have proper tools/equipment, number of personnel needed and the necessary part/supplies.

(7) SBD vehicles assessed as a mobility kills need to be recovered for repair. The recovery vehicle must have the necessary equipment to accomplish the recovery mission, such as the correct tow bar, cables, shackles, pins, etc. Cross cable towing is not authorized at the NTC. Actual recovery operations and towing of SBD vehicles will not be conducted. The Vehicle Recovery Chart (Table 7-5) outlines specific vehicle recovery capabilities. The recovery vehicle will drive 10 meters in front of the recovered vehicle at a maximum speed of 10 mph. Both vehicles will drive in this fashion to the maintenance or recovery areas. An OC must be notified prior to movement in order to preclude the vehicle from becoming a Penalty Kill.

- (8) For an SBD vehicle assessed as a firepower kill, self-evacuation is authorized.

## 7-6 Individual Modified Reconstitution

Units will be notified at change of mission when Individual Modified Reconstitution is in effect. This method of reconstitution is executed in the same manner as individual reconstitution. The exception being that upon completion of appropriate treatment by Level I care, soldiers will be immediately rekeyed and returned through the personnel system (CTCP or Bde personnel section) for combat. Transportation from AXP/Bde personnel section back to their unit is the parent unit responsibility. There is no change to vehicle reconstitution from individual reconstitution.

## 7-7 Unit Reconstitution

1. Based on the tactical situation the senior OC (COG for TF and larger units) may designate a unit, or a portion thereof, be reconstituted based on reporting and requests with no evacuation of casualties. Unit reconstitution procedures involve the processing of all requests for replacements. Casualties remain with their unit, and are rekeyed by the unit OC upon completion of proper request procedures. Unit reconstitution procedures are as follows:

a. The S-1 or representative will be provided by a surviving unit member a complete unit battle roster identifying the status of each individual from the unit (i.e., PFD, WIA, KIA, and MIA for those individuals of whom the status is unknown). An appropriate DA Form 1155, witness statement, and DA Form 1156, casualty feeder card, will be attached to the roster. If there are no survivors, the S-1 section will complete these actions. After verifying the DA Form 1155, DA Form 1156 and the status of all unit members is verified, the S-1 or representative will forward these forms to the OC conducting reconstitution.

b. The unit will complete all specific requirements identified by the senior OC (i.e., new equipment PMCS receipt, inventories, personnel inprocessing, inbriefs, etc.). Based upon completion of these requirements the senior OC will determine the unit reconstitution time.

2. Vehicles The S-4 or representative will provide a surviving unit member a list of destroyed vehicles by bumper number and type and provide this list to the logistics OC. Each company/team and separate platoon will receive a reconstitution time listing. The S-4 will forward all destroyed vehicle information to his higher headquarters. There are no SBD vehicles during unit reconstitution. All vehicles are either FMC or catastrophically destroyed.

### 7-8 Immediate Reconstitution

All vehicles and equipment will be immediately rekeyed. The unit will begin consolidating forces as required in preparation for its follow-on mission. No reports to OCs are required.

### 7-9 Repositioning During Reconstitution

During continuous operations, OCs will ensure that vehicles designated as Catastrophic Kills, do not unrealistically influence any subsequent actions, i.e., observations prior to reconstitution or advantageous positioning at the time of reconstitution. To do this, vehicles may be instructed to move under OC control to a secure area prior to their scheduled reconstitution time. Such movement will only occur after necessary CASEVAC has occurred and the vehicle is no longer in direct fire contact. Vehicles will move with weapons systems elevated over their back deck. Radios, equipment, and ammunition are considered destroyed and unusable. Vehicles will be reconstituted IAW paragraph 7-5.

### 7-10 Brigade Support Area

Vehicles/equipment destroyed in the BSA by OC assessment/OPFOR action will be moved to a controlled location (Salvage Collection Point) in the BSA and will be taken out of play for five hours. The five hour period will begin for each assessed vehicle when it reaches the collection point and this action is confirmed by bumper number and the time of arrival agreed upon by unit personnel and their OC. Units will follow the procedures outlined in

paragraph 7-5 in requesting replacement vehicles /equipment. Vehicles under repair in maintenance collection points (UMCP, Trains, BSA, etc.) may fire their weapon systems if the vehicles' MILES systems are 100% operational and real or simulated battle damage does not prohibit the weapons from firing.

### 7-11 Material Readiness Reporting

Units will report their readiness status IAW their SOP. The unit Motor Officer or representative will provide an updated copy of the ULLS-G NMC report or SAMS11 CO26 print to their OC on a daily basis.

### 7-12 General Supplies

A copy of all logistical reports will be submitted to the unit's respective OC as required. Table 7-12 specifies vehicle cargo capacities.

**1. Class I.** Units will provide, as required by their OC, a listing of all ration breakdowns and the total number of rations per breakdown on a daily basis to their respective OC.

**2. Class II.** Units will provide a listing of any Class II supplies currently on hand and the location of each (i.e., CPOGs, BDOs, CTA-50).

a. Initial stockage of MOPP gear is based on two per deployed soldier. Units will deploy with one complete set of MOPP gear. Unit OC or the Logistics OC will issue a paper set of MOPP gear (NTC GTA-138) and MK-1 NAAK (NTC GTA-132) to the unit prior to their departure from the RUBA.

Table 7-12 Vehicle Cargo Carrying Capabilities

VEHICLE	NOMENCLATURE	OFF/ON PAYLOAD	TOWED LOAD LBS.	CREW/PASS	CAPACITY CUBIC FT.
M998/1030	TRK, UTL 5/4T	2,500 LBS.	3,400	1/9	215
M830 M923/4/5	TRK, CGO 5T LWB 6X6	10,000 LBS.	15,000	2/20	411
M830 M927	TRK, CGO 5T XL WB 8X8	10,000 LBS.	15,000	2/0	597
M871	SEMITRAILER LOWBED 22 ½'	30,000 LBS.	N/A	N/A	855
M977	TRK, CGO HEMTT 10T 8X8	20,000 LBS.	20,000	2/0	540
M978	TRK, TNK HEMTT 2500 GAL. 8X8	2,500 GAL.	20,000	2/0	N/A
	TRLR, CGO 3/4T	1,500 LBS.	N/A	N/A	175
	TRLR, CGO 1 1/2T	3,000 LBS.	N/A	N/A	283
	TRLR, CGO 2T	4,000 LBS.	N/A	N/A	N/A
M35	TRK, CGO 2 1/2T	8,000 LBS.	15,000	2/20	408
	TRK, CGO 5T	10,000 LBS.	15,000	2/20	580
	TRK, DUMP 5T	10,000 LBS.	15,000	2/15	135

b. The Forward Support Battalion Logistic Trainers will issue the replacement paper NBC equipment/supplies/medical items to the appropriate unit in the unit's logistic support area. Replacement NBC equipment is only issued after the appropriate supply requests have been submitted and sufficient transportation is available to move the supplies. Resupply is only completed once the paper NBC equipment is distributed to the individual users.

**3. Class III.** Units will provide a listing for its basic load of Class III items for each of its fuel assets. The unit's POL representative will provide a listing of Class III package products on hand on a recurring basis to their respective OC.

**4. Class IV.** As requested, the unit will provide, to the S-4 OC or his representative, data pertaining to the total amount, by item of Class IV barrier and survivability material, allocated and issued by unit.

**5. Class V.** The Required Supply Rate (RSR) of ammunition will be established by maneuver commanders NLT D -90 and submitted to Commander, NTC Material Management Center (changes to the RSR may be submitted during the rotation). The RSRs are compared with available theater stockages and a Controlled Supply Rate (CSR) will be determined and provided to maneuver commanders. Prior to the start of each mission, the Bn TF S-4 or his representative will provide to the appropriate OC data pertaining to the total amount, by type, of ammunition allocated, issued and the location of the ammunition. As additional ammunition is issued to the unit, the BN TF S-4 will provide the OC with this additional information. Ammunition may be stockpiled in defensive positions. Appropriate numbers of vehicles/trips must be used to emplace this ammunition. It will be subject to direct and indirect fire. The OC on the ground must make the call if the ammunition has been affected based on location, efforts to safeguard it (dug in, in position, etc.), and strike of incoming rounds. The stockpiled ammunition must be represented by either "paper" ammunition or by prestocked HOFFMAN and ATWESS rounds.

Note: Appropriate flares and chaff rounds must be ordered and received as paper ammunition in order to benefit from an aircraft's flare/chaff dispenser.

a. When vehicle CVKIs are blinking continuously, those vehicles are considered destroyed, and are classified as "Catastrophic Kills". They offer no salvage or cross level value. This specifically means that ammunition cannot be taken off a dead vehicle.

b. Simulated battle damage vehicles (SBD), fire power, commo, or mobility kills, may have their ammunition or other equipment cross-leveled to other vehicles. This action must be accomplished under OC coverage and is fully competitive.

c. OPFOR vehicles can cross-level HOFFMAN charges to live vehicles, but not actual "MILES bullets". Soldiers transferring HOFFMANs must have MILES and are subject to being killed.

**6. Class VIII.** Units will provide a complete listing of all Class VIII items on hand, by medical chest, to the medical OC as required. Units are further required to designate a location at each medical treatment facility to store medical supplies which are expended during the treatment of simulated casualties. As medical supplies are expended they will be placed in this location under the control of the medical OC. As medical supplies are regenerated through the Class VIII resupply system, the appropriate medical supplies will be moved under OC control from the storage location back into unit stocks.

**7. Class IX.** TFs/Separate Companies will provide a daily status of requisition initiated to their respective OCs in a format that breaks down information by company team, by priority (02/03,05/06,12/13). Additionally, ULLS/SARSS CL IX reports may be required by respective OCs. The tech supply will provide a daily status of all requisitions processed and passed to their respective OC in a format that breaks down information by CO/TM by priority (02/03,05/06,12/13).

8. Sling Loads. When sling loading simulated supplies, such as ammunition or NBC items, the unit will ensure:

a. All equipment is available (sling, tie downs, etc.).

b. The quantity of supplies does not exceed the ACL of the aircraft or the capability of the sling equipment.

c. Aircraft will carry the materials inboard when the actual weight of the materials is insufficient to externally sling. The combined weight of the simulated sling load and any other internal load will not exceed the aircraft ACL.

d. Sling operation OICs will allow their OC to verify the above data.

### 7-13 Ammunition

Blank ammunition simulates live rounds and will be issued IAW the unit's basic load or pre-established issue plan. Rotational units will be issued three types of ammunition: Simulators (i.e., HOFFMAN charges, ATWESS rounds, blank small arms), Replicators (i.e., Sand filled sandbags or canisters for DRAGON/TOW missiles, 60mm mortar, 81mm mortar, Stinger, inert demolition's items, inert AT mines) and paper ammunition.

While in the RUBA, units are authorized to have .50 Caliber and below blank ammunition distributed and uploaded. Units are also authorized to upload paper ammunition and Replicators with in the RUBA. All HOFFMAN charges and ATWESS rounds will remain outside the RUBA in the ASP or a FASP until the unit departs the RUBA at which time they can be issued to the unit.

1. BLUFOR and OPFOR units are never authorized to use Chemical Smoke (CS), artillery, or hand grenade simulators.

2. Simulators are ordered IAW unit SOP and handling instructions outlined in the following paragraphs of the ROE.

a. ATWESS will be color coded to differentiate between AT-4, DRAGON, TOW, and STINGER missiles. Units have the responsibility of color coding the ATWESS rounds in the Field Ammunition Storage Point (FASP) prior to being issued or transported to their units. Any non-color or multi-color coded (not clearly marked with the current rotation number) ATWESS will be determined to be duds and confiscated by an OC. The NTC standard color codes for ATWESS are:

- RED                    TOW/HELLFIRE Missiles
- GREEN                DRAGON/JAVELIN Missiles
- YELLOW            AT-4 Missiles
- BLUE                 Stinger Missiles

Due to ammunition restrictions during live fire operations units may not be issued actual rounds for weapons systems which utilize ATWESS charges to simulate weapons effects with MILES systems. In order to enable units to engage targets with these weapons systems, live fire targets are fitted with LTDS to detect hits by miles systems. When live missile and/or rocket munitions are not available ATWESS rounds are maintained throughout the rotation. During the draw of

live fire ammunition, the ATWESS charges representing missile/rocket munitions remain under unit control.

b. One HOFFMAN charge represents one main gun tank round.

**3. Replicators.** Ammunition replicators will be issued by the NTC for use during Force-on-Force.

a. Mines. The number of mines available to the brigade is a set amount. Mines may be shifted IAW the brigade's main effort within the ammunition handling instructions outlined in the ROE. M15 AT or M21 AT mine replicators are available for issue.

(1) All mines will be disarmed and repacked in their original storage containers prior to movement.

(2) All mines will be transported back to the BSA or downloaded at a central location "mine dump" in coordination with the brigade engineer. These mines will not be used again until the proper requisition has been processed.

b. Demolition. The amount of inert demolitions available to each engineer unit approximates an offensive basic load. BLUFOR units will use these items exclusively to replicate breaching charges during offensive missions in Force-on-Force.

(1) The items include: C4, shape charges, cratering charges, det cord, electric and non-electric blasting caps, time fuse, ignitors and bangalore torpedo sets. Live non-electric blasting caps, det cord, time fuse, and fuse ignitors may be used in Demolitions Effects Simulators (DES). These items must be built by rotational units and must be drawn from the rotational unit field ASP.

2) At the completion of a breach, the OC on site will recover the inert demolitions used. The OC will maintain the demolitions until the rotational unit has requisitioned and been resupplied with demolitions. The OC will then reconstitute the demolitions. At the infantry platoon/company level, TOW and Javelin rounds are replicated with a simulated round of comparable size and weight requested and received through Class V channels. The weight of each Dragon and mortar round will be replicated with sandbags as outlined below:

- 60mm Mortar - 4.5 pounds = ¼ full sandbag
- 81 mm Mortar - 9.5 pounds = ½ full sandbag
- AT-4 (Viper) - 15 pounds = ¾ full sandbag

- Dragon - 25 pounds = 1 full sandbag.

d. MRE hand grenades are made by the unit in the RUBA and issued based on DA 581 request.

e. Satchel charges can be used at the NTC. If the satchel charge is correctly constructed, it will have an effect on personnel and equipment. The OC on site will determine the effects of the satchel charge. The charge will damage or destroy bunkers, aircraft, and personnel. The 10 meter rule applies in the emplacement of the satchel charge.

#### 4. Paper Ammunition

a. Paper ammunition placards are used for those ammunition types which are not simulated or replicated by other methods. Units must follow the same request and handling procedures for paper ammunition that are required for other ammunition types. The following types of paper ammunition are issued:

- 25mm BRADLEY
- 120mm M1A1
- 60mm HE/WP/ILL
- 81mm HE/WP/ILL
- 4.2 in. HE/WP/ILL
- 120mm Mortar HE/WP/ILL
- 155mm Artillery HE/WP/M825 SMK/ILL/RAP/BB/COPPERHEAD/DPICM/ADAMRAAM
- 105mm Artillery HE/WP/HC SMK/ILL/HEP-T/APICM/M 760/APERS
- 2.75 in. Rockets
- 30mm
- Air Volcano Loads
- Chaff/Flares

b. When a crew fires a weapon system for which paper ammunition has been issued, the appropriate number of paper ammunition placards will be returned to the unit OC. OCs will ensure that the amount of ammunition represented by the placards on hand matches the number of MILES rounds available to fire.

c. Resupply. Paper ammunition is issued at two locations during the rotation. First it is issued by the Support Platoon Observer/Controller in the RUBA during initial upload after the DA581s have been validated. Second, paper ammunition is issued by the Goldminer ATP trainer at the ATP site once DA581s and transportation hauling capabilities have been validated. Paper ammunition will be regenerated

through the support platoon OCs back to the Goldminer ATP trainer. Ammunition resupply times will be IAW unit level SOP.

d. Paper Ammunition Transfer. In order to transfer paper ammunition the ammunition placard must be physically transported to the gaining unit IAW proper handling procedures. OCs will ensure that the losing vehicles MILES ammo count is reduced to reflect the transfer of ammunition. The gaining vehicles MILES count will not be increased until the ammunition placard is on-hand.

#### 5. Ammunition Handling

a. Ammunition resupply operations to include FASPs, ATPs and Combat Configured Loads (CCLs) under the MOADS(PLS) should be conducted to the highest possible degree of realism within the NTC scenario. Units should plan to exercise all functions of logistics support for Class V resupply operations. The following paragraphs will outline the minimum requirements a unit is expected to follow in conducting resupply operations at the NTC.

(1) Corps Storage Area (CSA). NTC's ASP is the CSA for the theater. The CSA will issue Class V. The CSA has no transportation capability in Theater but does possess MHE.

(2) Corps Support Operations Officer (CSB SPO). The NTC G-3 will act as the CSB SPO for requesting Class V in Theater. The CL V manager, so designated by the Commander, NTC Material Management Center, will act as the CSB SPO for requesting CL V in Theater.

(3) Unit Basic Load (UBL). The units basic load of ammunition prescribed by the unit's organizational makeup.

(4) Controlled supply Rate (CSR). Class V drawn from the CSA is the total amount of Class V available for the exercise. The DAO Just determine the UBL and establish CSR's for resupply to battalions/brigade on a daily basis for the exercise.

(5) Unit Storage Site. The unit storage site is a generic term for the unit's establishment of an ATP, ASP or Forward Ammunition Storage Point.(FASP).

b. Request for Issue from CSA.

(1) The CSB SPO will provide the incoming unit a list of the total ammunition available at the

Theater's CSA to draw. The CSB SPO will contact incoming units and request in detail the required documents needed for issue and receipt of Class V from the CSA. The following are required documents:

- DA Form 581. One is required for the Force-on-Force and another is required for the Live Fire exercise.
- DA Form 1687. Appointment orders must be included with the form.

(2) The CSB SPO will match DA Form 581s against the unit's allocation. The CL V manager, so designated by the Commander, NTC Material Management Center, will act as the CSB SPO for requesting CL V in Theater. DA Form 581s and DA Form 1687s will be passed to the OIC of the CSA to prepare for issue.

(3) The OIC of the CSA will establish dates for issue. Class V will be prepositioned and prepared for issue prior to the unit's issue date(s).

c. Receiving Class V from CSA.

(1) Transportation. Units will transport all Class V drawn from the CSA. Vehicles will not be loaded beyond their capacity in weight/cube of simulators, replicators or paper ammunition (Table 7-13 Figures 3 and 4). The CSA will verify vehicles meet DD Form 626 standards prior to loading. Any vehicle not meeting DD Form 626 standard will not be allowed to transport munitions of any type.

(2) Accountability. The DAO or his representative will present all of the unit's suspense copies of DA Form 581 to the CSA OIC the day of initial issue. The CSA OIC will prepare DA Form 3151 for signature by the FASP Accountable Officer. A copy of DA Form 3151 will be provided to the FASP Accountable Officer and the DAO to establish accountability records at the FASP and ATP. The DAO will also maintain copies of the DA Form 581s and certificates of destruction for accountability.

d. Actions taken at the FASP prior to issue to units or shipping to ATPs:

(1) Accountable Officer prepares the following documents for accountability:

- DA Form 5203
- DA Form 5204

- DA Form 2064

(2) The Accountable Officer files the following supporting documents:

- DA Form 581
- DA Form 3151

e. Issuing Class V from Unit's Storage Area at STARTEX for TFs.

(1) The FASP/ATP will issue Class V IAW unit SOP using the following documents for both the Live Fire and Force-on-Force exercises:

- DA Form 581
- DA Form 5023
- DA Form 5204
- DA Form 1687/assumption of command orders

(2) Class V issue from the FASP/ATP.

(a) The TFs conducting Live Fire and Force-on-Force may draw Class V not to exceed their UBL (units in the defense may stockpile additional days of supply). Resupply operations should be conducted daily by the TFs support element, FSB assets and MSB assets. The use of Combat Configured Loads is authorized.

(b) Vehicles used in transportation of Class V from the Unit's Storage Site to the user are required to be inspected and meet DD Form 626 standards. The DAO or his appointed representative is authorized to validate DD Form 626s. Vehicles will not be loaded beyond their capacity in weight or cube. Table 7-13 Figures 1 – 4 outlines vehicle carrying capabilities.

	5/4 Ton	2 ½ Ton	5 Ton	10 Ton	22 Ton
M21	27	54	111	12	203
M15	551	104	204	408	712

Nomenclature	Capacity	Boxes	Rounds
Trailer 3/4 Ton	1,500 lbs	18	37
Trailer 1 1/2 Ton	3,000 lbs	37	75
Trailer M997 10 Ton	20,000 lbs	250	500
Trailer 22 Ton	30,000 lbs	375	750
M998 5/4 Ton	2,500 lbs	31	62
Truck 2 1/2 Ton	5,000 lbs	62	125
Truck 5 Ton	10,000 lbs	125	250

Note: Information obtained from equipment –10 manuals

Nomenclature	5 Ton	HEMTT	Low Boy	PLS	S&P Tlr
120mm Tank	4	8	14	10	16
155mm Arty	12	27	30	37	56
155mm Propellant	4	7	14	16	16
155mm Copperhead	6	8	14	12	16
105mm Arty	4	8	14	10	10
40mm MK19	6	8	14	10	10
TOW	4	6	6	8	8
Dragon	4	6	6	8	8
Stinger	4	6	6	8	8
AT-4/Viper	4	8	14	10	16
25mm	4	6	8	16	16
M21 Mine	4	8	14	10	16
M15 Mine	4	8	14	10	16
Hellfire	4	5	8	10	12
2.75in Rocket	4	5	8	10	12
5.56mm	4	8	14	10	16
7.62mm	4	8	14	10	16
.50 cal	3	6	12	10	14

b. Once resupply to subordinate units is completed, the OC on site will collect or mark off the number of boxes/rounds transferred to their units from the placards. When units have transferred all of the Class V from a pallet, the unit can reposition the pallet(s) within the cargo vehicle to make room for material or equipment for backhaul. Pallet(s) will be returned to the ATP during the next established pickup.

c. OCs will confiscate excess ammunition carried by vehicles and individuals. Vehicles and individuals may be assessed as SBD and casualties as necessary for carrying excess ammunition. Convoys arriving at units with ammunition in excess of vehicle carrying capacity will be confiscated by OCs as never having arrived at the unit. Class V confiscated from the convoy will be designated as still being at its original location prior to convoy. Units may send appropriate vehicles back to recover class V if the unit desires.

d. All ammunition (simulators and paper) will be treated as if it had the same weight and mass as rounds that it represents (i.e., one HOFFMAN charge equals one take main gun/howitzer round).

e. All ammunition will be handled by enough personnel to move it (i.e., one man can safety lift only one tank main gun or TOW round and will be allowed to lift one HOFFMAN or ATWESS charge). A single soldier may not carry more than the following number of ATWESS charge(s): one TOW, two AT-4s, or two stingers. This limit includes the loading of ATWESS in the weapon systems, if applicable.

f. Destruction of Ammunition: If a vehicle is destroyed, any ammunition on board is destroyed with it, and a new requisition must be submitted. Class V cross-leveling will not be done with destroyed vehicles.

**7. Field Artillery Ammunition:** Upon receipt of DA Form 581, an OC at the ammunition transfer point will issue the field artillery battalion ammunition

(c) Brigade and Battalion S-3s and S-4s in conjunction with the FSB SPO, MSB SPO and DAO representatives at the ATP, FASP and MMC should plan for continuous resupply operations throughout the rotation. Importance should be placed on planning for transportation and MHE with respect to the changing missions of each TF.

**6. General Ammunition Considerations.**

a. Within the brigade, an ammunition storage site (ATP/ASP/FASP) will be established to handle the transfer of Class V to units. Units must use organic assets to load and transport the Class V items they requested from the field ASP to their subordinate units.

	M998	M113	M35	M923	M978	M101/M105 Trailer
# of Missiles	6	6	39	42	72	18/22

placards NTC GTA-128 that represents the quantity of projectiles, primers, fuses and propellants issued.

a. Ammo vehicles must be physically present to receive their placard. When ammunition is delivered to a battery, the ammunition vehicles must move to the battery position. One of the battery OCs will inspect the placard and deduct the quantity of ammunition delivered from it. The placard will remain with the ammunition vehicle.

b. Since the ammunition transfer point may not be open continuously, the brigade should coordinate ammunition pick-up times. The FA battalion will request ATP appointments from the supported brigade if the artillery is DS or reinforcing. If the artillery is GS or GSR, the ATP appointments are scheduled through the 52d DIVARTY.

c. Batteries may fire only those projectile, fuse and propellant charges they have on hand. Batteries track ammunition internally IAW unit SOP; their counts will be checked for accuracy by battery OCs.

d. Artillery headquarters controlling notional fire units receive their ammunition as directed by their OCs.

e. MLRS ammunition is issued on a placard indicating the number of pods.

f. Ammunition transfer rate for 155mm ammunition is one complete round per man per minute if done manually and 8 rounds per minute by a HEMTT using its material handling equipment (MHE) correctly to either download or transfer.

## 8. Field Artillery Unit Basic Loads (UBL) and Controlled Supply Rates (CSR)

a. Field artillery UBLs will be approved by 52<sup>nd</sup> DIVARTY, which will give the battalion its CSR. The CSR and UBL will be issued on ammunition placards.

b. Ammunition for immediate consumption must be requested from the 52<sup>nd</sup> DIVARTY.

c. Vehicle Capacity: Vehicles may carry the number of complete 155mm rounds indicated below. Self Propelled Howitzers may carry a 10% overage of fuses, primers, and propellants.

• M109A6	37 (+2 Copperheads)
• M109A2/A3/A5	34 (+2 Copperheads)
• M548	96
• M992	90
• M35 series	48

• M813/M913 series	100
• M985	200
• M1074/5/6	176
• M520	400
• Ammunition Trailer	8

**9. Aerial Resupply.** Units may conduct aerial resupply provided they meet the requirements listed in FM 43-450-1.

a. Ammunition must be requested and approved through normal channels on DA Form 581. Personnel trained to load and handle hazardous cargo must be on hand to perform prescribed duties. Equipment (i.e., cargo nets, cargo to be transported and helicopters) must be present at the pickup site, and be physically transported to the site of the resupply. OCs must be advised of the operation so that they can observe and provide placard for ammunition to be resupplied.

b. Simulated loads will not exceed aircraft or environmental load limitations.

**10. Pallets.** When palletized training ammunition containers are available, they will be used in the following manner:

a. From the DSA forward to the point of transfer to the using unit, the DSA unit must carry pallets to represent the ammunition being delivered. The point of transfer will usually be an FSB ATP, although there may be some direct deliveries. The DSA unit must carry enough pallets to replicate the amount and type of ammunition being delivered. The pallets will be accompanied by shipping documents which specify the type and quantity of ammunition being delivered. All simulators must also accompany pallets from the FASP forward. DSA units are allowed to stack pallets on their trucks according to Table 7-13 Figure 3.

b. On arrival at the point of transfer, the pallets of ammunition take on the full weight and cube of the ammunition they replicate. The ATP and the receiving unit must handle and store the training ammunition pallets as if they were the full weight and cube of the ammunition that they replicate.

c. Ammunition moved by sling load takes on full weight and cube at the FASP Helipad.

d. At the point of transfer, the maneuver team OCs will issue paper cards to represent individual rounds. This issue will be based on the amount of ammunition replicated by both shipping documents and pallets. The DSA transportation elements will off

load all of the pallets and the task force support platoon trucks will load them.

e. Task force support platoons will retain the pallets, even after issuing the ammunition to the company teams. Once the ammunition has been issued, the task force trucks may stack pallets using the same criteria as the DSA. Task force support platoons must backhaul residue when they go to pick up their next load, and exchange the containers with the new load coming from the FASP. DSA trucks will drop their containers and pick up the used containers from the task force support platoons.

f. If Force-on-Force comes before Live Fire, task force support platoons must carry enough pallets to replicate the ammunition carried on the support platoon trucks, that is anything above the amount carried in combat vehicles. DSA trucks must backhaul all pallets of training ammunition containers with the residue for Force-on-Force during the transition to Live Fire.

g. If Live Fire comes before Force-on-Force, then the DSA may only send forward the ammunition to go inside combat vehicles as part of the transition, and does not have to send out any pallets of training ammunition containers. To get more ammunition beyond the basic load of the combat vehicles, the DSA must wait until the transition from Live Fire to Force-on-Force is over, and then must conduct resupply operations as described above.

**11. Empty Containers.** When empty training ammunition containers are available, the following rules apply.

a. Maneuver units draw loose training ammunition containers during RSOI and place them into the combat vehicles and in the loads of the dismounted infantry. Except for the dismounted infantry, these containers will remain with the vehicles until their return to the RUFMA.

b. Light mortar ammunition (60 and 81mm) will be issued from the cans to the dismounted soldiers or the carriers as appropriate. The support platoon will open the metal containers and issue out the fiber inserts. The support platoons will retain the empty cans. The maneuver OCs will place paper cards specifying which type of mortar round (HE, WP, illumination) the fibers represent. When the round has been fired, the OC will take the paper card and the soldier will return the fiber to the support platoon. As more ammunition is delivered, the support platoon

will exchange mortar containers filled with empty fibers for new containers.

c. Dismounted infantry men will exchange 60mm and 81mm mortar containers for live rounds on a one for one basis during the transition between Force-on-Force and Live Fire. The light truck platoon attached to the light infantry battalion will assist the DSA in moving the light mortar ammunition.

## 7-14 Unit Ministry Team

1. Chaplains and Chaplain Assistants are full participants during the brigade's training mission and will be assessed appropriately during all phases.

### 2. Religious Support Responsibilities

a. Each UMT will provide their Religious Support Plan (written IAW FM 16-1) to the Senior Brigade UMT Trainer prior to Training Day 0. Subsequent changes to their basic plan will also be provided to the UMT Trainers throughout the brigade mission.

b. UMTs are responsible for providing religious support to their units at the appropriate times and locations in consideration of the brigade mission and overall situation.

(1) OCs will not get involved with the content of religious worship services. However, OCs will provide feedback on whether support being provided is doctrinally or tactically unsound.

(2) The installation Chaplain's Office is operationally *Off Limits* for direct ecclesiastical support (i.e., supplies or services), except as outlined for "real world" situations. UMTs should deploy with the adequate resources to provide religious support to their units.

c. "Real World" Emergencies. UMTs will be allowed to use the most expedient and mission safe routes to bring ministry to "real world" emergencies, as long as it does not interfere with the overall training mission. The Fort Irwin Chaplain's Office has responsibility for the care and ministry to "real world" emergencies and is prepared to carry out this mission.

## 7-15 Maintenance

**1. Material Readiness Reporting.** Units will report their readiness status IAW unit SOP. TF/Separate Companies will provide a daily (updated) copy of the

DA Form 2406/026 (backside or equivalent) to their respective OCs.

**2. Brigade Maintenance Meetings.** Units will report their readiness status IAW unit SOP. The unit motor officer or representative will provide current combat system maintenance status to the Logistics Trainer Team OC at the Brigade maintenance meeting.

**3. ULLS/SAMS Reporting.** Units will be required to provide ULLS/SAMS reports to their respective OC.

**7-16 Aviation Logistical Operations**

There are two separate methods for replicating the supply, transportation, and time requirements to logistically support an aviation task force; the ATWESS/Paper Ammo method and the ATWESS/Replicated Load method. Based on resources available, the senior aviation trainer will specify the method to be used at the beginning of each rotation. Units should plan their logistical resources of equipment, personnel, and time as they would in actual combat in a mid to high intensity conflict.

**1. ATWESS/Paper Ammo:** This method is based on ATWESS cartridges replicating Dragons, AT-4s, and Stingers. The ATWESS cartridges are color coded at the Brigade or Regimental ASP to identify the type of ammunition that the ATWESS cartridge is replicating. The ATWESS is then transported in aircraft and vehicles as if having the dimensions and weight of the actual round of ammunition. Ammunition breakdown and reload times are simulated using a table of specified times. (see Table 7-16 Figures 1 and 2)

	HELLFIRE	ROCKET PODS	CANNON
1 MAN	NA	20-40 min	NA
2 MEN	10-20 min	10-20 min	30 min
3 MEN	5-10 min	5-10 min	25 min

a. Hellfire missiles, 2.75-inch rockets, .OH-58D .50 caliber machine gun, Stingers, Chaff/Flares, 7.62mm for mini-guns, 20mm, and 30mm are notional and are tracked on a 5 x 7 inch card defining the number of rounds. This card is then transported IAW the actual weight and dimensions of the ammunition. This “paper” method is also used when aviation units are transporting ammunition and supplies for ground forces (i.e., 155mm artillery ammunition). Small arms

for M-60s, M-16s, and .50 cal MGs are replicated using actual blank ammunition.

b. Ammunition Transportation: Missiles and rockets can be transported using non-shipping containers weights as an aircraft internal load. Ammunition transported in ground vehicles and aircraft slingloads should be calculated as being in their shipping crates. Should ammunition be transported either in a slingload or a ground vehicle without shipping crates it will be considered unserviceable due to shock and vibration.

c. Ammunition Overloading: Ammunition, both ATWESS and paper that is being transported in an aircraft or vehicle beyond the capability of that aircraft or vehicle will be confiscated by an aviation OC and the vehicle or aircraft assessed as a maintenance loss due to overloading. Each aircraft or vehicle must only carry its realistic load. A convoy of vehicles or flight of aircraft cannot, for convenience, place all the ATWESS cartridges in the lead aircraft or vehicle and “simulate” the ammunition as being distributed throughout. FM 1-100, FM 1-104, and other applicable DA approved manuals will be used as the base reference for load data.

d. Ammunition Breakdown Time Tables: Ammunition other than actual blank ammo will follow the below prescribed breakdown times prior to being able to use the ATWESS cartridges or PAPER ammunition.

	Hellfire	2.75 in Rockets	Cannon
Breakdown Time	1 minute / 1 missile	1 minute/ 4 rounds	1 minute / 100 rounds

To determine the total time to breakdown a given load of ammunition, multiply the ammunition time factor by the amounts of ammunition, then divide by the total number of personnel available. For example, if 10 Hellfires were transported and five personnel were to break down the ammunition, multiply 10 Hellfires at 1 minute each for a result of 10 minutes. Divide 10 minutes by the number of personnel, and the total time to break down the ammo comes out as 2 minutes. All

Team	Canister Upload (160)	Empty Canister Download
6 Personnel	6 Min.	4 Min.
4 Personnel	10 Min.	5 Min.
2 Personnel	15 Min.	8 Min.

break down times will be DOUBLED with the absence of a forklift or suitable mechanical lifting boom.

e. **Attack Aircraft Re-Arming Time Table:** Table 7-16 Figure 1 prescribes the necessary time an attack aircraft must remain on the ground versus the number of dedicated re-arming personnel. The re-arming personnel can be any MOS and must be standing outside the aircraft and not engaged in refueling. Units can simulate re-arming and refueling at the same time by conducting re-fueling then repositioning the aircraft to a re-arming point. The time determined by the table to effect the desired reload will begin while the aircraft is in re-fuel. An additional five minutes per aircraft penalty will be added if all of the personnel effecting re-arming are not armament MOS, attack aircraft crew chief, or rated pilot. Time requirements are for the desired ammunition loads only (i.e., if a unit wants to reload an AH 64 with 16 Hellfires and two personnel, then the time the aircraft will have to remain on the ground is 18 minutes. This time can begin during aircraft re-fueling). Aircraft found to be in violation of the below table will be assessed as destroyed due to a notional re-arming incident. Table 7-16 Figure 1 is applicable per each aircraft.

**2. Replicated Load Method:** This method uses inert Hellfire missiles and sand-filled shipping crates to help replicate the transportation requirements and reload times.

a. **Inert Hellfire Missiles:** Upon arrival at the NTC, the unit will sign for a "Replicated" Class V Hellfire UBL. Aircraft will execute re-arm times by landing at the re-arming point, removing the inert training Hellfire missiles, laying them on the ground, then immediately reloading them into the available missile positions. The number of missiles keyed in the inventory will correspond to that of the number of missiles reloaded plus missiles remaining upon arrival prior to the beginning of the reload.

b. **Replicated Loads:** Sand filled crates will be used to replicate the size and weight of the actual ammunition shipping crates. The crates will be organized in pallets at the Division ASP. Upon arrival at the NTC, the Brigade/Regimental ammunition officer will sign for the pallets and issue them to the unit IAW appropriate requisitions. The unit will then transport the crates as they would in actual combat. Units are responsible for rebuilding the pallets after change of mission and placing them in their original condition at the end of rotation.

c. **Rocket and Cannon Reloading:** Table 7-16 Figure 3 will be used to replicate the time and personnel required to effect re-arming.

d. **Other Ammunition and Supplies:** All other supplies and ammunition not directly replicated by an inert round will be played IAW the conditions outlined in ATWESS/paper ammunition method.

e. **Air Volcano ammunition breakdown.** Air Volcano ammunition will be broken down at the rate of 1 Man Hour/ 40 Canisters. For example, four soldiers break down 160 canisters in 1 hour.

f. **Air Volcano load times for broken down load** are listed in Table 7-16 Figure 3.

### 3. Fuel Blivet Sling Load Requirements.

a. Unit must conduct a spill response rehearsal during RSOI in order to sling load fuel blivets.

b. All aircraft cargo hook systems will be checked by unit personnel with OC supervision. Those aircraft with cargo hook deficiencies will be restricted from sling load operations. A list of aircraft capable of fuel blivet operations will be provided to the OC.

### 4. 10,000 (10K) Gallon Fuel Bladder Operations.

a. All 10K sites must be pre-approved by the senior aviation trainer, Fort Irwin Environmental Branch, and the 259<sup>th</sup> EOD.

b. Prior to excavation of the site, the Fort Irwin Environmental Branch must inspect for any historically important artifacts.

c. Rotational units will conduct a spill response rehearsal under OC supervision.

d. Rotational units will maintain adequate spill response equipment on site at all times.

## 7-17 Live Fire Restrictions

### 1. Personnel Reconstitution

a. Casualty evacuation in the offense begins when the FLOT has advanced far enough ahead of the casualties to allow the medics to safely evacuate casualties. The controlling OC will mark the casualty cards using that time along with the OC's call-sign as per Force-on-Force ROE.

b. In the defense, evacuation will begin when the entire BDE/TF is in "GREEN and CLEAR" for direct fire. Cards will be marked with the time.

c. DOWs will be reported but not evacuated. In between the day/night defense battle, soldiers at the Task Force level may only be evacuated to a Task Force Forward Aid Station or Main Aid Station.

## 2. Vehicle Reconstitution

a. Simulated Battle Damage (SBD): Mobility, and firepower may be reconstituted at the company trains if the company maintenance team has required personnel, tools and parts (on-hand or on-order) to effect the necessary repairs.

b. Vehicles recovered to the UMCP will not return to their parent unit until they have established communications with that unit.

c. Ammunition will not be cross-leveled from catastrophic kills, but may be cross-leveled from vehicles determined as mobility or firepower Kills.

d. Destroyed vehicles remain in place unless under the control of an OC.

e. Vehicles and crews may participate in LOGPAC operations even though they are Catastrophic or SBD Kills.

f. Vehicles that are reconstituted prior to change of mission can reenter the fight. Catastrophic Kills can only reenter the fight upon approval of an OC Team 07.

3. Control of movement and activities of CSS assets will be by unit SOP and as directed by the 52 ID (M) TAC/Maneuver OPORD.

4. Recovery of all rotational units introduced materials and waste, Class IV and V residues in particular, filling in holes, and police of the entire Live Fire area is a rotational unit responsibility.

5. ATWESS/Volcano are the only simulators authorized to be used in Live Fire by rotational units.

## 7-18 Ammunition Download Requirements

1. Download of live ammunition is a rotational unit's responsibility. After completing live fire operations, a member of the rotational unit's chain of command will certify in writing to designated company level OCs that all live ammo has been removed from all vehicles and

weapons systems at a download site. OCs will spot check to ensure the unit is complying with this directive prior to any vehicle returning to the NTC RUFMA or conducting Force on-Force operations.

2. Ammo will not be cross-leveled from catastrophic kills, but it may be cross-leveled from vehicles determined as SBD kills. Mortar and artillery ammo may be crossed-leveled off mortar carriers and self propelled howitzers that must be evacuated to the trains.

# Chapter 8

## Rotary Wing Aviation

### 8-1 Aircraft Markings

All aircraft will be marked in white chalk with three foot high and two inch thick numbers. These numbers will be designated by the aviation OC team. For UH-1H and UH-60 aircraft, the numbers will be placed midway and on both sides of the tailboom. On the OH-58D, the numbers will be placed on the engine cowlings; on the OH-58C, the numbers will be placed on the aft portion of the fuselage below the engine cowlings. Chalk numbers will be placed on AH-64 engine nacelles and on the top of the stabilator. For CH-47 aircraft, the number will be placed midway between the nose and the cargo door. OC aircraft assigned to the NTC are painted OD green with distinctive orange markings. OC aircraft not assigned to the NTC will be marked with the letters "OC" on the fuselage aft of the rear passenger door and orange panels will be placed in the rear window.

### 8-2 MILES and Instrumentation

**1. MILES/AGES Equipment.** All aircraft (except the EH-60) must have an operational MILES/AGES system installed in order to operate in the designated maneuver area forward of the Brigade/Regiment Support Area. MILES will remain "ON" at all times, except during bonafide emergencies. Aircraft found with MILES equipment turned off will be referred to the unit chain-of-command and assessed as a Penalty Kill. Aircraft will have all required ASE equipment installed and operational to receive credit for the reduced vulnerability capability of MILES/AGESII. *All personnel* must wear an individual MILES system to include HALO (HALO and MWLD harness are not required on crew members during flight) when inside the designated maneuver area to include assembly areas or logistic bases within the designated maneuver area (anywhere in the box once moveout is executed).

**2. Aircraft Instrumentation.** All aircraft must have an operational Small Onboard Data Interface Module (SMODIM) installed to operate in the maneuver area. These devices provide the NTC with the position location and other required data during the rotation. This requirement may be waived by the senior aviation trainer. The EH-60 is the only aircraft currently excluded from this instrumentation requirement.

a. The aviation unit MILES representative will attend a MILES and Instrumentation coordination meeting on RSOI 1, at 0900 hours, in building 582. This meeting outlines the schedule for the CLS

contractor to install the aircraft MILES and instrumentation. The unit will provide the contractor with the priority of installation for each aircraft to facilitate force package build up. All MILES and instrumentation is contractor installed, but the unit has supervisory and accountability responsibility for all equipment.

b. Units will sign for the tracking equipment and be responsible to meet prearranged installation and de-installation appointments with the civilian contractor. Scheduled conflicts will be resolved by the senior aviation trainer.

c. SMODIMs will not be taken off of the reservation without the approval of the senior aviation trainer. If an aircraft must leave the reservation, the unit must coordinate with the senior aviation trainer so that arrangements can be made for removal and/or reinstallation of the SMODIM.

### 8-3 Restrictions

**1. Maneuver Area Boundaries.** All aircraft will abide by the maneuver area boundaries and published ACO. Coordinating altitude for rotary wing aircraft is 200 AGL and below, and 300 AGL and above for fixed wing aircraft. Violations will be reported to the senior aviation trainer for disposition.

**2. OC Escort Requirements.** Regardless of airframe, one seat must be reserved for an OC. The seat must provide access to an ICS cord and the MILES controller boxes. The maneuver task force will manifest its OCs. OCs manifested will include one per rifle platoon, one per specialty platoon, one per company headquarters, and one for the task force command group.

### 8-4 Operations

**1. Night Vision Goggle Operations.** Aircraft will comply with applicable regulations regarding illumination criteria, etc. For safety reasons, the OPFOR is restricted from firing HOFFMAN or ATWESS ammunition at NVG helicopters closer than 500 meters. In addition, the OPFOR is restricted from using flares and pointing searchlights, either IR or white light, at NVG helicopters. Aviation OCs will subjectively assess NVG aircraft as a casualty if they fly within 500 meters of OPFOR positions and/or expose themselves to what would have been effective OPFOR fires. OPFOR leaders who feel they have successfully engaged an NVG aircraft will contact the

Eagle OC team. In addition, OPFOR leaders can signal the aviation OC flying with the targeted aircraft by flashing vehicle lights or white flashlights simulating weapons engaging the helicopter. Upon seeing this signal, the OC will make a decision to assess a casualty based on aircraft location.

**2. Assembly Area Operations.** All assembly areas on the NTC reservation are to be considered tactical and are considered to be forward of the light line. All assembly areas are subject to enemy actions consistent with OPFOR doctrine and tactics used against such areas. This can include, but is not limited to, enemy CAS, OPFOR armor attacks, FROG/SCUD attacks, NBC attacks, mortar/artillery attacks, raiding parties, etc. Units will be required to conduct tactical moves from one assembly area to another based on the tactical situation. This includes all rear elements such as AVUM and AVIM.

**3. Aircraft and Vehicle Survival Equipment.** All aircraft and vehicles will have as a minimum, two quarts of water, one MRE, and one blanket or poncho liner for every person on board. A cold/hot weather survival kit can be used in lieu of the above listed items. One kit will be on board for every two personnel. Attack helicopters and OH-58D aircraft will have one quart of water and a survival vest per crew member due to space limitations.

**4. IFF/SIF Requirements.** All rotary wing aircraft, including every aircraft in multi-ship formations, will squawk Mode 3 (55 plus chalk number) at all times while they are conducting flight operations.

**5. Casualty Play.** All aircraft and personnel have one life per brigade/regimental mission.

**6. Aircraft Losses.** Each aircraft will be issued an Aircraft Battle Damage Assessment (BDAR) packet by aircraft type. Each aircraft must have it on-board and readily available to an OC. Failure by the crew to have this packet on board will result in the aircraft being assessed as destroyed. Aviation OCs will check MILES operations prior to aircraft departing on missions.

a. **MILES Kills.** When aircraft MILES/AGES system registers a legitimate kill code, the aircraft will land, the OC will verify the kill code, and the crew will take actions IAW OC guidance. Aircraft which are assessed as destroyed or simulated battle damage will be marked as follows: blades tied down, aviation survival panel or VS17 panel in front window (clearly visible), and red chemlights front and aft (night operations only).

The aircrew will be directed to execute one of the following procedures:

(1) **CSAR.** CSAR is the extraction of the aircrew. The following criteria must be met for successful extraction of an injured aircrew:

- Aircrew (casualty cards from the BDAR packet) must be extracted in less than two hours and evacuated to the appropriate level of medical care.
- Aircrews not extracted in two hours are DOW.
- Aircrews required for flight of the aircraft remain with the aircraft after complying with the procedures outlined below:
- The CSAR team will properly transport the injured crew members to the CSAR aircraft IAW the ROE and transport their casualty cards to the medical treatment facility.
- The uninjured will also move to the CSAR aircraft and provide his casualty card to the CSAR crew for transport.
- Each casualty card transported will be treated as an aircrew member for weight and balance and space purposes on the CSAR aircraft.

(2) **DART.** DART is the recovery of an aircraft in an unsecured area. The following three methods of recovery may be used:

- **Self-Recovery.** The damage to the aircraft allows a one time flight by an MTP.
- **Air Extraction.** The damaged aircraft requires employment of an IUMARKS Kit (DART crew will rig and simulate hookup and sling operations).
- **Ground Recovery.** The use of an appropriate ground vehicle may be used when the aircraft is overtaken by BLUFOR ground forces (DART crew simulates rig and load of aircraft). Vehicle returns simulated aircraft back to the TAA.

(3) **BDAR:** BDAR is the actual repair of the aircraft on the battlefield. The time required for the repair is IAW the appropriate TM. All tools, parts, and personnel required for the repair must be on site for the required time to effect repair.

(4) Following validation of one of the above procedures by the aviation OC on site, the unit will be authorized to recover the aircraft back to the TAA.

b. Non-MILES Kills. Aircraft declared shot down or destroyed by an aviation OC due to CAS attack, artillery impact, ADA radar illumination constituting successful engagement by a SAM or ADA gun, and enemy action will land.

c. Out of Sector Kills. Aircraft flying out of the designated boundaries or flying in unauthorized areas will receive one warning. If corrective action is not taken or violation occurs again the aircraft will be assessed by the aviation OC as being destroyed by friendly or OPFOR fire from adjacent notional units.

(d) Aircraft Survivability Equipment: All aircraft equipped with an operational AN/ALQ-144 (IR Jammer), will be re-keyed once after receiving a kill code from an IR SAM if equipped with MILES I. Upon receipt of a second kill code during the same battle, the aircraft will be assessed as a casualty IAW it's BDAR packet. Aircraft with AGES II automatically account for ASE operations and will not be re-keyed.

### **8-5 NBC and Aviation**

1. All helicopters, crews, and passengers are susceptible to the effects of chemical agents. Units should employ appropriate MOPP levels, place M9 paper on external portions of the aircraft, conduct NBC surveys, use the M256 chemical detection kit, and observe the indicators for chemical use by the OPFOR.
2. Should a helicopter enter a contaminated area, an aviation OC will assess casualties based on exposure duration, concentration, characteristics of the agent, and personnel MOPP levels observed.
3. Simulated MOPP suits, alarm devices, decontamination means, etc., are not authorized. All aircrews and passengers will wear the appropriate equipment IAW directed MOPP level in order to be assessed as "protected" against a particular chemical agent. For safety reasons, the aircraft pilot-in-command (PC) will remain unmasked, will not wear the NBC protective gloves and booties and may perform his duties from the seat designated in the mission brief. The co-pilot will comply with the appropriate MOPP level in effect. For utility helicopters, the crew chief opposite the PC may remain unmasked to assist in clearing the aircraft. Upon aircraft shutdown, the aircraft PC will have 8 minutes to complete the appropriate MOPP level to be considered "protected".

4. If due to physiological, psychological, or environmental reasons, a crew cannot maintain the appropriate MOPP level, they will remove themselves from the contaminated area or run the risk of being assessed a casualty in the event of a chemical attack. Simulated MOPP is not authorized.

5. When on the ground (not flying), the rotational unit personnel will adhere to the appropriate MOPP level.

### **8-6 SOKOL Operations (OPFOR HIND Helicopters)**

**1. General.** VISMOD helicopters simulate OPFOR attack aircraft. Due to limited availability of aircraft, a number of "lives" (re-keys) are authorized by CBI corresponding to the number of actual sorties.

**2. MILES and Instrumentation.** The HINDS must complete instrumentation checks with the DTOC/Eagle TAF before being permitted to enter sector for an Air Assault.

**3. Restrictions.** The HINDS will normally fly in pairs. The HINDs may fly single ship operations if real world maintenance precludes two-ship operation. Two Ship Operations: If a HIND in a two-ship operation is assessed, both HINDs will immediately go to the reconstitution point. Travel to the reconstitution point will be at altitude IAW the A2C2 flight parameters and will exit the "box" in the most direct manner possible. The remaining "live" HIND cannot be assessed by BLUFOR nor can it attack any BLUFOR targets. A HIND will not be assessed until a valid kill code is verified.

Single Ship Operations: If the single ship HIND is assessed it will move back to the reconstitution point described in two ship operations.

#### **4. Operations.**

a. HIND helicopters are allowed to use either hovering or running fires.

b. To reconstitute, the helicopter must pull back behind the reconstitution or no penetration line for a defense and back behind the designated LD in an offense. The helicopter must set down briefly at the designated reconstitution point while being re-keyed.

c. All SOKOL/TF Angel aircraft must be tracking prior to PZ. SOKOL must remain within 1500m of TF Angel and maintain a minimum 3km separation from BLUEFOR AVN FARPS/TAA.

- d. No air-to-air engagements are permitted at NTC.

### 8-7 Aviation Recovery and Reconstitution

**1. Simulated Unit Self Recovery.** In this case, a downed aircraft and crew will act IAW proper actions for their BDAR packet. The unit must recover the aircraft for it to go through reconstitution. Upon the crew's return to the Assembly Area, they will stay with their aircraft and await medical attention. Prior to executing recovery, the unit will effect all appropriate recovery procedures IAW the situation. The pick-up aircraft or vehicle must be capable of accomplishing the recovery (i.e., parts, people, crew, test pilot, etc.). Once all this is accomplished, the downed aircraft and crew will follow the recovery aircraft back to the assembly area or area designated by the unit for recovery. The recovering aircraft must fly the entire route with the recovered aircraft. Repeated trips may be necessary to complete the mission.

### 2. Aircraft, Equipment, and Personnel

Reconstitution. All aircraft, equipment, and personnel have one life per brigade/regimental mission. Reconstitution will be accomplished as follows.

**a. Damaged Aircraft and Equipment.** A damaged aircraft or ground equipment item will remain damaged until the appropriate personnel, equipment, and simulated parts have been assembled and the maintenance book value of how much time is required to normally effect repairs has elapsed. Damage caused by enemy action is based on either the BDAR packet for aircraft or subjective evaluation by the aviation OC and relayed to the unit in the form of a damage card. Simulated repairs will be done at the location of the damaged piece of equipment unless recovery has been effected to a rear support area. While in this "damaged" status, real world maintenance can be performed to include test flights. Units are to execute simulated repair procedures until directed by an aviation OC to do otherwise. The requirement for simulating repairs can be waived by the senior aviation trainer.

**b. Destroyed Aircraft and Equipment.** A destroyed aircraft or ground equipment item will remain destroyed after change of mission for the brigade/regiment. Five hours after the higher S-4 receives the appropriate replacement requisitions, the aircraft/equipment is reconstituted. While in a destroyed status, aircraft and equipment can have real world maintenance performed to include test flights if necessary. Aircraft and equipment in a "destroyed" status will not be used to benefit operations (i.e.,

transport personnel, use of communication equipment, etc.).

**c. Personnel Reconstitution.** Personnel assessed as casualties will comply with the conditions stated on their individual MILES casualty card unless directed to do otherwise by an aviation OC. Personnel will remain in a casualty status until they have been reconstituted at the casualty collection point at the brigade/regimental support area.

(1) The unit must submit the appropriate casualty feeder reports and personnel requisition IAW unit SOP to the next higher headquarters in order for the logistic OCs to reconstitute the personnel.

(2) The senior aviation trainer may waive the requirement on a case-by-case basis to have casualties go to the casualty collection point and may instead allow them to remain in the units' assembly area. In this case, these casualties will remain in this status until change of mission has been announced for the brigade/regiment and five hours have elapsed after the appropriate personnel casualty feeder reports and personnel requisition forms have been received at the higher headquarters S-4.

(3) While in a casualty status, personnel cannot participate in combat operations and are limited to the instructions listed on their MILES casualty card.

(4) The senior aviation trainer may, on a case-by-case basis, approve a one time rekeying of key leaders to ensure training objectives are met.

(5) Reconstitution times of aircraft, equipment, and/or personnel do not begin until required actions have been completed (i.e., reports submitted/received at the next higher HQ, all maintenance requirements are identified and fulfilled, evacuation of casualties to the appropriate medical facility, etc.).

**d. Evacuation of downed aircrews:** Downed aircrew casualties will remain with their aircraft. Their respective casualty cards from the aircraft BDA packet will be evacuated. The casualty card will be treated as if it were the crew member.

### 8-8 Live Fire Restrictions

1. Rotational unit aircraft in the live fire area will operate under the control of the following agencies in priority: The Aviation Trainers (Eagles), the 52 ID (M) TAC, and Range Control.

a. **Aviation Trainers:** Unit aircraft escorted by an Eagle OC will conduct tactical operations IAW instructions from their chain of command. There is no requirement to make administrative calls to enter or exit the live fire area when accompanied by an Eagle OC.

b. **52 ID (M) TAC:** Unit aircraft that are not escorted by an Eagle OC must establish contact with Live Fire control (see ACO for frequencies) prior to entering the live fire area. Aircraft will not climb above the coordinating altitude (200 feet AGL) while attempting to establish contact with Live Fire Control. If the aircraft is not able to contact Live Fire Control, it will not enter the live fire area.

c. **Range Control.** Unit aircraft not escorted by an Eagle OC will contact Range Control on FM 38.90 to enter the live fire area only when Live Fire Control is not operational.

2. The coordinating altitude for rotary wing aircraft in Live Fire is 200 feet AGL and below. The coordinating altitude for fixed wing aircraft is 300 feet AGL and above.

3. If the rotational unit is required to provide an aviation OC support aircraft, the aircraft will have two operational FM radios (NO EXCEPTIONS!).

4. Aviation units will ensure that all non-firing aircraft have operational MILES. The unit will remove the MILES from the firing aircraft IAW the current air worthiness release.

5. Unit flight operations will maintain continuous communications and locations of all unit aircraft and indirect fire systems in the Live Fire area of operations.

6. The aviation unit will coordinate the movement of all aircraft within the Live Fire area of operations with the 52 ID (M) TAC. The 52 ID (M) TAC must be kept informed of the location of all aircraft.

7. The aviation unit must have positive control over all aircraft, vehicles, and personnel at all times. Not being able to account for any of the above will halt the entire live fire operations.

8. Aircraft will not hover over target pits due to the potential hazard of radio transmissions setting off the pyrotechnics.

9. Aircraft must remain within coordinated corridors, holding areas, battle positions, etc., so as to be afforded protection from friendly fires.

10. Aviation units may engage the following types of targets during Live Fire: Pop-Up Targets (P), Staked Silhouette Targets (S), Three Dimensional Fiberglass Targets (3-D), and the Remote Controlled Miniature Aerial Targets (RCMAT). The following munitions may be used:

MUNITION	TARGET
20mm/30mm TPT	P, S, 3D
.50 cal	P, S, 3D
7.62mm	P, S, 3D
2.75 FFAR	P, S, 3D
HELLFIRE	S
ATAS	RPVT

Note: Aircraft are not authorized to engage hard targets.

11. Aircraft experiencing a precautionary landing will execute the appropriate emergency procedures and notify their chain of command. The aviation unit should recover the crew and aircraft as soon as possible. In the event that the aircraft lands forward of firing ground elements, the aviation unit will recover the crew immediately. The aircraft will be recovered at a time when it does not interfere with the ground scheme of maneuver. The aviation unit's chain of command will notify the 52 ID (M) TAC for the coordination of a "No Fire Area" around the aircraft's location and a future time to recover the aircraft.

12. Aircraft will not fire over the heads of ground troops or vehicles. Rounds will impact no closer than 1,000 meters from troops or vehicles. Aircraft will not engage targets located between the aircraft and ground troops or vehicles.

13. All aircraft will remain 1,000 meters from active artillery targets. All aircraft will observe all OC-specified minimum safe distances and altitudes from demolitions.

14. All aircraft PICs will have artillery, mortar platoon locations, friendly ground positions down to battalion/task force level plotted on their maps. Special attention should be given to the locations of small units (i.e. COLT/SCT OPs) operating across the FLOT. Map will be 1/50,000 scale. Failure to have the required graphics posted on the map will result in mission delays.

15. Aircrews will report the use of all Red Star clusters and Red smoke to the chain of command and an Eagle OC.

16. Safety is a command responsibility; however, the senior aviation trainer reserves the right to ground any aircrew, halt any vehicle, or otherwise stop any unit operation if he has reason to believe that a safety hazard exists. This halt of any operations can only be lifted by the senior aviation trainer.

### **8-9 Radio Procedures**

1. Desert Radio flight follows Red/Admin aircraft via UHF radio and Eagles via OCCS. BLUEFOR ACFT will flight follow VIA FM if Eagle OCs are not available to provide BLUEFOR position reports.

#### **2. Lost Commo**

a. Force on Force. Aircraft operating without OC escort (normally single ship) that experiences lost commo will return along their ingress route until commo with Desert Radio is established or the aircraft arrives back at its point of departure for the mission. Single aircraft operating with OC escort that experience lost commo with the OC should signal the OC, land and conduct operations IAW OC guidance. Flights operating with OC escort must maintain communications with their OC through at least one aircraft. If commo with the OC is lost the flight must land and reestablish commo with the OC.

b. Live Fire. Aircraft operating without OC escort experiencing complete loss of communications, will assume a "GREEN" status and return to and land at the last cleared ACP. Attempt to reestablish communications with Live Fire Control and await an OC escort out of the Live Fire area. Single aircraft that are operating with OC escort signal the OC IAW the A2C2 brief, assume a "GREEN" status, land immediately, and reestablish communications with the OC. Flights operating with an OC escort must have at least one aircraft in contact with an OC. Aircraft in a flight experiencing a loss communications will assume a "GREEN" status, and remain with the flight.

c. DTOC, Eagle TAF, and Desert Radio - monitors and tracks all aircraft missions.

### **8-10 Aircraft Separation**

1. **5km Buffer Zone.** Desert Radio alerts Eagle OCs (controlling BLUEFOR flights), OPFOR, and ADMIN aircraft on UHF/OCCS when aircraft are

approaching within 5km. Additionally, Eagle TAF alerts Eagle OCs of potential conflicts. All ADMIN aircraft are diverted to prevent their penetration of the 5km buffer zone.

2. **Within 5km Buffer Zone.** Desert Radio carefully monitors situation and alerts OPFOR aircraft (UHF) and Eagles (OCCS) when aircraft approach the 3km buffer zone. At the 3km buffer zone, Desert Radio will divert aircraft based on priority. If radio transmission is not acknowledged, Desert Radio will initiate a call on **GUARD** warning all aircraft entering the 3km buffer zone. At this time, diverted aircraft will initiate course reversal and comply with Desert Radio or Eagle OC instructions.

3. **At the 1km buffer zone,** OCs and Desert Radio will direct immediate action to deconflict the flights. At a minimum all aircraft will assume full lighting and turn or land to avoid the traffic hazard.

#### **4. Airspace Priority:**

1. MEDEVAC
2. BLUEFOR
3. OPFOR
4. Administrative

5. **All Aircraft Comply.** ACO, ATO, APG, ROE, NTC 95-1, and maneuver graphics.

6. Aircraft will never fly or land within 100 meters of personnel or equipment

### **8-11 Lighting and Black Out Operations**

1. Requests for black out operations must be received by the 52nd ID TOC NLT 24 hours prior to execution. Eagle 07 is the approval authority. Minimum lighting is as follows:

- AH-64: Position Lights Dim
- OH-58D: NVG Position Lights – Position Three
- UH-60: IR Position Lights Dim
- CH-47: NVG Position Lights – Position Three
- Any lighting configuration less than the above requires a request for blackout operations

2. JVB/VIP Aircraft. Operate under full lighting.

# Chapter 9

## Civil Military Operations

### 9-1 Collateral Involvement

1. Non-combatants in the maneuver area are subject to the full range of battlefield effects.
2. PAO Combat Camera Operators. Any Public Affairs Officers (PAO) or combat camera operator (excluding Vulture AAR documentary camera units) within the area of operations, must wear a MILES Body Harness. They will be considered KIA if their MILES harness is activated. If the occupants of a vehicle are KIA, then the vehicle is considered a catastrophic loss. These personnel must leave the area immediately and report their situation and circumstances of “being killed” to the nearest OC.

### 9-2 Media on the Battlefield

The NTC Vulture team facilitates the conduct of media events on the battlefield through coordination with Operations Group. The Vulture team may also conduct events in support of INN simulated telecasts. The purpose of media events is to provide soldiers and leaders a realistic encounter with credential or non-credential media. The media events can take place beginning with the arrival of units at NTC and continue through the redeployment to that unit’s home station. The following rules of engagement provide guidelines for the conduct of the role playing media:

1. The media will only interact with personnel participating in an NTC rotation (i.e., wearing MILES equipment).
2. Media role players are not authorized to interact with a General Officer unless specifically authorized by the Commanding General, National Training Center.
3. Neither role playing media nor OCs will cause soldiers or leaders to be placed in an unsafe situation that could lead to accidents or injuries.
4. The media role player is subject to NTC’s ROE and adjudication of that ROE by any OC.
5. The person role playing a media representative may ask questions that are far ranging and may not be immediately relevant to the rotation. Role players will not ask questions of soldiers or leaders that are of a degrading, racial, ethnic or sexual nature in order to provoke a negative or emotional response. It is the media role player’s responsibility to discuss the range

and nature of his questions with the escorting OC prior to executing the event.

6. The role playing media may wear any clothing or uniform that they may deem appropriate. The role player will wear the MILES harness and if practical, the MILES halo at all times. The escorting OC has the responsibility to ensure the role player’s equipment is operational prior to the start of the event.

7. If the media event is an unescorted event, the role player will not position himself in such a way as to cause an unsafe act or situation. If an unsafe act or accident occurs, the role player will not interfere with emergency medical personnel in any manner.

### 9-3 Peoples Parumphistan Guerillas (PPG)

**1. General Description and Capabilities.** The Peoples Parumphistan Guerillas (PPG) represent a paramilitary type force who support the Krasnovian/Parumphian government. These forces are equipped with only the most basic military equipment, characterized by, but not limited to small arms, machine guns, light mortars, hand held anti-tank weapons, and simple mines and demolitions. Many of these weapons are stolen and are typically a mixture of Krasnovian and US weapons. The PPG may utilize military or civilian vehicles and are known to move freely into and out of local towns and villages.

**2. Organization and Operations.** The PPG are organized into cells of approximately 40 personnel operating in squad sized groups. Their Area of Operation encompasses the key towns and mining camps in the area and is normally between 20 and 40 kilometers wide, with the boundaries generally following the major roads and the key terrain overlooking intersections and choke points. The PPG are required to establish and maintain a base camp within their Area of Operation and will conduct all operations out of this base camp. As the BCT repositions it may encounter a new PPG cell.

**3. Resupply and Reconstitution.** The PPG may travel between their base camp and Irwin Military City in order to resupply or reconstitute personnel. Movement to and from IMC for resupply is competitive. Due to a limited availability of personnel, a number of “lives” (re-keys) are authorized by CBI corresponding to the number of PPG in a cell. PPG casualties or POW’s can be reconstituted up to the number of lives authorized by CBI. In order to

reconstitute, casualties or POW's will be extracted by a Blackhorse Brother to IMC where they will be required to wait 24 hours. Following the waiting period, the PPG are required to competitively infiltrate into zone to continue operations.

#### **4. PPG Events**

a. **Uniform.** The PPG will wear a mixture of civilian and military clothes. They may also wear desert boots. Additionally, they must always wear their individual MILES harness and HALO.

b. **Capture.**

(1) Personnel. PPG personnel may become prisoners of war at any time. BLUFOR will adhere to the published ROE for a directed EPW event should they attempt to take the PPG personnel prisoner. An OC must be present prior to initiation of all PPG EPW/interrogation events and remain with the EPW throughout the process until the EPW is released to a Blackhorse Brother. Physical contact appropriate for EPW processing (i.e. patting down) is authorized. Excessive physical contact is not authorized. Hand to hand contact is not authorized. Flexcuffing, sandbagging, taping, etc. is NOT authorized. Strip searching is NOT authorized

(2) Equipment. The EPW's equipment, sensitive items, food and water will be secured, and must remain with the soldier at all times. This prevents the loss of sensitive items and ensures that captured soldiers have food and water throughout detainment, and appropriate clothing in case of weather change.

(3) Vehicles. PPG equipment may be captured at any time. At no time will BLUFOR personnel drive any of the PPG equipment.

c. **Searches.** All PPG soldiers assessed as casualties can be searched. PPG will have MILES cards as per the ROE. The two trouser hip pockets and two trouser front pockets are safe pockets. Only priority and routine casualties will be processed as EPWs. KIAs and litter urgent casualties will not be processed as EPWs. There will be no EPW/search training events without OC coverage. PPG casualties will be medically treated IAW the unit SOP.

d. **Casualties.** PPG KIA will not be separated from the wounded. PPG will be treated IAW the Geneva Convention (i.e. medical treatment, water, food, as required).

e. **Supplies.** If the PPG ambushes a convoy and destroys the vehicles/personnel, the PPG may copy BLUFOR graphics, frequencies, under OC control. The PPG and/or BLUFOR are authorized to exchange an empty magazine for a loaded magazine (one for one only and limited to 5.56mm). Ammunition found in the PPG cache sites can be confiscated or destroyed. Sensitive items, food, and water carried on the person are off limits. Vehicles/personnel destroyed in the ambush/attack must be re-constituted IAW the current ROE, to include fuel, or parts/supplies carried on the destroyed vehicles.

**Demolitions.** The PPG may employ time fuzed demolitions which will be simulated by taping a chemlite (any color) to an MRE grenade. Breaking the chemlite simulates lighting a two minute time fuze. At the conclusion of the two minute period, the responsible OC will simulate the explosion with a grenade simulator and assess damage to personnel and equipment IAW ROE. Once started, the time fuze cannot be stopped.

#### **9-4 Civilians on the Battlefield (COBs)**

**1. General.** Civilians on the Battlefield (COBs) may be encountered throughout the BCT's battlespace. These COBs may be residents or employees of the local towns and mining camps or refugees fleeing conflict. COBs may interact, exchange information, and request assistance with all forces on the battlefield, including the PPG. All COBs will be treated in accordance with the published Rules of Engagement for military operations.

#### **2. COB events.**

a. **Searches.** COBs and their vehicles may be detained and searched. All pockets of COBs are available to search. The glove compartment of the COB vehicles is a safe zone. COB equipment or vehicles may be confiscated at any time. BLUFOR will not drive any of the COB vehicles.

b. **Detention.** A BLUFOR soldier attempting to physically detain and hand cuff a COB will ensure an OC is present, and notify the OC of his intentions to physically detain the COB. The BLUFOR will talk the OC through the details of how he intends to detain the COB. The OC will tell the COB to replicate the appropriate position.

c. **CASEVAC.** The COBs will have to be treated IAW their casualty card. If the COBs are not provided with proper medical attention by the BLUFOR, or the remaining COBs are unable to transport the casualty to the IMC hospital in time for Level II care, then the COB is assessed as died of wounds.

# Chapter 10

## NBC Operations

### 10-1 Nuclear Biological and Chemical Operations (NBC)

1. Units are given credit for using their organizational NBC equipment if the items are present, operational, and employed in a doctrinally correct manner. All units are credited with two sets of MOPP gear (one training set from home station, one paper). Suit failures will be assessed 24 hours after contamination at a rate of 50% per hour. Substitutions are not allowed (example: duct tape for M9 paper or leather boots for GVOs)

2. CS is used to initiate chemical attacks and to simulate chemical agents, however the absence of CS on the battlefield does not always indicate absence of a chemical agent. OCs may give visual signals (hand/arm, marking of M8/M9 paper), audio (M42 alarm) or NBC casualty cards.

3. OCs will exchange M256 chemical agent detector kits on a one for one basis with any player personnel. The exchanged kit, if employed correctly, will indicate the presence or absence of chemical agents within the M256 kit's capabilities.

### 10-2 Chemical Agents

1. BLUFOR units do not have release authority to employ chemical agents.

2. OPFOR has the capability to employ a spectrum of persistent and non-persistent chemical agents. Agent delivery systems include artillery, rockets, aircraft bombs, and spray.

3. The effects from chemical agents affect both BLUFOR and OPFOR units.

4. The effects of persistent agents continue for 24 hours after emplacement.

### 10-3 Chemical Agent Attacks

1. Replication. OCs will assess all chemical strikes. For indirect chemical fires, air burst/ground burst artillery simulators and CS grenades will be used to indicate the incoming chemical rounds. OCs will provide information concerning color changes on chemical detector paper (M8/M9) or M42 alarm, as appropriate.

2. Assessments

a. During chemical agent attacks personnel equipped with the PDD harness are assessed by the NTC SAWE system.

b. Personnel not equipped with the PDD harness are assessed as follows:

- Units in a downwind NP vapor hazard area who do not respond to individual cues will be assessed as casualties.
- Personnel in the attack area of persistent agents who do not respond to individual cues will be assessed as casualties. OCs will issue a casualty card to simulate personnel in the downwind hazard area.

If soldiers do not take appropriate actions to warn others, additional casualty cards will be issued.

c. Individuals will be allowed to continue their mission once the proper level of protective posture has been attained.

3. There Are Six Categories of NBC Casualties: Return to Duty (NBCRTD), Walking Wounded (NBCWW), Litter (NBCL), Litter Urgent (NBCLU), Killed in Action (NBCKIA), and Died of Wounds (NBCDOW). OCs will issue NBC casualty card(s) as appropriate. Individuals not taking proper protective measures will be assessed as a NBC casualty. Information concerning the specifics on NBC casualties is found in Chapter 7 – Logistics.

4. Conventional casualties who subsequently become contaminated or contaminated soldiers who subsequently become conventional casualties, will have their MILES casualty cards placed in effect: See Chapter 7 – Logistics for further information.

5. OCs may assess NBC casualties based on protective equipment failures and shortages while in presence of a chemical agent.

6. When chemical agent poisoning is observed, the individual or his buddy must initiate the correct first aid procedures. Each soldier should be issued a MK-1 trainer and one MK-1 nerve agent antidote (NAAK) card. Credit for three simulated MK-1 kits will be given by the OC on the site. The OC will annotate the NAAK card with date/time group and call sign each time the MK-1 is administered correctly.

7. Initial contingency stockage of MOPP gear is based on two per deployed soldier. The second paper set of NBC gear is issued to the rotational unit by the unit's S-4 prior to departure from the Dustbowl. The rotational unit must requisition replacement sets of simulated MOPP gear as required. Transportation and distribution of these items will be accomplished by unit SOP. Weight and cube of these items must be considered when they are transported.

8. Simulated NBC equipment/supplies/medical items will be issued through the BSA IAW requisitions submitted by the unit. NBC equipment is only issued after the appropriate supply request have been submitted and sufficient transportation is available to move the supplies. Individual/unit reconstitution is only complete once the replacement set of contingency NBC equipment is distributed to the individual users. Donning the BDO/CPOG regardless of the time worn equates to a day of wear.

9. If resupply of MOPP gear is not accomplished, the unit is in an unprotected posture. If a unit is subsequently contaminated and does not conduct thorough Decon or conduct a MOPP gear exchange, overgarments will fail at a rate of 50% per hour after the maximum life span of the overgarment (24 for BDO).

10. The 52d ID (M) DTOC will issue chemical downwind messages (CDM) to appropriate rotational units. The DTOC will also issue messages, as required, concerning NBC equipment serviceability and medical pretreatment guidance.

11. Individuals operating around contaminated vehicles must take the appropriate protective measures or they will be assessed as an NBC casualty. Personnel within one meter (an arms length) of a contaminated vehicle without their protective mask on, will be assessed and individuals not in MOPP-4 touching a contaminated vehicle will be assessed.

#### **10-4 Decontamination**

1. Water will simulate Decontaminating Solution No. 2 (DS-2) and talc, flour, or liner's chalk will be used to simulate STB. Units must identify and carry specified containers for bulk decontaminates. As an example, a 5-gallon water can marked as "DS-2" must be used for refilling ABC-M11 decontaminating apparatuses. When bulk decontaminates are exhausted, resupply is through normal procedures.

M13 DAPs may be refilled as resupply actions accomplished.

2. Change of mission has no effect on the requirement for decontamination. Contaminated vehicles, equipment and personnel will remain contaminated until proper decontamination procedures are taken. Continued use of contaminated vehicles or equipment is authorized only if the crews assume the proper MOPP level.

3. Complete decontamination can be achieved through immediate decontamination within 1 hour of becoming contaminated followed by operational decontamination within 6 hours of becoming contaminated.

4. If the unit fails to complete immediate decontamination to standard, then complete decontamination can be achieved only by thorough decontamination or operational decontamination in conjunction with weathering (see Table 10-4 for weathering information). In this case, operational decontamination plus weathering can be done instead of thorough decontamination only if started within 6 hours of becoming contaminated. Once operational decontamination is complete, units must be in MOPP IV when operating vehicles until after the weathering time expires.

Table 10-4 Weathering After Operational Decon	
Daily Mean Surface Air Temperature	Duration of Agent
Less than 97 deg F	4 hrs / 3 hrs CARC surface
Greater than 97 deg F	3 hrs / 2 hrs CARC surface

#### **10-5 NBC Reconnaissance and Survey**

1. Reconnaissance or survey missions are not valid unless the unit performing the mission is accompanied by an OC.

2. While conducting the recon/survey, the OC will provide the necessary cues (i.e., simulate, meter readings, TRAINS tickets, or symptoms) to the Rotational Unit.

3. Marking of contaminated areas should be IAW the Rotational Unit's SOP and doctrine.

#### **10-6 Special Considerations**

1. Rotational Units will immediately notify the nearest OC and their higher headquarters if an M43A1 chemical agent detector unit or a chemical agent monitor (CAM)

is damaged. These devices have radioactive sources that are potentially hazardous if the detector cell is damaged. This report will be passed through unit channels to DTOC. DTOC will forward information to the Post Safety officer and Environmental Clean-up Team (ECT).

2. All personnel entering HC smoke will don their protective mask IAW Safety Of Use message dated 191615Z JAN 90.
3. Rotational Units will ensure they have no players in the maneuver area with a medical condition (allergy, pregnancy, asthma, etc.) that would put them at risk if exposed to CS or other chemical training agents. OCs will not provide advance warning of chemical agent events.

### **10-7 Persistent Agents**

1. The duration of persistent agent effectiveness is 24 hours.
2. The rotational unit should not assume that after the published time has expired, the contamination no longer exists. The area must be checked with detection devices to verify the estimates listed in tables.
3. There is no vapor hazard outside of a persistent area. Vapor hazard within the area will cause casualties to soldiers not at MOPP-4.
4. Areas attacked with artillery or bomblets will be considered as one large contaminated area instead of small individual spots of contamination. This one large area is determined by connecting the individual spots at the outermost points of what appears to be the center.

### **10-8 Biological Agents**

Biological agents are available to the OPFOR. Biological agents effect COBs, OPFOR and BLUFOR soldiers and civilians who come in contact with a biological agent. Personnel infected with biological agents are not contagious (cannot transmit disease to others).

# Chapter 11

## Command And Control

**Overview.** The National Training Center battlefield offers commanders and key leaders a challenging and realistic environment for leading and training units. All aspects of battle command (see yourself, see the enemy, see the terrain) will be stressed. This chapter will cover ROE items critical to battle command during an NTC rotation.

### 11-1 Second Lives

Key leaders such as the Bde/Task Force Commander, principal staff officers, company commanders, and platoon leaders may be given a second life and if mounted, transfer to another vehicle (jump ship) if their assigned vehicle is assessed. They may do this only with OC approval and only once during a battle. This allows the leadership the training opportunity to continue with specific missions. The OC reserves the right to disapprove second lives in order to develop subordinates. The senior TF OC can allow additional transfers if he deems it necessary for certain key personnel, such as the Task Force commander or S-3. OPFOR MRR CDR, Deputy, and S-3; MRB CDRs and Deputy; and MRC CDRs and Deputies can “jump ship” one time during the battle.

### 11-2 Communications

1. The NTC SOI 1062 will be used as issued by Fort Irwin COMSEC Division. The SOI and only that equipment authorized by the SOI, SOP, Operations Center, applicable regulations and technical manuals will be used.

2. All nets may operate in the secure mode. The Crypto Net Variable (CNV) will be provided by the Operations Group Signal Officer and will not be changed without the concurrence of the DTOC.

3. The rotational unit will provide Plans and Operations Division, Operations Group, information on cross attachments, support units, or other requirements not specifically provided for in the issued SOI package as notes to the troolist coordinated through FORSCOM NLT 120 days prior to the rotation.

4. The NTC uses a five time period SOI. The period/sets used in the SOI, Ops codes and authentication tables will be the same as the calendar date (i.e., Calendar days: 1, 6, 11, 16, 21, 26, 31, use the time period one; calendar days 2, 7, 12, 17, 22, 27

use the time period two). Units will use two editions; if edition A is compromised or lost, 52d ID (M) will direct Edition B to supersede Edition A. If a unit loses a SOI, that unit will submit a written report to the DTOC outlining the circumstances of the loss. Frequencies, call signs, and password changes occur at 2400 Zulu. Requests to alter this schedule will not be considered. The rotational unit must plan accordingly.

5. Units may use fixed call signs. The unit must provide a list of call signs and expanders to the 52d ID (M) ADSO by RSOI, Day Two (2). Units will use SOI call signs on nonsecure nets.

6. The rotational brigade will be attached to the 52<sup>nd</sup> ID (M) throughout the rotation. Call signs and frequencies for the 52<sup>nd</sup> ID (M) are found in the current unit NTC SOI.

7. Unauthorized radios/communications equipment will remain in the cantonment area. This includes Citizen’s Band Radios, civilian “walkie/talkies” radio scanners and any RF transmitting equipment not formerly tested and approved by the NTC Spectrum Management Office. PRC-127s are authorized. The Squad ICOM Radio model F3S is approved for use at the NTC, to include throughout live fire operations. Currently, no other model of Squad ICOM Radio has been tested or approved for use at the NTC. Rotational units should coordinate with the NTC Spectrum Management Office 180 days prior to their arrival at the NTC for testing and approval of any RF transmitting equipment not formerly tested or approved. Rotational Brigades are limited to 3 cell phones for BCT HQ, one cell phone per BN/TF. Cell phones for not for tactical use but connectivity with home station. Cellular phones are for administrative purposes only and will not be used as a means of communications between units in the field. Cellular phones are not authorized for use by tactical satellite teams as a means of communications with GMF. Cellular phones are prohibited during live fire operations, training days 10-14, due to the possibility of interference with live fire control systems. Exceptions to this may be granted by 52<sup>nd</sup> ID (M) TOC on a case-by-case basis in extreme emergencies. Unauthorized communications equipment found in the training areas will be confiscated by an OC and given to the unit chain of command. Personnel discovered using the equipment will be assessed. All communication system used by rotational units

during exercises must be capable of being monitored by the OCs.

8. Administrative requirements and positioning of the 52d ID (M) DTOC and DTAC Headquarters often dictate locating communication re-trans and relay equipment outside the brigade sector. When such occasions arise, the rotational unit will obtain DTOC's approval to occupy out-of-sector sites. Further, the DTOC will be appraised as to when sites are occupied and when cleared. Failure to comply can and will result in serious consequences regarding the brigade's overall ability to communicate.

9. All rotational units are subject to attempted OPFOR ECM and ECM.

10. The Rotational Signal Company reverts to brigade control at EOM + 1. Recommend command and control be maintained via FM radio in order to allow all signal sites to recover equipment and close on the designated TAA in a timely manner. Units are still responsible for maintaining communication, FM at a minimum, with 52ID DTOC until released by the DTOC.

### **11-3 MSE Signal Company**

1. MSE Signal Company soldiers and equipment are not exempt from the rules of engagement. This includes the rear Node Center platoon(s) supporting IMC. Units must evacuate casualties and requisition battle damaged equipment as per the ROE.

2. There are no neutral or "white cell" sites, main supply routes (MSRs), or mission except for signal elements located within Irwin Military City (Including Bldg. 988, DTOC, NV284014; Bldg. 468, DIV FWD, NV290019; Bldg. 867, IMMC, NV291006; and the RUBA). MSR exemptions for support runs will not be granted. The Rear Node Center platoon(s) supporting Irwin Military City is not a white cell element.

3. BLUEFOR signal equipment assessed during battle will be degraded IAW that piece of equipment's BDA. If destroyed, the communications link the equipment supports will be terminated and power to the equipment will be shut off unless directed otherwise by an OC. Inter-nodal links and links that dual home and/or support the 52<sup>nd</sup> ID DTOC located in Building 988 (Star Wars building) will not be terminated when assessed as destroyed or degraded; however, the equipment will be requisitioned IAW the ROE based on BDA.

Equipment which supports multiple links or DTGs that are assessed as destroyed will disable affected links except for internodal and Starwars building support links.

4. BLUEFOR personnel assessed as casualties cannot continue to operate or maintain communications equipment unless directed otherwise by an OC. Personnel actively supporting internodal links (at the time of attack) or links that support the 52<sup>nd</sup> ID DTOC located in Building 988 (Star Wars building) (at the time of attack) and are assessed as casualties will not be evacuated IAW the ROE. Those personnel will continue to maintain internodal and Star Wars building links but will perform no other duties to aid the unit. Those personnel actively supporting internodal links or the Star Wars building who are assessed, as casualties will be requisitioned IAW the ROE based on their casualty card.

5. Out of Brigade Sector placement of Signal Equipment:

a) The Area Signal Company is a Division asset and is authorized to occupy Division battle space pending approval from the 52ID G-6. Any placement of communications equipment out of the Brigade sector requires the player unit to submit a request for information (RFI) to the Division. The RFI must state the duration of the mission, task, purpose and risk assessment. The Division G-6 will have final approval.

b) Division approval for out of sector terrain will be based on current mission constraints and terrain management with Fort Irwin units. Several locations will support Irwin Military City and each RFI should have alternate locations indicated.

c) If the RFI is approved for out of sector placement, the unit is still subject to attack by direct and indirect fires and will operate under all applicable Rules of Engagement.

### **11-4 Fratricide Prevention**

1. Force protection is everyone's business. Risk Management allows us to operate successfully in high-risk environments. Leaders at every level have the responsibility to identify hazards, to take measures to reduce or eliminate hazards, and accept risks only to the point that the benefits outweigh the potential loss.

2. Requirements.

a. The BCT should be prepared to conduct a formal 15-6 investigation for all incidences of fratricide. At a minimum, the Brigade/Regimental Commander will appoint a 15-6 investigating officer for each incident and be prepared to brief the COG/ADC (M) 52ID (M) the details of the incidents(s) as directed. A completed 15-6 will be provided to the DTOC NLT 48 hours after the incident as required by the ADC (M).

b. During platoon and company AARs, OCs will inform unit commanders of incidents of fratricide not already confirmed and reported by BLUFOR. Upon notification from an OC, it is the responsibility of the unit to report the incident to the Brigade/Regiment IAW unit SOP. The Brigade/Regiment will report the incident to 52ID (M) DTOC within 4 hours of time of occurrence/discovery.

c. The Brigade/Regiment will not be allowed to depart the maneuver box until all 15-6 investigations are completed and turned in to the DTOC.

### **11-5 Higher Headquarters**

The 52 ID (M) or X (US) Corps will operate as the player unit higher headquarters for all tactical orders and briefings from RSOI 1 to Training Day 14. There is no other recognized command and control headquarters while conducting operations at the NTC.

### **11-6 Live Fire Restrictions**

1. Live Fire ROE issues will be adjudicated through the 52<sup>nd</sup> ID (M)/ X Corps TAC with the Senior Live Fire OC as the final deciding authority.

2. All personnel, visitors, and observers accessing the Live Fire Training before, during, and after rotational training periods must receive explicit permission from the 52<sup>nd</sup> ID (M)/ X Corps TAC.

3. Communications requirements for rotational units in Live Fire operations differ from those used in Force-on-Force as follows:

a. Rotational unit will continue to operate all communications secure and SINCGARS will operate secure/frequency hopping.

# Chapter 12

## Safety

### 12-1 General Information

**1. Rigorous Training.** The National Training Center will expose your soldiers to the most rigorous and realistic training found in the world. While here, you will never have a more important task than protecting yourself and the lives of your soldiers. You will be able to safely accomplish your unit's training objectives if you follow your home station safety precautions, enforce safety discipline within your unit, and use common sense.

**2. Rigorous Desert Environment.** Surface temperatures in the Mojave Desert reach 125 degrees Fahrenheit during summer months. Winter month temperatures fall below freezing for periods lasting over 48 hours. Heavy rains in the training area and runoff from adjacent mountain ranges rapidly turn dry stream beds and wadies into free flowing rivers. Wind storms occur year round. The highest wind velocity recorded at the NTC is over 100 miles per hour. Added to this climate is a potentially dangerous wildlife population.

### 12-2 Rotational Unit Safety Officers

a. Rotational units may deploy with a civilian Rotational Unit Safety Officer (RSO) from their home station safety office. The RSO will assist the unit with safety issues and act as a liaison between the rotational unit and National Training Center safety officials.

b. The RSO is considered to be a member of the player unit and will wear MWLD and HALO. His or her vehicle will be equipped with MILES equipment as appropriate for the vehicle type. The RSO will be issued an RTD MILES casualty card.

### 12-3 Force Protection

Force protection is a command responsibility. The NTC provides a daily safety risk assessment, safety observations, and on the spot safety corrections to assist the commander in managing the unit safety risk program. The specific restrictions in this chapter will be included in commanders' safety risk programs.

**1. Unit Requirement:** Units are required to complete an Accident and Tactical Risk Assessment IAW FM 100-14 to PLT level for every mission. These assessments should be briefed at platoon level

as part of every mission and a signed copy must be provided upon request to their OC.

**2. Force Protection Observations.** The NTC uses the Force Protection (Safety) Observation card to record all unit safety issues regardless of extent of injury or damage. The field OC prepares the card after observing a safety violation or potentially hazardous condition or practice.

**3. Safety KIAs.** OCs may assess soldiers/equipment as "Safety KIAs" in special cases to prevent repeated safety violations. A "Safety KIA" must be evacuated/recovered by the unit and will be assessed as a DOW. Safety KIAs will be noted on the soldier's MILES casualty card or vehicle BDA card and chain of command will be informed.

### 12-4 Heat Injuries

Heat Injury is the number one injury resulting in emergency medical evacuation of soldiers. Insufficient water intake is the largest single cause of heat injuries.

#### 1. Dehydration.

a. **Hazard.** Dehydration is a condition normally associated with high temperatures but will occur at any time when water in the body is lost and not replaced.

b. **Risk Reduction.** Commanders must ensure that soldiers increase their water consumption during periods of increased activity. Specific considerations follow:

- When the temperature is above 80 degrees Fahrenheit, average water consumption increases to thirteen quarts per day. It is not unusual for requirements to reach 15 to 20 quarts per day in summer months or during periods of increased training activity.
- Special clothing such as MOPP suits and FLAK jackets impair the body's ability to cool itself. Special precautions must be considered prior to their use.

c. **Remedial Action.** Enforce water consumption. For heat casualties, see below.

## 2. Heat Casualties

a. **Hazard.** Bright sunlight, wind, and high temperatures cause eye strain, sunburn, heat cramps, heat exhaustion, and heat stroke.

b. **Risk Reduction.** Unit emphasis on proper clothing discipline, increased water consumption, proper diet, and rest periods is essential in preventing heat casualties. Specific considerations follow:

(1) Wear light loose fitting clothing and keep your head and body covered. Do not attempt to cool your body by removing your BDU top as this will increase your chances of sunburn, perspiration and fluids loss.

(2) Apply sun-block on hands, arms, neck, and face to prevent sunburn. Reapply sun-block frequently to nose and lip areas. Wear gloves to protect the hands.

(3) Maintain the appropriate amount of sleep. Units must adhere to their sleep plans. Take frequent rest breaks in shaded areas. The number of hours of sleep and the number of rest breaks are contingent upon the time of year, time of day, and the level of activity.

(4) Eat regularly. When it is hot you will tend to eat less frequently and in smaller amounts. Do not consume salt tablets. A normal diet is sufficient to maintain normal vitamin and mineral content in your body.

(5) If it is extremely hot and sufficient water is available, it may be helpful to occasionally soak down or wet clothing.

(6) Know heat injury warnings. Heat injuries can occur in cold weather also.

### c. Remedial Action Heat Cramps

(1) Symptoms. Painful cramps of the muscles of the extremities and abdominal wall.

(2) Treatment. Move the patient to cool, shaded area. Give the person cool water. Seek medical attention

### d. Remedial Action Heat Exhaustion

(1) Symptoms: Profuse sweating, headache, tingling sensations in the extremities, pallor, nausea, vomiting, weakness, rapid pulse.

(2) Treatment: Move the victim to a cool place and request a medic. Elevate the victim's legs and give the victim cool water.

d. Remedial Action - Heatstroke: This is a medical emergency and can be fatal if not treated promptly and correctly.

(1) Symptoms: Skin flushed, hot, and dry. Victims are usually experiencing nausea, vomiting, dizziness, and disorientation. In the advance stages of this disorder, the victim will lose consciousness and when left untreated, will become a fatality.

(2) Treatment: MEDEVAC victim immediately. While waiting for MEDEVAC, move casualty to a shaded area and cool casualty continuously by dousing with water. Remove outer garments and/or protective clothing, massage patient while immersed in cool water to help skin (capillaries) transport excess heat. Use ice bags if available, at the sides of the neck and underarms. DO NOT ADMINISTER FLUIDS ORALLY TO AN INDIVIDUAL WHO IS UNCONSCIOUS.

## 12-5 Cold Weather Injuries

1. **Hazard.** Extreme weather conditions and severe temperature fluctuations occur during winter months. High winds will produce a significant wind chill factor.

2. **Risk Reduction.** Avoid cold weather injuries by rotating socks and boots as temperatures begin to fall. Wear layered clothing: add or remove layers to adjust for changes in temperatures or physical exertion. Keep body and clothing as clean as possible. Drink fluids to prevent dehydration. Eat properly and enforce a "sleep plan". Fatigue and dehydration are contributing factors in all cold weather injuries.

### 3. Remedial Action.

#### a. Frost Bite.

(1) Symptoms: Loss of sensation or numb feeling in any part of the body; sudden whitening of the skin followed by a tingling feeling; redness of skin in light skinned soldiers, grayish coloring in dark skinned soldiers; blisters; swelling of tender areas; loss of pain in affected area; pale, yellowish, waxy looking skin; frozen area that feels solid to the touch.

(2) Treatment: Warm the area at the first sign of frostbite using firm, steady pressure of the hand or underarm; loosen or remove any tight clothing and

remove any jewelry; cover the casualty with a blanket or other dry material; do not cause further injury.

b. **Hypothermia**

(1) Symptoms: Vigorous shivering, confusion, unconsciousness, poor respiration.

(2) Treatment: Soldier should be rapidly warmed by the body heat of several individuals; drink warm liquids (if conscious); seek medical attention.

## 12-6 Flash Floods

1. **Hazard.** The Mojave Desert has deep wadies created by severe rainstorms. Desert terrain does not have the capacity to absorb much water. As it rains, the runoff can become considerable and flash floods occur. The rainfall does not have to occur on the reservation to produce runoff sufficient for major flooding.

2. **Risk Reduction.** Do not park, sleep, or remain in wadies or ravines during wet weather. Do not attempt to cross flooded areas. Avoid standing water and upper elevations to minimize the possibility of encountering ground strikes from lightning.

## 12-7 Wildlife

Poisonous snakes, spiders, scorpions, insects, and large wild animals indigenous to the Mojave Desert are abundant on the reservation. Bobcats and coyotes are found on all parts of the reservation and roam freely in the cantonment area.

1. Coyotes & Bobcats.

a. **Hazard.** Both bobcats and coyotes have been known to attack soldiers when threatened.

b. **Risk Reduction.** Soldiers must leave wildlife alone. Do not feed desert wildlife. Feeding wildlife will cause them to lose their natural fear of humans and may cause them to become aggressive.

c. **Remedial Action.** Anyone bitten should carefully cleanse the wound and immediately seek medical help. Coyote bites are treated for potential rabies infection.

2. **Desert Tortoise.**

a. **Hazard.** The desert tortoise is protected by State and Federal Wildlife Endangered Species regulations. Penalties include up to one year

imprisonment, and \$50,000 fine. A significant tortoise population exists on the NTC complex.

b. **Risk Reduction.** A tortoise preserve and nursery has been established south of the 90 E/W grid line on the NTC. This area is fenced and clearly marked. Tracked vehicle maneuver is not authorized in this area. Soldiers should be alert for tortoises throughout the training area and avoid contact.

c. **Remedial Action.** Tortoises encountered on roads and trails should be removed to prevent collisions with vehicles. Injured animals should be protected from further harm and reported to the DTOC. DPW, Environmental section, will collect these animals for treatment.

3. **Poisonous Snakes.**

a. **Hazard.** Four species of poisonous snakes have been found on Fort Irwin: Western Diamondback (3-5.5 feet long; up to 15 pounds; pale in color but varies from gray to yellow or pink; tail marked with black and white rings); Speckled Rattlesnake (usually yellowish, gray, or pink and sometimes white); Sidewinder (1.5 - 2.5 feet long; cream, tan gray, light brown, or pink with rows of dark spots; elevated horns above the eyes); and the Mojave Green Rattlesnake (greenish or olive in color; 2.5 - 3.5 feet long). The Mojave Green Rattlesnake is the most poisonous snake in North America. A snake bite is a serious life threatening condition. The victim will experience severe pain followed by a rapid swelling and discoloration in the area of the bite. The victim of a snake-bite, who does not receive medical treatment may experience shock, weakness, paralysis, and possible respiratory failure. Death can occur within the first 24 hours.

b. **Risk Reduction.** During daylight hours, snakes prefer rocky habitats and will generally remain in shaded areas or hide in burrow. Soldiers should be alert when operating dismounted in these areas. At night, snakes will hunt for food.

c. **Remedial Action.** If a soldier is bitten by a snake:

- Remember the snake markings and color. Kill the snake for identification purposes, if you can. This is very important to medical personnel in order to diagnose the type of bite and prescribe treatment for the patient.
- Sit the patient in the shade. Do not let the victim stand or walk around. Keep the patient as calm and comfortable as possible. Immobilize the wounded

extremity. Place a strap or belt snugly above the bite. Tighten the strap around the limb to retard the blood flow but do not stop the pulse. Treat for shock. DO NOT elevate the bitten extremity.

- MEDEVAC the patient as soon as possible.
- DO NOT use the “cut and suck” method of treatment. You risk becoming the victim of snake poisoning!

#### 4. Arachnids (Scorpions and Spiders).

a. **Hazard.** Scorpions and several species of poisonous spiders are found throughout the desert. Some species of spiders found on NTC are potentially dangerous to humans. The venom of a Recluse Spider, as with many insects, may be life threatening if a bitten soldier has an allergic reaction to the insect venom.

b. **Risk Reduction.** Avoid insect stings and bites by hanging clothes, boots, and sleeping gear off the ground. Check bedding before use. Shake out boots and check socks and clothing before putting them on.

c. Remedial Action. If anyone is stung or bitten:

- Always treat insect bites seriously.
- Keep patient quiet and send for medical aid. The puncture points should be cleansed with an application of a mild antibacterial agent. Cool the area 10 to 12 inches around the puncture point with ice.

#### 12-8 Lost in the Desert

1. **Hazard.** It is deceptively easy to become lost at the NTC. A soldier lost in the desert during summer (temperatures of 110 or above) can survive three (3) days. This figure assumes a full canteen of water, and that the soldier remains immobile in a shaded area. Physical activity will significantly reduce survival time. Report all soldiers lost in the desert to an OC immediately. OCs will assist in the search effort to find soldiers lost in the desert.

#### 2. Risk Reduction.

a. Prevent becoming LID by determining where you are and the distances to be traveled prior to leaving. Always use a map, the vehicle odometer, and a compass. Use terrain association and move from one identifiable terrain feature to the next.

b. Plan your travel during daylight and move before dark. If you must travel at night, travel the route in the daylight or go with someone who knows the way.

c. Use the Buddy system. Most training incidents, in which an individual was lost, could have been prevented by using the “Buddy System”. Two individuals will be counted as missing sooner than one, and two are less likely to become lost. The “Buddy System”, particularly in dismounted operations, is essential to training safely.

d. Soldiers left as “Traffic Control Points (TCPs) must be left in pairs, and must have adequate water and shade. An individual soldier can easily get disoriented or fall asleep.

e. Commanders should encourage their soldiers to carry handy survival items such as: a pocket knife, a watch, matches or a lighter, sun-block and lip balm.

#### 3. Remedial Action

a. Parent Unit. Training units will notify an OC when soldiers are reported missing from their units and will keep OCs updated on search progress.

b. LID Soldiers(s). If you are in a vehicle, do not leave it. A search party will spot a vehicle easier than someone walking. Move to open terrain if your vehicle is operational. Use the vehicle’s mirror for signaling. If your radio is operational, contact your unit and explain your situation. The radio can also provide a homing signal for search and rescue aircraft. If you become lost at night and believe it is unsafe to continue, STOP and wait for daylight. Prepare visual or audible signaling devices for searchers to see or hear.

#### 12-9 Sleeping Areas

The establishment of safe sleeping areas will be IAW the unit’s SOP. At a minimum, sleeping areas will be cordoned off with white engineer tape. It is the Chain of Command’s responsibility to enforce the rules to prevent vehicles driving into sleeping areas.

#### 12-10 Vehicle Operation

1. The leading cause of NTC fatalities is vehicular accidents. Operators driving at unsafe speeds over unfamiliar terrain, and during periods of limited visibility are the leading factors in NTC vehicular accidents.

#### 2. Unit Requirements.

a. **Licensing.** All soldiers must be licensed on the vehicle they are assigned to operate before deploying to the NTC. Units will not conduct “drivers qualification training” while at the NTC. (Units are encouraged to conduct training for the purpose of familiarizing drivers with the desert environment which can not be accomplished at home station.)

b. **Rollover and Fire Drills.** Unit commanders will ensure vehicle rollover and fire drills are conducted prior to deploying for the rotation and refresher training is conducted as part of RSOI operations.

c. **Convoy Operations.** At a minimum, convoy commanders must brief routes, hazardous areas, conditions, intervals, speed, rest stops, and signals to all drivers and assistant drivers prior to road marches.

### 3. Equipment Requirements.

a. **Headgear.** All soldiers must wear a kevlar helmet or CVC while operating or riding in vehicles in the maneuver area.

b. **Eye Protection.** In vehicles without windshields, all soldiers will wear goggles or other appropriate eye protection.

c. **Safety Restraints.** Safety belts are mandatory for front and rear seat vehicle occupants. Safety straps and tailgates must be secured on cargo vehicles when transporting troops. Soldiers will only be transported in vehicles with approved troop seats.

d. **Safety Deficiencies.** Vehicles with safety deficiencies, e.g.: NMC brakes and steering, will not be operated until deficiencies are corrected IAW AR 385-55.

e. **Intercom.** Tracked vehicles will not move without ground guides when the intercom system is inoperative.

f. **Hatches - General.** Vehicle hatches will be secured using an approved locking pin or latching device at all times. TCs will inspect safety pins daily for serviceability and security. Vehicles with broken hatch pins or latching devices will not be operated until proper repairs have been made or specifically authorized by the unit commander.

g. **M1 Driver’s Hatches** The driver hatch of the M1 series tank will be closed whenever the tank is moving and/or whenever the turret is in operation.

f. **Load Plans.** All vehicles must have load plans and the vehicle’s equipment will be secured IAW the load plan. Fatalities associated with track vehicle roll-overs are directly related to unsecured equipment crushing occupants inside the vehicle.

g. **Antennas.** All radio antennas will be tied down while traveling within Fort Irwin’s garrison area. Antenna balls are required on all antennas.

### 4. TC / Senior Occupant Requirements.

a. **Responsibility.** The senior occupant of a wheeled or tracked vehicle is responsible for the safe operation of that vehicle. IAW AR 600-55, paragraph 1-4k.

b. **Inspection.** TCs will inspect vehicle load plans and correct deficiencies prior to moving vehicles. TCs will inspect/search the ground in front, rear and sides to clear personnel and equipment before moving.

c. **Ground Guides.** TCs will ensure that ground guides are present when operating vehicles in the vicinity of, or while going through all assembly areas. Front and rear ground guides will be used when backing vehicles larger than M998 series vehicles. Ground guides will be used during limited visibility operations whenever driver’s visibility is so poor that he or she is required to reduce the vehicle speed to the speed of a brisk walk. (FORSCOM Reg 385-1, paragraph 5-6b(3).)

d. **Tracked Vehicle TCs.** Tracked Commanders must be in position before moving their vehicles. TCs must be chest defilade in the TC hatch.

### 5. Operation

a. **Maximum Speeds.** DO NOT SPEED! Maximum vehicle speed limits are listed in Chapter 1. Environmental and other factors will often dictate lower limits than those shown.

b. **Limited Visibility.** Take extra precautions while driving during the periods of limited visibility (night, dust, or less than optimum driving conditions). Slower driving speeds; be alert for obstacles such as barbed wire, tank ditches, wadies, on-coming vehicles, etc.; and dismounting personnel to reconnoiter forward prior to moving vehicles.

c. **Vehicle Running Lights.** While operating a vehicle on MSRs, blackout markers or blackout drives

will be used. The unit will adhere to its TACSOP concerning the utilization of blackout markers and blackout drives in other situations of limited visibility. OCs must use blackout markers in and around assembly areas. Service drive lights will be turned off in the NTC training areas on Barstow Road, Langford Lake Road, and Goldstone Road. All sites not in the cantonment area will operate under blackout conditions. Sites adjacent to post (i.e., Beacon Hill) will begin blackout operations when leaving the paved road.

d. **Vehicle Searchlights.** Vehicles equipped with searchlights will not use searchlights against helicopters at any time.

e. **Wet Weather Conditions.** The winds and rain can rapidly change terrain conditions. Wadies and cliffs can be cut quickly across roads and cross country. Take extreme caution even when operating in areas that you have driven in before.

f. **Personnel Riding on Exterior of Vehicles.** Soldiers will not sit or ride on top of moving vehicles. The exception to this policy is infantry soldiers riding on tanks during tactical operations. The training unit's Brigade Commander must approve this exception to policy.

g. **Hard Surface Roads.** Vehicle convoys will not use hard surface roads for movement. The exception to this policy is for re-supply vehicles from the DSA/Cantonment area moving forward to the BSA/RSA or Live fire area. Tank trails adjacent to the hard surface roads will be used by convoy traffic. For track crossing restrictions see below.

h. **Track Crossing Restrictions.** Track vehicles will cross hard surface roads at "track crossing" sites in the cantonment area, Outer Loop Road and Barstow Road south of the water tower.

## 12-11 Aviation

**1. GOVERNING REGULATIONS.** Rotational unit aircraft will operate at the NTC IAW NTC Regulation 95-1, 385-2, and their unit TACSOP.

**2. Air To Air Engagements.** Air to air engagements are not conducted during force on force. Air-to-air stingers (ATAS) may be fired at an RPVT during live fire operations.

**3. Proximity To Ground Forces.**

a. Aircraft will never approach, fly-over, dust, or land within 100 meters of soldiers or vehicles. Aircraft must land down-wind from soldiers when possible.

b. Aircraft will not use hovering techniques to intentionally stir up dust and debris when conducting aerial searches for opposing ground forces. Violations will be treated as Safety KIAs.

c. If required to make a scheduled landing in Force-on-Force operations, pilots will land in an area which will not interfere with ground vehicles.

## 4. Pyrotechnics And Aviation.

a. Soldiers will never fire pyrotechnics toward aircraft.

b. Soldiers will never throw pyrotechnic from aircraft. Crew Chiefs are allowed to drop smoke grenades from aircraft to mark an area or target. The aircraft will be at a hover and safe distance from any other player.

**5. Airmobile Operations.** Soldiers being transported and aircrews must be trained in conducting airmobile operations. Soldiers loading, riding and departing aircraft must follow instructions from the aircraft pilot or crew chief. For personnel to ride in aircraft without troop seats FORSCOM approval is required. (FM 90-4)

## 12-12 UXOs Found in the Training Area

**1. HAZARD.** The NTC has provided the military community with a long history of training that dates back prior to World War I. The reservation has been used as an open target range by all the military services. Numerous gunnery ranges and target "Hulks" can be seen throughout the reservation. While many portions of the reservation have been surfaced cleared of live and dud munitions, both live and dud munitions continue to be found.

### 2. Risk Reduction.

a. Abide by maneuver and excavation restrictions listed in Chapter 1.

b. Do not enter off limits or restricted areas.

**3. Remedial Action.** The following rules apply when you find live or dud ordnance in the field.

- a. Assume that all bombs, projectiles, canisters, and rockets are live ordnance.
- b. Do not touch, run over, or disturb ordnance.
- c. Mark ordnance found IAW standard

Unexploded Ordnance (UXO) NATO markers or the alternate of stakes, Chem-lights, and engineer tape. Place markers three (3) feet off the ground so they are visible from all approach routes. Record exact grid of UXO using the unit Spot Report format and report it through the unit chain-of-command for forwarding to DTOC.

d. During RSOI and Force-on-Force, the deployed EOD team in support of the Brigade will only perform EOD recon to evaluate and identify ordnance items and determine whether they are live or not. The rotational team will ensure that items are marked and reported IAW FM 21-16 and passed to the 259<sup>th</sup> EOD for disposal. *The rotational team will perform no live demo procedures* except during Live Fire and BRD under supervision of a qualified EOD OC.

e. All explosives will be controlled/carried by the Sidewinder EOD OC (an EOD qualified soldier), and only given to the team when the situation requires it. However, in most cases, UXOs found can be safely left (to be destroyed at a later time) after being properly marked.

### 12-13 Ammunition

Ammunition is defined as all munitions (explosive or otherwise), pyrotechnics, chemical agents, powder, and firing devices other than weapons; e.g., HOFFMAN charges and ATWESS charges.

**1. Storage.** The ammunition supply point (ASP) is the only authorized permanent ammunition storage site on the installation. Field ASP/ATP sites and use of CONEX containers will be governed by appropriate regulations and restrictions provided by NTC DCL.

### 2. Handling.

a. Hazard. Soldiers have been seriously injured by improper handling of HOFFMAN devices, ATWESS cartridges, blank ammunition, smoke grenades, signal devices, and explosive simulators.

b. Risk Reduction. Units will follow the procedures and rules listed below:

(1) Ammunition is not allowed in the Fort Irwin cantonment area.

(2) HOFFMAN charges or weapons requiring blanks will not be fired within the range limits specified in Chapter 3.

(3) Soldiers will wear kevlar/CVC helmet, gloves, sleeves down, and eye protection when installing/reloading HOFFMAN charges.

(4) Do not fire weapons requiring ATWESS charges without first clearing the back blast area.

(5) During limited visibility conditions, do not intentionally fire weapons directly at airborne helicopters that are within 500 meters. Pilots using NVGs will be blinded.

(6) Do not intentionally discharge any pyrotechnic simulators within 50 meters of helicopters under any circumstances. Additionally, no pyrotechnics will be fired at or near any aircraft in flight (i.e. star clusters, flares, etc.).

(7) Do not remove gunpowder from pyrotechnics. This explosive powder is volatile, and will cause severe second and third degree burns when ignited.

(8) Do not use pyrotechnics around flammable liquids or materials.

(9) Do not activate pyrotechnic devices inside vehicles.

**3. Turn-in.** Upon the completion of your exercise, return all ammunition, components, and residue to the ASP. Company/Troop Commanders will complete and sign the required "Download Certification Memorandum" and provide to their counterpart. The placement of ammunition in trash containers, chemical toilets, buried underground, etc., is strictly prohibited.

### 12-14 Laser Device Operations

**1. Hazard.** All small arms and major weapon MILES lasers systems are eye-safe for direct fire engagements. Unfiltered laser range finders/designators are not eye safe.

### 2. Risk Reduction.

- a. Unfiltered laser range finders/designators are prohibited during force-on-Force operations.
- b. All tank laser range finders require the attachment of an ESSLER eye safe system during Force-on-Force operations.
- c. M2A2 ODS, M2A3 BFV, M1A2, and M1A2 SEP equipped with the eye-safe Laser Range Finders may be used during force-on-force.
- d. Infantry Aiming Light, Infrared (AN/PAQ-4) is eye-safe and can be used during force-on-force, however, hand held and vehicular mounted laser range finders and designators (AIM-1, GCP) are prohibited during force-on-force operations.
- e. During force-on-force, the eye-safe Hellfire Ground Support System (HGSS) will be used in lieu of the G/VLLD that is to be used in live-fire only. During live-fire, the inhibitor plug must remain installed on the G/VLLD until the operator receives “Red Direct” or “Red Direct for Lasing” and is in the presence of an OC. The PEQ-2 is eye-safe and can be used during force-on-force.
- f. MELIOS devices will replace AN/GVS-5s in force-on-force operations.

**12-15 Carbon Monoxide Poisoning, Toxic Smoke, and Fumes.**

1. **HAZARD.** A number of systems/devices produce toxic fumes on the NTC battlefield. Many of these are difficult to detect or have delayed effects.
2. **Risk Reduction.**

a. Do not operate generators, heaters, or gas burning stoves in poorly ventilated areas. Someone must be awake while heaters are being used.

Table: 12-16 9 Line MEDEVAC Request	
LINE 1	Location of pick up site (Grid Coordinate).
LINE 2	Radio frequency, your call sign and suffix.
LINE 3	Number of patients by precedence: 1 – Urgent 2 – Priority 3 - Routine
LINE 4	Special equipment required *Request a “DOCTOR” accompany the MEDEVAC if a fatality has occurred or is believed to be imminent.
LINE 5	Number of patients by type
LINE 6	Number and type of wounded, injury or illness.
LINE 7	Method of marking pickup site (LZ).
LINE 8	Patients nationality and status (Military/Civilian)
LINE 9	Terrain description.

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- b. Do not sleep in enclosed vehicles with the engine or heater running.
- c. Be alert for symptoms of carbon-monoxide poisoning, which include drowsiness, nausea, and headaches.
- d. All personnel will wear their protective masks during (NBC) chemical attacks.
- e. The smoke produced by tracked vehicles and smoke generators using “Fog Oil” is toxic. Soldiers exposed to this hazard will don protective masks.
- f. The M256 kit gives off toxic fumes when used. Soldiers using the kit should be masked. Once the test for a blister agent is performed, the kit itself becomes toxic and must be disposed of IAW environmental regulations related to hazardous materials.

**12-16 NTC MEDEVAC Helicopter Procedures**

Rotational units are expected to evacuate casualties IAW their unit’s SOP. The rotational unit chain of command is responsible for insuring that the MEDEVAC frequencies and procedures are known by all soldiers. The 247<sup>th</sup> MEDEVAC Detachment is available to all units training at the NTC for ACTUAL MEDICAL EMERGENCIES. Requests for emergency medical evacuation of personnel to Weed Army Hospital by MEDEVAC HELICOPTER should be called directly to Fort Irwin Range Control on frequency 38.90 (Non-Secure), VHF 126.20 or UHF 241.00 using the standard 9 line MEDEVAC request format. OCs are trained in MEDEVAC procedures and will assist units experiencing difficulty requesting a MEDEVAC.

When Air/Ground communications are established, the pilot will require the following information from the ground LZ:

- (1) Size of PZ
- (2) OBSTACLES (wire, antennas, etc.)
- (3) Wind direction and approximate velocity.
- (4) Slope of the terrain.

Personnel not required for the MEDEVAC will relocate or avoid coming within 500 meters of the MEDEVAC site and continue training. and resume training. will resume training as soon as MEDEVAC is completed

### 12-17 Live Fire Safety

1. Safety is the responsibility of the rotational unit chain of command. The rotational unit commander is the senior safety officer during live fire training. His chain-of-command are his safety personnel. OCs will assist by providing safety briefings, expertise, and close observation of training activities.

2. The Live fire area of operations is not a range. There are no range fans towers or control net. Tactical overlays/graphics, operations orders, fire support coordination measures (FSCMs), and fire plans are the control measures that restrict fires. Vehicle commanders are responsible for the safe operation of their vehicle and weapons. Everyone must always be familiar with and aware of the tactical situation in order to prevent fratricide.

3. All personnel will wear body armor in accordance with ROE Chapter 3-10. A full NOMEX uniform and leather boots are required by all tank crewmembers when conducting live fire operations at the National Training Center. Protective goggles are not required but are strongly recommended. This is especially true for soldiers that routinely work forward in sector.

4. Rotational unit commanders must certify, to the Senior Live Fire Trainer, that soldiers or crews assessed for safety violations crews have received sufficient remedial safety instruction to correct safety deficiencies prior to participating in subsequent live fire missions.

5. Unlike Force-on-Force, casualties will not remove their helmets, casualties must remain in the area where they were "killed" until they are evacuated. OCs may direct wounded crew members to remain in their vehicles for safety reasons.

### 12-18 Serious Incident/Emergency Situation Procedures

1. Red pyrotechnics are only used to signal an actual emergency.

2. A red star cluster or red smoke signifies that an emergency situation or a serious accident has occurred. All personnel and equipment will halt movement and cease all live fire activities until directed to resume operations.

3. There is no change in MEDEVAC Procedures from Force on Force Operations.

### 12-19 Serious Incident Reports

Rotational units will report the following incident through the rotational chain of command to the 52<sup>nd</sup> ID (M)/ X Corps TOC and to unit observer controllers.

- Any accident involving personal injury or vehicle damage.
- Any vehicle fire or flarebacks.
- Any damage to the weapon system due to firing.
- Any accident involving petroleum, ammunition, pyrotechnic, or demolitions.
- Any other emergency or unusual incident which could have caused injury, severe damage, or loss of life
- Improper target ID and engagement
- Any unexploded ordnance.

### 12-20 Off Limits Areas

Refer to Chapter 1. The following areas are off-limits to all rotational unit personnel, equipment, and activities in the Live Fire area of operations:

1. 450 meters from all fixed structures. This includes all Live Fire antennas.
2. Dry lake beds: Drinkwater Lake (NV424283), No Name Lake (NV473218), Nelson Lake (NV204208), Red Pass Lake (NK583028), Leach Lake Area (North of E-W Grid NV33).
3. Hard surface improved dirt roads are off-limits to tracked vehicles. (Barstow-Granite Road, Silver Lakes Road, and East Range Road). Use tank trails adjacent to these main roads.
4. Live Fire Operations bunker/theater (NV465277 and NV475273), antenna/camera sites and the OC field support site (NV487275). Exceptions granted only when specifically directed by an OC.
5. Target pits and demolition pits.
6. Archaeological sites which are areas marked with single strand barbed wire "cattle fence" and tactical warning signs.
7. Any area which has a sign posted "Off Limits to Rotational Personnel and Equipment".
8. Combat vehicles without radio systems cannot move independently. No CB, short wave, cellular phones or other transmitting civilian radios will be used in the live fire area.

a. When a rotational unit is executing Brigade level operations, the 52 ID (M) TAC will use the 52d ID (M) "TAC" call sign on the Division CMD/O&I/Fire Support Nets.

b. Use of alternate frequencies and physically switching to alternate frequencies must be coordinated through the 52 ID (M) TAC prior to execution.

## GLOSSARY

**ATWESS:** A device installed in weapons that simulates the back blast, flash noise, and smoke of a TOW, VIPER, or DRAGON firing.

**Audio Visual Cue Device:** A device that Provides flash and noise when a vehicle is hit to provide cue to attacker that a hit has occurred.

**Chemical Agent Alarm Simulator (CAAS):** A device that simulates the M8A1 Chemical Agent Alarm during a SAWE/MILES II exercise.

**Combat Vehicle Kill Indicator:** A MILES device attached to vehicles to provide external flashing light. Indicates that vehicle is under opposing fire "Near Miss", "Hit", or "Killed".

**Console:** SAWE/MILES II device that contains the electronics of the vehicle system, including the computer. A readout provides exercise information.

**Controller:** An individual to enforce Rules of Engagement. Ensures all individuals operate within the spirit of MILES exercises, support simulation of indirect fire, and collect information for use during After Action Reviews.

**Controller Gun:** A device used to test MILES detector systems. Also used to disqualify soldiers or vehicles from an exercise.

**Fastener Tape:** Hook and pile tape (Velcro) used to hold detector assemblies and other MILES equipment in place.

**FLASHWESS:** A device that simulates the flash of the 25mm cannon firing. Not used with ATWESS.

**Global Positioning System (GPS):** A navigation system that uses satellites to locate the position of participants in SAWE/MILES II exercises.

**"Hit":** Simulated contact by opposing direct fire systems insufficient to cause a Catastrophic Kill, but sufficient to cause a commo, mobility, or firepower kill.

**Immediate Reconstitution:** All personnel and equipment will be immediately re-keyed.

**"Kill":** Simulated contact by opposing fire sufficient to cause a fatality.

**Laser detector assembly:** A device that senses laser beams directed at it.

**Laser beam (MILES):** Infra Red (eye safe) laser beam which simulates weapons fire.

**Laser transmitter:** A device that sends a laser beam.

**Main Tank Gun Simulator Device:** A device that provides flash and noise to simulate tank main gun.

**Mine Effects Simulator (MES):** An electronic device that simulates antitank or antipersonnel mine.

**Mission Control Station (MCS):** The SAWE/MILES II control equipment that runs that part of combat simulation that includes indirect fire and NBC contaminants. It defines casualty areas by radio transmissions. When an infantryman is within one of those areas, he will receive either a "near miss" or "kill" signal.

**Mobility Kills:** Vehicle cannot move but can still shoot and communicate.

**"Near Miss":** A condition which indicates that the MWDD has received a laser or radio signal indicating that the wearer was almost hit or was near a casualty area, and warns the infantryman to take evasive action.

**Remote Display Assembly (RDA):** An electronic device that shows the vehicle status and ammunition supply, separate from the console, and allows inputs to the console from the loader and gunner.

**Resurrect:** The restoration of an individual, after a "kill", during a SAWE/MILES II exercise.

**Simulator:** Training devices which take the place of real equipment and which has many of its characteristics.

**Task Force Angel:** Krasnovian air assault.

**Unit Reconstitution:** Senior OC designates that a unit, or a portion thereof, will be totally replaced.

**Weapon Key, Yellow:** Carried by personnel wearing MWDDs. It is used to turn on laser transmitters. When removed from the transmitter and inserted in the MWDD key receptacle, and turned, it silences continuous "kill" alarm sounds. Removing the key from the laser transmitter deactivates the transmitter.

## **ACRONYMS AND ABBREVIATIONS**

AADCP: Army Air Defense Command Post

AAR: After Action Review

AGES: Air to Ground Engagement Simulation

AKI: Aircraft Kill Indicators

ALT: Airborne Laser Tracker

ATWESS: Antitank Weapons Effect Signature Simulator

CAAS: Chemical Agent Alarm Simulator

CVLD: Combat Vehicle Laser Detector

CVKI: Combat Vehicle Kill Indicator

DOWs: Died of Wounds

FLASHWESS: Flash Weapons Effect Signature Simulator

HUTT: Hull-to-Turret Transmitter

MES: Mine Effects Simulator

MITS: Mobile Independent Target System

MWDD: Man Worn Detection Device

ROZ: Restricted Operating Zone

SAWE: Simulated Area Weapons Effects

TCP: Tow Control Panel

VDD: Vehicle Detection Device

VISMOD: Visually Modified