NEWSLETTER

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Force Protection (SAFETY)

U.S. ARMY SAFETY CENTER

CENTER FOR ARMY LESSONS LEARNED (CALL)
U.S. ARMY COMBINED ARMS COMMAND (CAC)
FORT LEAVENWORTH, KANSAS 66027-7000

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U.S. ARMY SAFETY CENTER

FOREWORD

DECEMBER 1993

TRAINING EXCELLENCE CAC-INC

THE WINNING EDGE!

PROTECTION! SAFETY! RISK MANAGEMENT! RISK ASSESSMENT! Why are they important? This Center for Army Lessons Learned (CALL) newsletter will tell you why.

Force protection is the fourth element of combat power. Along with maneuver, firepower, and leadership, the effective application of force protection enables a commander to apply his unit's full measure of combat capability. Force protection includes many elements to include operation security (OPSEC), tactical survivability, fratricide prevention and safety. Safety is the largest element of force protection, and it overlaps many of the other elements. Yet, during conflicts in this century, more American fighting men and women have been lost to nonbattle injuries and deaths than to enemy action. Obviously, if the force is protected by fewer accidents, more combat power can be brought on the enemy. In other words, force protection (safety) protects us from ourselves.

In the spring of 1993, the United States Army Safety Center (USASC) and the National Training Center (NTC) assessed a brigade task force in force protection-related issues. Tactics, techniques, and procedures (TTP) used during the trainup for, and subsequent, NTC rotation resulted in a significantly reduced accident casualty rate. Not only did the units reduce nonbattle losses, their tactical performance was good also.

How did the units do it? This newsletter is designed to provide tactical-level commanders with the tool - risk management. The use of this tool will allow leaders to incorporate force protection into both the military decisionmaking process and the training management cycle.

A careful application of this process, and tough, realistic *TRAINING* will help ensure that your unit's combat power is always at a maximum.

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FORCE PROTECTION (SAFETY)

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The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the Department. Use of funds for printing this publication has been approved by Commander, U.S. Army Training and Doctrine Command, 1985, IAW AR 25-30.

NOTE: Any publications referenced in this newsletter (other than the CALL newsletters), such as ARs, FMs, TMs, must be obtained through your pinpoint distribution system!

Unless otherwise stated, whenever the masculine or feminine gender is used, both are intended.

INTRODUCTION

VIGNETTE

DURING AN ESCORT MISSION, A HMMWV DRIVER FELL ASLEEP WHILE DRIVING. THE VEHICLE RAN OFF THE ROAD AND OVERTURNED, INJURING THE DRIVER. THE SOLDIER HAD BEEN DRIVING FOR NINE CONTINUOUS HOURS AND ON DUTY WITHOUT SLEEP FOR TWENTY- THREE CONTINUOUS HOURS. THE VEHICLE WAS DAMAGED EXTENSIVELY AND WAS LOST TO THE COMPANY FOR SIX WEEKS FOR REPAIRS.

The Army defines an accident as: "An unplanned event or series of events that results in injury/illness to either Army or non-Army personnel, and/or damage to Army or non-Army property as a direct result of Army operations (caused by the Army)."

AR 385-40, *Accident Reporting and Records*

WHAT IS PROTECTION?

Along with maneuver, firepower, and leadership, protection is an element of combat power. When effectively applied, it provides a commander the use of the unit's full measure of combat power. It is defined as follows:

"PROTECTION CONSERVES THE FIGHTING POTENTIAL OF A FORCE SO COMMANDERS CAN APPLY IT AT THE DECISIVE TIME AND PLACE. " **FM 100-5, *Operations***

In addition to safety, protection includes tactical survivability, industrial hygiene, environmental protection, occupational health, and fratricide prevention. Although safety responsibilities overlap the other elements of protection, safety is the largest part of protection.

WHAT IS THE SAFETY COMPONENT OF PROTECTION?

"SAFETY IS PART OF ALL COMBAT OPERATIONS AND OPERATIONS OTHER THAN WAR. COMMANDERS AT ALL LEVELS SHOULD EMBRACE SAFETY AS A PRINCIPAL ELEMENT IN ALL THEY DO. SUSTAINED, HIGH-TEMPO OPERATIONS CAN PUT SOLDIERS AT RISK. STRONG COMMAND AND HIGH LEVELS OF DISCIPLINE AND TRAINING LESSEN THOSE RISKS. SAFE PROCEDURES REPRESENT A SKILL - A PRODUCT OF ENFORCED STANDARDS AND TRAINING. SAFETY IN TRAINING, PLANNING, AND OPERATIONS IS CRUCIAL TO SUCCESSFUL COMBAT OPERATIONS AND THE PRESERVATION OF COMBAT POWER." **FM 100-5, *Operations***

The fratricide avoidance component of protection is closely related to the safety component.

WHY IS THE SAFETY COMPONENT OF PROTECTION IMPORTANT?

TOPIC: **WARTIME LOSSES.**

DISCUSSION: Accidents exact a far greater toll on Army operations than most people realize. **FM 25-101,** ***Battle Focused Training,*** states that "Historically, more casualties occur in combat due to accidents than from enemy action." Accidents have caused more casualties than the enemy has in every war in this century except for the Korean War. What does this mean to you as a leader in today's Total Army? It means that accidents, that are usually preventable, reduce your ability to complete the mission.

BATTLE AND NONBATTLE CASUALTIES

RATE* PER 1,000 SOLDIERS (PERCENT)

ARMY	WWII 1942-45	KOREA 1950-53	VIETNAM 1965-72	DS/S 1990-91
ACCIDENT	95.57 (56%)	120.33 (44%)	154.66 (54%)	11.14 (75%)
FRIENDLY FIRE	1.50** (1%)	3.03** (1%)	2.67** (1%)	.68 (5%)
ENEMY ACTION	73.61 (43%)	148.56 (55%)	131.20 (45%)	2.90 (20%)

* Per 12 months for WWII, Korea, and Vietnam; 14 months for Operations DESERT SHIELD and DESERT STORM.

** Research-based estimate (2% of all direct- and indirect-fire losses).

Figure 1

Unfortunately, accidents do not just happen in a combat theater; they occur every day as we prepare to be a total force trained and ready to fight, serving the nation at home and abroad -- a strategic force capable of decisive victory.

LESSON(S):

- **Safety awareness and accident prevention must be ingrained into the thinking of all soldiers and leaders.**
- **Prevention of accidents significantly improves the unit's warfighting capability.**
- **Include force protection (safety) in all planning for training exercises and operations**
- **Identify accidents "waiting to happen" and take measures to prevent them.**

***

TOPIC: **WIN WITH MINIMAL LOSSES.**

DISCUSSION:

"WARS ARE FOUGHT WITH HUMAN BEINGS. THE COMMANDER CANNOT BE TOO CAREFUL OF THE PEOPLE THAT THE NATION HAS COMMITTED TO HIS CHARGE.

COMMANDERS AT ALL LEVELS MUST EMBRACE SAFETY AS A PRINCIPAL ELEMENT IN ALL THEY DO. SUSTAINED, HIGH TEMPO OPERATIONS THAT RUN CONTINUOUSLY DAY AND NIGHT IN ALL EXTREMES OF TERRAIN AND WEATHER IN VIRTUALLY ANY REGION OF THE WORLD PUT SOLDIERS AT RISK.

STRONG COMMAND AND HIGH LEVELS OF DISCIPLINE AND TRAINING MITIGATE AGAINST THOSE RISKS. SAFE PROCEDURES ARE A SKILL, A PRODUCT OF ENFORCED STANDARDS AND TRAINING.

WHEN SAFETY IS INTEGRAL TO BATTLE-FOCUSED TRAINING AS FORCE PROTECTION, SAFE PROCEDURES IN COMBAT ARE A NATURAL CONSEQUENCE.

SAFETY IN TRAINING, PLANNING, AND OPERATIONS IS CRUCIAL TO COMBAT OPERATIONS AND THE PRESERVATION OF COMBAT POWER."

FM 101-5, *Staff Organization and Operations*

Force Protection (Safety) in Operations

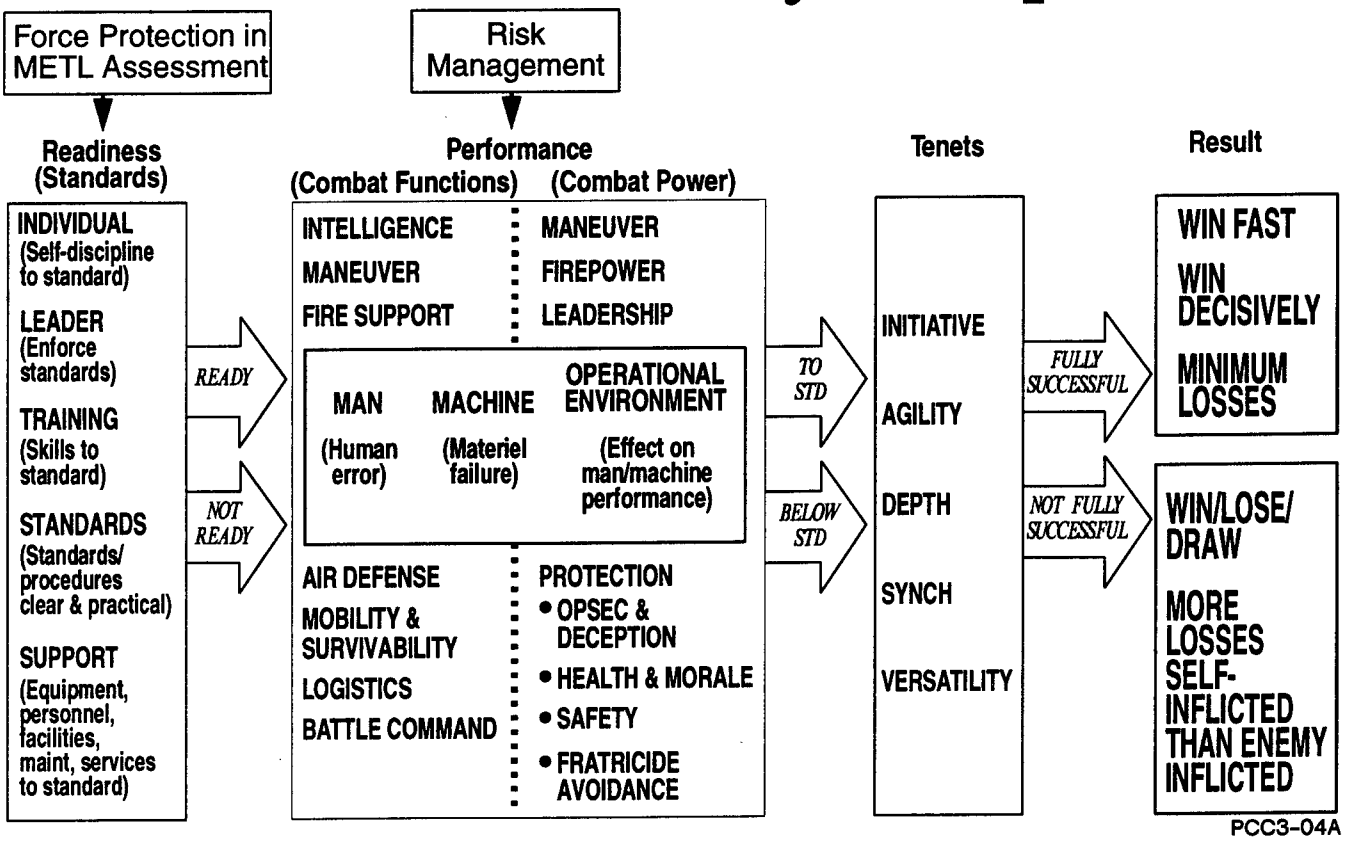

Figure 2

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CALL, in conjunction with the Army Research Institute-Presidio of Monterey Field Unit, is developing and managing an archive of materials and data derived from unit training experiences at the CTCs (less the Battle Command Training Program). The archive houses files in both hardcopy and digital formats containing records of instrumented events, take-home packages, video and audio tapes, and operational display graphics. On a quarterly basis, CALL hosts a workshop to certify researchers for access to the archive. The workshop provides training in the use of automated records retrieval, data manipulation, archiving structures, data validity and limitations, and support in operational research and systems analysis.

Due to the limited nature of the physical facility, only 12 research seats are available each quarter. To apply for a seat, an applicant must have a definitive research topic, extractable from the archive and accepted in advance by CALL, a Secret clearance, and sufficient TDY time to participate in the full workshop. The sponsoring school, agency, division, or directorate reporesentative must sign a memorandum of agreement which prohibits the direct or indirect disclosure of unit or personnel identification, and must agree to provide both CALL and the appropriate CTC Commander for review a copy of any resultant report, monogram, briefing, or article, *prior* to its release.

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The objective of safety is to help units protect combat power through accident prevention which will enable them to win fast and decisively, with minimum losses. Safety begins with readiness, and readiness determines a unit's ability to perform its mission essential task list (METL) to standard. Readiness standards which should be addressed during METL assessment are:

- **Individual** soldiers with the self-discipline to consistently perform tasks to standard.
- **Leaders** who are ready, willing, and able to enforce standards.
- **Training** that provides skills needed for performance to standard.
- **Standards** and procedures for task performance that are clear and practical.
- **Support** for task performance, including required equipment, personnel, maintenance, facilities, and services.

Ready units are prepared to perform combat functions to standard while executing their METL.

These functions provide organization and direction to the performance of soldiers (man) and equipment (machine) on the battlefield (operational environment). Combat functions produce the combat power needed when soldiers and equipment perform to standard in the operational environment:

- Soldier errors are minimized.
- Equipment failures are minimized.
- Negative effects of the environment on performance of soldiers and equipment are minimized.

Efficient and effective performance leads to fully successful operations that are characterized by the tenets. This produces the desired result of winning fast, winning decisively, and with minimal losses.

On the other hand, units that are not ready leads to performance that is below standard, and less than fully successful operations that are not characterized by the tenets. Win, lose, or draw, more losses are self-inflicted by accidents than are inflicted by the enemy. This happens when the safety element of force protection is not fully integrated into operations.

LESSON(S):

- **Include the safety element of protection in the unit METL assessment.**
- **Ensure that individual soldiers are trained to standard and self-disciplined enough to perform tasks to standard.**
- **Leaders must enforce standards at all times.**
- **Ensure that all soldiers and subordinate leaders know and understand the standard.**
- **Leaders must provide the necessary equipment, time, and other resources so that soldiers can be trained safely.**

VIGNETTE

DURING CONVOY OPERATIONS, THE DRIVER OF A DUMP TRUCK APPLIED THE BRAKES IN RESPONSE TO A SUDDEN STOP OF THE VEHICLE IN FRONT. THE BRAKES MALFUNCTIONED, RESULTING IN A COLLISION. THE DRIVER HAD FAILED TO PROPERLY CONDUCT PMCS BEFORE THE CONVOY.

WHAT DO WE NEED TO FIX?

TOPIC: **PROTECTION READINESS.**

DISCUSSION: Protection readiness is:

> **"The ability of personnel and equipment to efficiently, effectively, and safely perform their mission in the operational environment. This ability is determined by: self-discipline of individual soldiers; enforcement of standards by leaders; individual/collective training to standard; procedures/standards that are clear and practical; and support activities/operations that are to standard."**
>
> **Director of Army Safety**

Human error causes approximately 80 percent of all training and combat accidents. These mistakes happen for a number of reasons. Most can be avoided if proper risk management techniques are used. The sources of human error accidents can be traced to shortcomings in the five elements of readiness.

Individuals who know the standard and are trained to standard, but elect not to follow the standard cause 48 percent of the errors. Soldiers fail to follow the standard for a number of reasons: attitude, overconfidence, haste, fatigue (self-induced), and alcohol or drugs.

Eighteen percent of errors are due to leadership; that is, leaders that know the Army standard, but do not enforce it. Deficiencies in direct, unit command, and higher command supervisional techniques are all contributors. Leaders must be ready, willing, and able to enforce known standards.

> Individual and leader failures account for two-thirds of all errors. These two readiness shortcomings are attitude-based and indicate a poor command climate for protection.

Training shortcomings cause 18 percent of all errors. Soldiers are often not trained to a known standard because of insufficient, incorrect, or nonexistent training on a given task at either the schools or unit, or the soldier does not have the required experience.

Unclear, impractical, or nonexistent standards and procedures cause 8 percent of all errors.

The last source of human error is support. Accounting for 8 percent of human error, support is defined as equipment or materiel that is improperly designed or not available; an unit has an insufficient number or type (MOS) of personnel; or has inadequate maintenance or facilities or services.

VIGNETTE

An infantry battalion had convoyed to an assembly area in preparation to be airlifted. The Air Force crew had difficulty getting the S-1 section's vehicles -- two HMMWVs with a water buffalo between them -- loaded and properly secured on the C-130. When the crews finished loading and securing the vehicles and cargo, they let the passengers board.

"There were 10 of us, and there wasn't much room," says the NCOIC. "I warned my guys, 'Don't sit around these vehicles; I don't trust them.' I had a clerk move from between the water buffalo and the rear HMMWV. As the aircraft started to taxi, I woke another soldier who was lying in the rear of the forward HMMWV with his legs hanging out the rear of the truck and had him move his legs inside the vehicle."

Just as the C-130 lifted off the ground, the water buffalo broke loose, rolled back, and slammed into the rear HMMWV, breaking its chains and causing both to slam into the rear ramp of the aircraft. The aircrew quickly alerted the flight crew. The pilot immediately set the aircraft back down and braked hard. Both loose vehicles rolled forward, slamming into the truck in the front of the cargo bay.

"There was no serious damage to the vehicles," said the NCOIC, "but I was glad that our soldiers had not been between the trucks or trailers."

LESSON(S): By recognizing a hazard and doing something about it, this NCO prevented almost-certain serious injury or death. Because he enforced the standards, this unit was able to go on and accomplish its mission. Most of the time, when leaders enforce standards by on-the-spot correction, the reward is just the personal satisfaction of knowing that we have done our job as leaders. We never know for sure that our action had a tangible return of protecting a soldier from injury or equipment from damage.

TOPIC: **MOST PROBABLE HUMAN ERROR PROBLEM AREAS.**

DISCUSSION: Research has found that there are seven frequent types of accidents which occur during the normal duty day, during training exercises, and during combat operations. These types of accidents are all caused by the five readiness shortcomings previously discussed. These readiness shortcomings have led to approximately 50 problem areas that have consistently caused accidents in exercises and operations in garrison, at the local training area, at the Combat Training Centers (CTCs), during large-scale training exercises, and in operations such as DESERT SHIELD and DESERT STORM. The most critical of these problem areas are:

→ **DRIVER ERROR (WHEELED VEHICLES)**
Excessive Speed
Following to Close

→ **CREW ERROR (TRACKED VEHICLES)**
Before/During/After Operation (PMCS) Checks
Crew Coordination and Communication

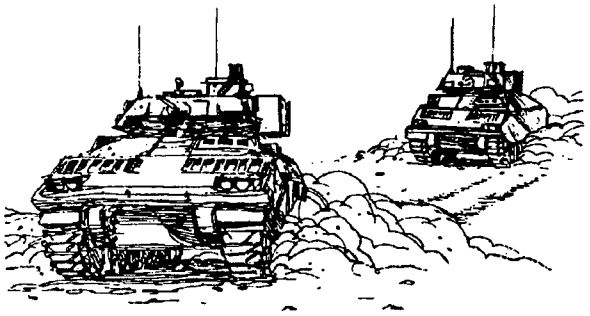
→ **WEAPONS HANDLING ERROR**
Unauthorized Use or Handling of Duds
Assembling/Cleaning/Disassembling (Improper Clearing)

→ **MAINTENANCE ERROR**
Improper Use of Tools and Equipment
Improper Lifting

→ **MATERIEL HANDLING ERROR**
Improper Techniques
Environmental Hazards

→ **COMBAT SOLDIERING ERROR**
Improper Parachute Landing Falls (PLFs)
Traversing Terrain under Adverse Environmental Conditions
Camouflaging

→ **NIGHT CREW ERROR (ROTARY WING)**
Scan
Coordinate



The following vignettes are examples of critical problem areas:

VIGNETTE

A DRIVER OF A HEMMT WAS PART OF A CONVOY. HE BEGAN SPEEDING TO CLOSE THE GAP BETWEEN HIS VEHICLE AND THE TRUCK AHEAD. NOT REALIZING THE CONVOY HAD STOPPED, HE REAR-ENDED THE TRUCK.

VIGNETTE

DURING A ROAD MARCH, THE CONVOY CAME TO A SUDDEN STOP. THE HEMMT DRIVER HAD FAILED TO MAINTAIN AN INTERVAL LARGE ENOUGH TO MAKE A CONTROLLED EMERGENCY STOP AND COLLIDED WITH THE VEHICLE IN FRONT.

VIGNETTE

AN M1A1 LOADER FAILED TO ENSURE THE HATCH WAS LOCKED OPEN BEFORE THE TANK MOVED. THE HATCH CAME DOWN WHILE THE VEHICLE WAS MOVING, INJURING HIS HAND.

VIGNETTE

WHILE WAITING FOR THE TANK TO BE REFUELED, THE TC DECIDED TO MOVE THE MAIN GUN TUBE. HE FAILED TO CONFIRM THAT CREWMEMBERS WERE CLEAR BEFORE ELEVATING THE TUBE (POSITIVE COMMUNICATION). WHEN THE GUN WAS ELEVATED, THE BREACH STRUCK THE GUNNER IN THE KNEE, FRACTURING HIS KNEECAP.

VIGNETTE

A SOLDIER WALKED FROM A HALTED CONVOY TO AN ABANDONED ENEMY FIGHTING POSITION AND RETURNED CARRYING AN MLRS BOMBLET. THE BOMBLET EXPLODED IN HIS HANDS, KILLING TWO SOLDIERS AND INJURING ANOTHER.

VIGNETTE

A SOLDIER WAS CLEANING THE LOWER RECEIVER GROUP OF HIS M16A2 WITH A WEAPONS CLEANING BRUSH. THE BRUSH ENGAGED THE TRIGGER AND THE WEAPON DISCHARGED WOUNDING HIS LEG. THE WEAPON HAD NOT BEEN PROPERLY CLEARED.

VIGNETTE

A SOLDIER WAS CUTTING A PLASTIC CABLE WITH THE KNIFE BLADE POINTING TOWARD HIM. WHEN THE CABLE SNAPPED, THE SOLDIER LOST CONTROL OF HIS ARM, AND THE KNIFE STABBED HIM IN THE EYE.

VIGNETTE

WHEN LIFTING A TRAILER TIRE, A SOLDIER FAILED TO GET HELP, AND STRAINED THE MUSCLES IN HIS FOREARM.

VIGNETTE

A SOLDIER FAILED TO DRINK SUFFICIENT FLUIDS IN THE EXTREME HEAT AND SUFFERED DEHYDRATION.

VIGNETTE

WHILE PARTICIPATING IN A NIGHT TACTICAL PARACHUTE JUMP, A SOLDIER FAILED TO KEEP HIS FEET AND KNEES TOGETHER. WHILE HITTING THE GROUND, HE TURNED HIS ANKLE AND WAS LOST FOR THE REMAINDER OF THE TRAINING EXERCISE.

VIGNETTE

A SQUAD WAS CONDUCTING A PATROL AT NIGHT IN ADVERSE WEATHER CONDITIONS. AS THE SOLDIERS WALKED DOWN A HILL, THEY SLIPPED ON THE WET ROCK. SEVERAL SOLDIERS WERE INJURED. THE PATROL LEADER FAILED TO MAKE ADJUSTMENTS FOR TERRAIN AND WEATHER CONDITIONS.

VIGNETTE

WHILE ON TOP OF A LANCE MISSILE CARRIER (M667), A SOLDIER FAILED TO MAINTAIN THREE POINTS OF CONTACT. AS HE REACHED DOWN TO RETRIEVE CAMOUFLAGE NETTING, THE SOLDIER LOST HIS BALANCE, FELL OFF THE VEHICLE AND INJURED HIS BACK.

VIGNETTE

DURING CLIMBOUT FROM A TAKEOFF ON A NVG TRAINING FLIGHT, BOTH THE PILOT AND THE COPILOT OF A UH-1H CHANNELIZED THEIR ATTENTION INSIDE THE AIRCRAFT TO TURN ON AND SET THE RADAR ALTIMETER (WHICH SHOULD HAVE BEEN DONE BEFORE TAKEOFF). NEITHER PILOT MONITORED ALTITUDE OR OBSTACLE CLEARANCE. AS A RESULT, THE AIRCRAFT WAS ALLOWED TO DESCEND INTO TERRAIN.

VIGNETTE

WHILE ON A NIGHT-UNAIDED TACTICAL MISSION IN MARGINAL WEATHER, AT 100 FT ABOVE WATER, AN OH-58 PILOT IN COMMAND (PIC) ATTEMPTED TO FLY OUT OF A THUNDERSTORM. WITHOUT DIRECTING ASSISTANCE FROM THE COPILOT FOR INSTRUMENT CROSSCHECKS, THE PIC ATTEMPTED SEVERAL TASKS BY HIMSELF: RADIO CALLS, INSTRUMENT CROSSCHECKS, AND RESETTING FORCE TRIM. AS A RESULT, THE PIC BECAME TASK-SATURATED, DID NOT NOTICE THE LOSS OF ALTITUDE, AND ALLOWED THE AIRCRAFT TO DESCEND INTO THE WATER.

LESSON(S): Commanders should focus prevention efforts on the most probable problem areas rather than all possible problem areas.

HOW CAN WE FIX IT?

TOPIC: **IDENTIFY AND CONTROL HAZARDS (RISK MANAGEMENT).**

DISCUSSION: The terms ***risk management*** and ***risk assessment*** are often used synonymously, when in fact, they are different. These terms are not synonymous. It is time to set the record straight.

RISK MANAGEMENT is a tool that helps leaders make sound logical decisions. Management is a term that leaders do not want to use because leaders do not manage, they ***LEAD.*** But when used in a positive command climate, risk management can become a mindset that governs all unit missions and activities.

Risk management enables leaders at all levels to do exactly what the term implies: ***manage risk.*** Safety risk management is a specific type of risk management.

Risk management, in theory, is a five-step cyclic process that is easily integrated into the decisionmaking process outlined in **FM 101-5, *Staff Organization and Operations.*** The decisionmaking process readily lends itself to safety risk management as a separate consideration. Safety risk management is not a new tool that leaders should use. It is an extension of the decisionmaking process which is already ingrained in military leaders.

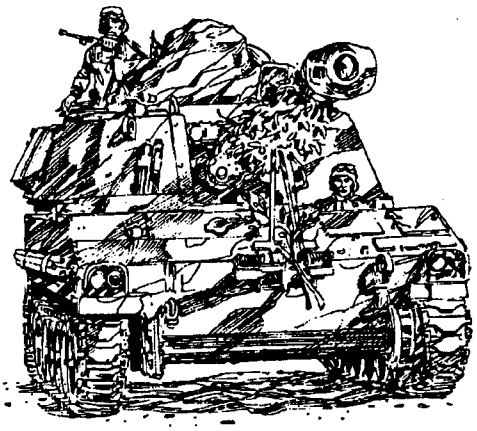
RISK ASSESSMENT is a part of risk management. It can range from simple to complex. It can be done formally, during the deliberate planning process, or informally, while conducting a hasty plan. A risk assessment causes leaders to identify hazards and threats and place them in perspective relative to the mission or task at hand. Logically, one cannot identify the risk without first determining what the hazards are.

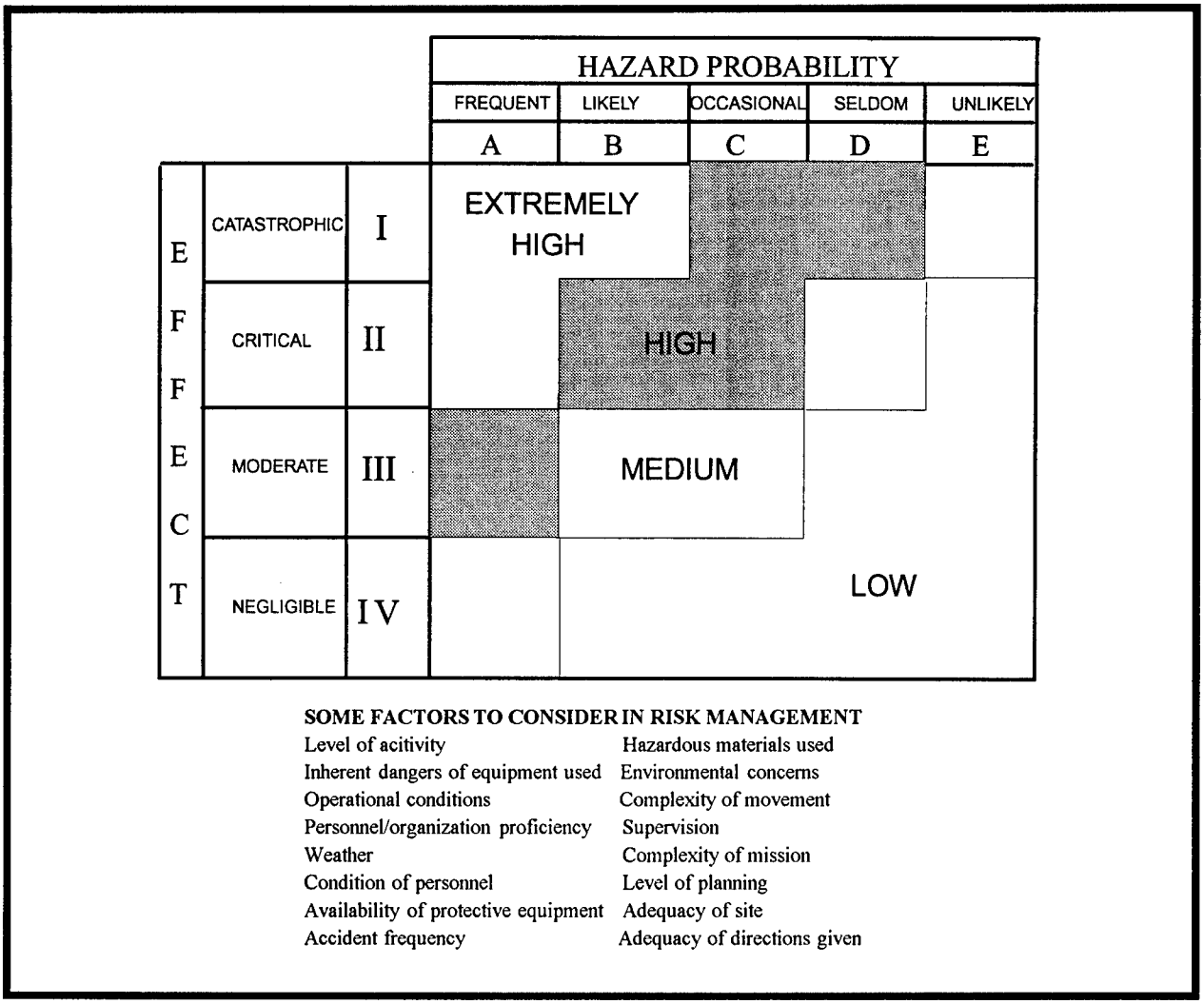
The risk management process consists of **FIVE** steps: identify hazards, assess hazards, make risk decisions, implement controls and supervise.

IDENTIFY HAZARDS: Identify the most probable hazards for the mission. Hazards are conditions with the potential of causing injury to personnel, damage to equipment, loss of materiel, or lessening of ability to perform a task or mission. The most probable hazards are those created by readiness shortcomings in the operational environment. As depicted in Figure 2, these hazards impact on man and machine. The human error problem areas discussed in the previous section are generic examples of those hazards. When a list of frequently recurring hazards (see Appendix K) is applied to a specific task or mission, the most probable hazards can be identified.

ASSESS HAZARDS: Once the most probable hazards are identified, analyze each to determine the probability of its causing an accident and the probable effect of the accident. Also, identify control options to eliminate or reduce the hazard. A tool to use is the Army Standard Risk Assessment Matrix (Figure 3). See next page.

MAKE RISK DECISIONS: Weigh the risk against the benefits of performing the operation. Accept no unnecessary risks, and make any residual risk decisions at the proper level of command.





SOME FACTORS TO CONSIDER IN RISK MANAGEMENT

Level of acitivity	Hazardous materials used
Inherent dangers of equipment used	Environmental concerns
Operational conditions	Complexity of movement
Personnel/organization proficiency	Supervision
Weather	Complexity of mission
Condition of personnel	Level of planning
Availability of protective equipment	Adequacy of site
Accident frequency	Adequacy of directions given

Figure 3

EFFECT

1. **CATASTROPHIC** Death or permanent total disability, system loss, major property damage.

2. **CRITICAL** Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.

3. **MARGINAL** Minor injury, lost workday accident, compensable injury/illness, minor system damage, minor property damage.

4. **NEGLIGIBLE** First aid or minor supportive medical treatment, minor system impairment.

PROBABILITY

A. **FREQUENT**

Indiv Soldiers/Item Occurs often in career/equipment service life.
All Soldiers Exposed or Continuously experienced.

B. **LIKELY**

Indiv Soldiers/Item Occurs several times in career/equip service life.
All Soldiers Exposed or Occurs frequently.

C. **OCCASIONAL**

Indiv Soldiers/Item Occurs sometime in career/equip service life.
All Soldiers Exposed or Occurs sporadically or several times in inventory service life.

D. **REMOTE**

Indiv Soldiers/Item Possible to occur in career/equip service life.
All Soldiers Exposed or Remote chance of occurrence; expected to occur sometime in inventory service life.

E. **UNLIKELY**

Indiv Soldiers/Item Can assume will not occur in career/equipment service life.
All Soldiers Exposed or Possible, but improbable; occurs very rarely.

NOTE: Unit experience and exposure affect probability of occurrence.

RISK LEVELS

EXTREMELYHIGH RISK: Loss of ability to accomplish mission.

HIGH RISK: Significantly degrades mission capabilities in terms of required mission standards.

MEDIUM RISK: Degrades mission capabilities in terms of required mission standards.

LOW RISK: Little or no impact on accomplishment of mission.

RESIDUAL RISK: Risk remaining after risk reduction efforts.

IMPLEMENT CONTROLS: Integrate specific controls (identified in step two above) into plans, OPLANs, OPORDs, SOPs, and rehearsals. Communicate controls down to the individual soldier.

SUPERVISE: Determine the effectiveness of controls in reducing the probability and effect of identified hazards. Ensure that risk control measures are performing as expected. Include follow-up during and after action to ensure all went according to plan, reevaluating or adjusting the plan as required, and developing lessons learned.

How can my soldiers get hurt, and what can I do about it???

VIGNETTE

A low-risk maintenance operation was suddenly turned into a high-risk operation when a driver parked a 2 1/2-ton truck on a downhill slope about 15 feet from a Bradley Fighting Vehicle (BFV). It was a normal working day. The battalion had just returned from a lengthy field training exercise (FTX), and the battalion's maintenance shops were full of equipment in need of repair. One soldier was cleaning the engine compartment of the BFV so it could be inspected by a mechanic.

When the driver parked the 2 1/2-ton truck on the hill, he set the hand brake, but didn't chock the wheels. He got out to get a cup of coffee, telling the assistant driver not to move the vehicle, but to come get him when the steam cleaner was available. Ignoring the instructions he had received, the unqualified assistant entered the cab and started the vehicle. It lunged forward, pinning the driver of the BFV against the vehicle. The stunned assistant had to be told to back the truck off the BFV driver who died as a result of his injuries.

The direct cause of the accident was an unlicensed, untrained driver who disobeyed his NCO's instructions. However, the NCO himself set the scenario for this tragedy. There are always hazards associated with parking a heavy vehicle on a downhill slope. There are hazards when these vehicles are left unchocked and dependent solely on parking brakes. And there are hazards whenever untrained, unlicensed operators are involved. This leader allowed hazards to pile one on top of another because he did not enforce standards. Unchecked, these hazards were combined with a soldier having a "can-do" attitude and his failure to follow instructions which turned a seemingly low-risk operation into a high-risk operation.

LESSON(S): RULES FOR RISK MANAGEMENT:

- → **Integrate risk management into planning.**
- → **Accept no unnecessary risk.**
- → **Make risk decisions at the proper level.**
- → **Accept risk if benefits outweigh the cost.**

WHAT'S BEING DONE TO FIX IT?

TOPIC: **INTEGRATE RISK MANAGEMENT INTO TRAINING AND OPERATIONS.**

DISCUSSION: If risk management is to become a tool to address the root causes (readiness shortcomings) of accidents, then it must become a routine part of our everyday business. It must assist commanders and leaders in not only identifying what the next accident is going to be, but it must also help identify who will have the next accident. This can be accomplished with a thorough understanding of risk management and the following integration requirements:

- **Institutionalizing risk management training.**
- **Integrating protection (safety) into commander's METL training assessment.**
- **Making awareness of wartime and peacetime accidents a condition of training.**
- **Instituting protection (safety) performance indicators.**
- **Integrating protection (safety) assessment into after-action reviews and lessons learned.**

We've already seen how risk management has become a part of our CAPSTONE doctrine in previous sections. Figure 4 (see page 17), modified from **FM 25-100, *Training the Force,*** and **FM 25-101, *Battle-Focused Training,*** shows how risk management can be integrated into our training and training doctrine. This directly addresses the integration of protection (safety) into the commander's METL training assessment and assists greatly with the institutionalization of risk management training. Ways of accomplishing the protection (safety) requirements in the training management cycle will be addressed in the next section.

Risk management training is being integrated into all Professional Military Education (PME) in the U. S. Army. The U. S. Army Training and Doctrine Command (TRADOC) has made significant progress in accomplishing this monumental task. The following is a brief synopsis of the current training status:

- **The Non-Commissioned Officer Education System:** Risk assessment/management (RA/M) is taught as a stand-alone or fully integrated subject at PLDC through CSMC.
- **The Warrant Officer Education System:** RA/M is scheduled for immediate implementation at all WOCS, WOBC, WOAC, and WOSC. Standardized training packages are under development.

- **Precommissioning (MQS 1) and Officer Basic and Advanced Courses (MQS 2):** RA/M is taught as a stand-alone or fully integrated subject for all Pre-Commissioning, Officer Basic, and Advanced Courses.

- **CAS^3 (Command and Staff Service School):** CAS^3 has been incorporating RA/M into its curriculum in increments since August 1993.

- **CGSC (The Command and General Staff College):** CGSC began full and complete implementation of RA/M into its curriculum at the beginning of instruction for class 93/94.

- **PCC (Pre-Command Course):** Both the Fort Leavenworth and branch phases of PCC include RA/M training.

- **The Army War College:** Integration of risk management into the curriculum has been completed.

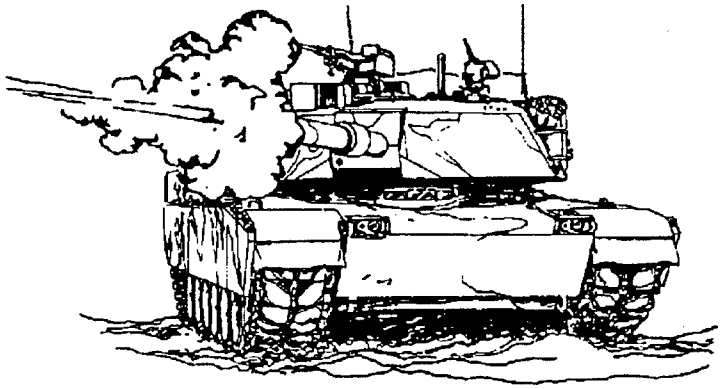
LESSON(S): The Army's senior leadership is taking protection seriously; unit commanders, leaders, and soldiers should also.

WHAT CAN I DO NOW IN MY UNIT?

TOPIC: **PLANNING.**

DISCUSSION: The integration of protection (safety) into unit training has been successfully tested at the brigade level during the spring of 1993. This test followed the training management cycle from **FM 25-101, *Battle-Focused Training,*** as shown in Figure 4 on page17.

Actions shown in the shaded areas were accomplished by a brigade in its trainup exercises for an NTC rotation and during the rotation. Listed below are the actions accomplished. The tools used are included in the appendices. You can do this in your unit now.



FORCE PROTECTION IN TRAINING MANAGEMENT CYCLE (FM 25-100 & FM 25-101)

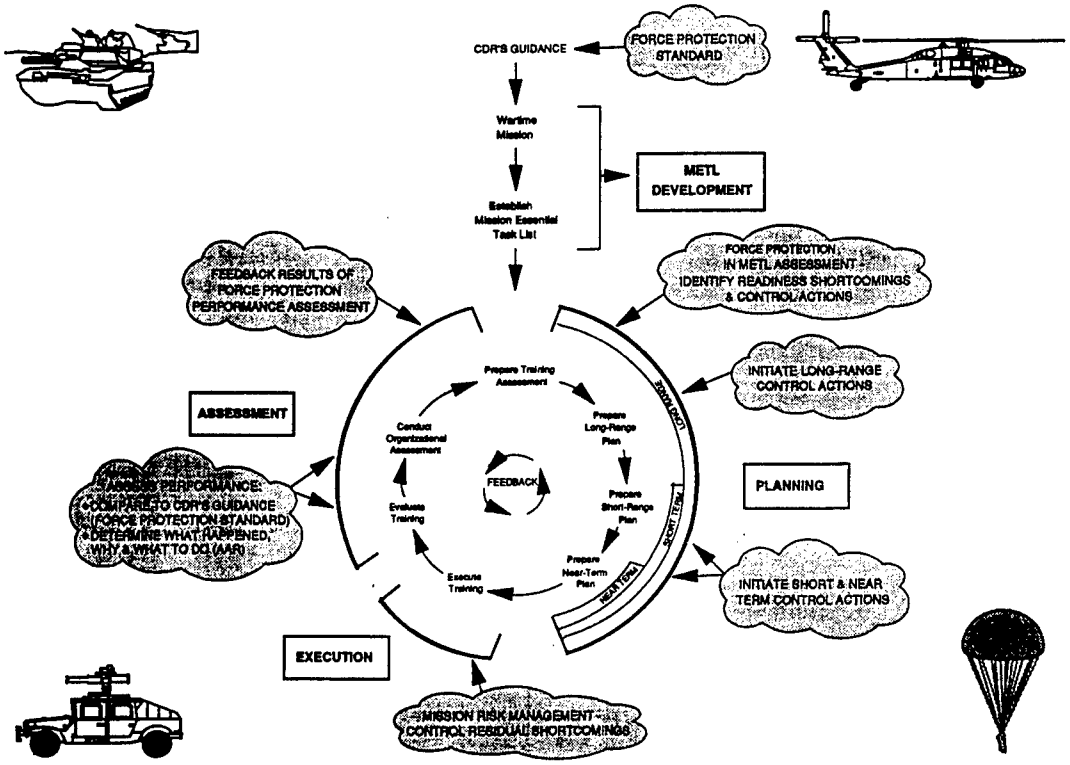


Figure 4

* **Commander's guidance** -- The commander can include safety goals, objectives, and priorities in his training guidance. A generic example is at Appendix A. A specific example targeting the most probable problem areas is at Appendix B. Risk management guidance was addressed as shown in Appendix C. Both of these "real world" examples were included in the brigade's tactical SOP. Additionally, the commander's safety guidance was summarized in a 15-page pocket-sized booklet that each soldier was required to carry at all times.

* **Protection assessment** -- As part of the commander's training assessment, a safety assessment should be conducted. The objective is to identify shortcomings in the five elements of readiness and to identify actions to correct and control the shortcomings. The assessment procedure is as follows:

1. **Use diagnostic tools.** Develop and administer a quiz that will assess soldier knowledge of safety rules for garrison, FTX, and CTC operations the unit will conduct. This will identify safety training requirements. For example, an extract of NTC safety rules is at Appendix D, and sample questions are at Appendix E. Each soldier should be required to get a passing grade on the safety rules quiz to be safety certified to participate in FTXs or CTC exercises. A complete study guide and quiz (one for ground operations and one for aviation) for the NTC and the JTRC can be obtained from the U.S. Army Safety Center. Then administer the "Next Accident Assessment" to estimate the risk of human error accidents and identify the sources in readiness shortcomings. There are two assessments: one for individual soldiers and one for commanders and leaders. Both, along with instructions, can be obtained from the U.S. Army Safety Center. The assessment for commanders and leaders was featured in the Spring 1993 *NCO Journal,* and a completed example is at Appendix F.

2. **Conduct observations.** Observe the unit's combat functions and METL training in action. Interview commanders, key leaders, and soldiers. Review the training guidance of the unit and that of the next higher level, e.g., battalion and brigade or brigade and division. The objective is to obtain information about the status of each of the five elements of readiness. An example list of areas and indicators to observe is at Appendix G.

3. **Analyze and record data.** Organize findings from the safety assessment into an "observation" format. That is, each finding should identify a strength or a weakness, the METL affected, readiness element(s) responsible, and any recommendations to improve readiness strengths or correct readiness shortcomings. Example observations are at Appendix H.

4. **Develop input to commander.** Convert observations into input for the commander's training assessment. An example is at Appendix I. The commander can then select and implement long-range, near-term, and short-term options to control accident risk as part of the training management process.

Planning for protection was used by this brigade in its preparation for an NTC rotation. The steps described above were accomplished before the unit's trainup period for the rotation.

LESSON(S): By applying the risk management procedures described above, during training and operations, the unit is better able to conserve its resources so that combat power can be used on the battlefield.

***

TOPIC: **EXECUTION.**

DISCUSSION: When the mission (FTX, CTC, or combat operation) is being executed, risk management must be integrated into the decisionmaking process to control residual readiness shortcomings. The procedure and tools described below provide the staff and commander a thought process to protect the force from accidental losses of combat power without compromising the mission.

1. **Hasty risk assessment.** As shown on page 1 of Appendix J, a staff officer uses METT-T facts to complete a risk assessment matrix for each course of action (COA). The accident risk level of each COA is then entered into the decision matrix as a mandatory criterion for the commander to consider in COA selection.

2. **Deliberate risk management.** After the commander selects the COA, he decides whether or not to accept the accident risk level. Regardless of the risk level, each staff officer identifies controls to reduce the risk of the most severe and most probable accidnets in his functional area for the selected COA. The worksheet at pages J-2 and J-3 of Appendix J can be used by each staff officer to identify controls for each METL mission prior to deployment. A ready reference is then available for each staff officer to select, tailor and recommend controls that will reduce the mission's accident risk level. The commander decides which proection controls he wants implemented and informs the staff when presenting his concept of the operation. each staff officer then enters the controls approved by the commander into the appropriate part of the operation order. The commander and staff then monitor and enforce implementation of the controls.

LESSON(S): During the planning process, the staff must identify the most probable hazards the unit will face and plan for appropriate controls that will either eliminate the hazards or reduce its risk. Deliberate risk assessment is the means to identify both hazards and controls.

***

TOPIC: **ASSESSMENT.**

DISCUSSION: Performance on the safety element of protection should be systematically observed during training and assessed afterwards. The objective is to ensure information provided the commander is sufficient for him to evaluate the unit's safety performance and then feed back into the training management cycle needed risk-control changes. The procedure is as follows:

1. **Assess risk management.** Unit leadership should assess the use of risk management using the flow chart of questions at Appendix L. When a unit is training at one of the CTCs, Observer Controllers (OCs) should assess the unit's use of risk management for each training mission.

2. **Observe safety violations and determine readiness shortcomings.** Unit leadership and OCs should detect and make on-the-spot corrections for safety violations. Also, by questioning individuals involved, they should determine the readiness shortcoming(s) responsible for each violation considered significant (potentially serious injury or equipment damage). At Appendix M is a flow chart of questions to use to determine the readiness shortcoming(s).

3. **Record safety violation data.** At appendix N is a card format, with six examples, on which information can be recorded about observed individual safety violations.

4. **Develop safety performance assessment for the commander.** For each mission, information about risk management and safety violations recorded should be developed into a chart that summarizes significant strengths and weaknesses observed. See example at appendix O. The most important information from this chart should be briefed to the commander in preparation for the next mission (emphasis or changes to hazard control actions).

5. **Develop feedback for training management process.** At the end of the exercise, analyze the protection (safety) performance charts from each mission and consolidate the most significant strengths and weaknesses (see example at appendix P). When briefed to the commander, the most important data from this end-of-exercise chart should provide the information necessary to assess the unit's safety performance and identify readiness shortcomings that need increased emphasis or different controls (long range, short term, and near term).

LESSON(S): Units must assess their protection performance during training missions, record the results, analyze the problems, develop safety performance COAs for the commander, and then insert feedback into the training management process. Tactical commanders must investigate fratricides and accidents. It should be noted that fratricide is a special type of accident and will be investigated IAW AR 385-40. This investigation has precedence over any other type investigation unless criminal intent is discovered. Investigation of all accidents is a tool to focus commanders on cause factors and prevention. Accident investigation reports will determine cause factors and their sources in readiness shortcomings, derive lessons learned, and assist commanders in developing countermeasures for the prevention of fratricides and other types of accidents.

WHAT RESULTS CAN I EXPECT?

Some form of the protection (safety) procedures and tools described above will be integrated into the Army's doctrine, training and operations. Effort and a change in thinking will be needed for a unit to successfully implement these procedures and tools. Why should a unit do this now? Why not wait until it is required? As mentioned earlier, these procedures and tools were tested at the brigade level and the results were as follows:

TOPIC: **HOME-STATION TRAINING.**

DISCUSSION: A mechanized infantry brigade task force (4,800 soldiers) conducted four FTXs as trainup for an NTC rotation. The average FTX lasted 23 days. The brigade averaged four accidents and three injuries which produced a casualty rate of only .63 per 1,000 soldiers.

An aviation brigade, from the same division, began using the procedures and tools at the same time as the mechanized infantry brigade. In the preceding 6 months, the aviation brigade had experienced two aircraft accidents that caused two deaths, two injuries and $13.8M in costs. During the six-month trainup for the NTC rotation, the brigade reduced its aviation accidents to zero.

LESSON(S): By applying the procedures advocated in this newsletter, the units listed above were able to reduce the number of accidents and injuries in training. These procedures add to the planning process a focus that allows the unit to be better prepared to accomplish a given mission.

***

TOPIC: **CTC TRAINING (NTC).**

DISCUSSION: The mechanized infantry brigade experienced seven class C accidents with only four minor injuries for a casualty rate of .83 per 1,000 soldiers. This was the best rate achieved by a brigade from this division at the NTC for at least 10 years. Compared to a typical NTC rotation rate of 3.52, this brigade's protection efforts resulted in a 76 percent better safety performance.

During the NTC rotation, the aviation brigade experienced no aircraft accidents and thus continued its outstanding performance.

LESSON(S): These brigades also achieved good battle results at NTC indicating that the command emphasis on protection did not detract from tactical performance (and probably enhanced it). If you are a commander, are you prepared to accept the risk of not implementing these protection procedures and tools?

VIGNETTE

DURING AN ESCORT MISSION, A HMMWV DRIVER FELL ASLEEP WHILE DRIVING. THE VEHICLE RAN OFF THE ROAD AND OVERTURNED, INJURING THE DRIVER. THE SOLDIER HAD BEEN DRIVING FOR NINE CONTINUOUS HOURS AND HAD BEEN ON DUTY WITHOUT SLEEP FOR TWENTY-THREE CONTINUOUS HOURS. THE VEHICLE WAS DAMAGED EXTENSIVELY AND WAS LOST TO THE COMPANY FOR SIX WEEKS FOR REPAIRS.

This accident could have been prevented. Commanders can use the procedures and tools provided in this newsletter to ensure that accidents do not happen. By doing a risk assessment of this situation, leaders would know that the driver of the HMMWV was overtired. He should not have been driving. Replacing him with another driver that was rested would have prevented this accident. The injury to the soldier, his subseqent rehabilitation, and the loss of the vehicle for six weeks would have all been saved.

APPENDIX A
COMMANDER'S PROTECTION (SAFETY) GUIDANCE

GOAL

- AVOID ACCIDENTAL DEATHS, INJURIES, AND EQUIPMENT LOSS

OBJECTIVE

- REDUCE HUMAN ERROR, MATERIEL FAILURE AND ENVIRONMENTAL EFFECTS DURING THE PERFORMANCE OF COMBAT FUNCTIONS

PRIORITIES

- ACTIONS TO CONTINUOUSLY IMPROVE READINESS IN THE FOLLOWING AREAS:
  - SELF-DISCIPLINE OF INDIVIDUALS
  - ENFORCEMENT OF STANDARDS BY LEADERS
  - TRAINING (INDIVIDUAL AND COLLECTIVE) TO STANDARD
  - PROCEDURES AND STANDARDS THAT ARE CLEAR AND PRACTICAL
  - SUPPORT TO STANDARD

APPENDIX B
FOREWORD ON SAFETY

B-1. Safety is *everyone's responsibility!* The brigade commander charges all his leaders to give training safety briefs to their subordinates. These briefs will start with the battalion commanders giving an overall safety brief before going downrange. Company commanders will brief their companies on safety regarding the companies' training plans. Platoon and squad leaders will brief specific safety points before conducting any training. For example, if a lane involves the breaching of concertina wire, then brief safe handling techniques of wire and the proper equipment needed. This idea is applicable to all actions during downrange training.

B-2. The following safety points are not all inclusive, but cover some of the issues to be addressed:

A. **Vehicle movement.**

- Ensure all drivers are qualified (licensed) to operate assigned equipment and have proper limited visibility training. Additionally, do not require new drivers to accomplish tasks for which they are not trained. Just because a soldier has a license does not mean he can drive in all situations! **Be Aware!**
- Do not move a track if communication between the driver and TC is out.
- Use seat belts and required head protection to help prevent injury when negotiating rough terrain or during a rollover sequence. Practice rollover drills. Stay inside the vehicle.
- Drivers will maintain a safe speed, and passengers will remain alert to rough terrain when driving cross-country.
- Passengers will use available handholds for bracing.
- Assure sufficient clearance, especially if turret is traversed. Protruding barrels extending beyond the hull can be damaged by trees or other objects.
- Make sure safety pins are installed in hatch latches before movement.
- Use ground guides when moving vehicles where people are dismounted, day or night. Use ground guide any time vision is obstructed.
- Do not turn sharply at high speeds.
- Have TC and gunner serve as additional eyes for the driver, especially during right-hand movements because of limited visibility to the right.
- Maintain proper distances between vehicles.

B. **Mounting/dismounting.**

- Use three points of contact when mounting, dismounting, or moving on top of vehicle. Do not jump from the vehicle!
- Use extra care if mud, water, or spilled fuel is on boots or vehicle surface.

C. **Maintenance.**

- Perform routine after operations maintenance checks and services such as checking engine oil and transmission oil levels carefully. Remember these parts are hot after operation. **APP B**
- Perform maintenance by the book: obey all cautions and warnings.
- Use two or more people to install or remove tow bar.
- Tow at safe speeds especially on inclines and around corners.
- Do not ride on or in a towed vehicle.

D. **Weapon system.**

- When repairing and clearing weapon systems, shut down turret (M2); for M1, ensure all manual and electrical safeties are engaged.
- Use operator and maintenance manual for proper procedures and necessary equipment.

E. **Turret movement.**

- Do no enter or exit the turret while turret power is on. Keep turret shield door closed and latched while turret power is on.
- Do not stow equipment in the ramp hydraulic unit; damage could cause a "free fall" ramp.

F. **Sleep plan.**

- Commanders will establish and enforce tactical sleep plans.
- Ensure personnel are briefed, and follow the unit sleep plan.
- Inspect (1SG, PLT LDR, PLT SGT) and approve all sleeping locations selected by subordinate leaders.
- Where possible, sleeping locations should be selected that are not accessible to vehicles.
- Ensure personnel never sleep in front of, behind, or under, any vehicle.
- Ensure guards are briefed on their duties and responsibilities and equipped with a red lens flashlight. Guards must stop any vehicle attempting to enter the sleeping area.

G. **Pyrotechnics (ATWESS, artillery and grenade simulators, Hoffman device, smoke, trip flares and others).**

- Pyrotechnics can kill, blind, and maim.
- Read and follow operating instructions.
- All pyrotechnic simulators contain hazardous material.
- Keep all simulators away from fires. Remember, photoflash powder ignites instantly.
- Aim pyrotechnics away from other people. A simulator thrown at people or vehicles can cause death, injuries, and property damage. It could also result in court martial!
- Wear standard issue leather gloves on firing hand.

H. **Cold weather.**

- Leaders ensure that soldiers are properly uniformed for the weather conditions.
- Have a warming plan in the event of sudden blast of winter.
- Conduct proper personal hygiene.
- Do not have soldiers standing in water for extended periods.
- Make sure soldiers drink water to prevent dehydration.
- Remind soldiers that prevention and immediate action can prevent frostbite.
- Leaders visually inspect their subordinates.

B-3. There are many other safety issues that need to be addressed by the brigade leadership which were not mentioned above. The leadership needs to be proactive to prevent and curtail future safety violations. **Think Safety!**

Brigade Commander

APPENDIX C
ANNEX C (SAFETY) to BRIGADE TACSOP

C-1. Responsibility. Safety is a command responsibility. The brigade commander is the brigade safety officer, and this is his program. **APP C**

C-2. Goal. The goal of the Brigade Safety Program is to prevent accidents and safeguard soldiers, families, and equipment.

C-3. Background.

A. Each year, the Army loses the equivalent of an infantry battalion to nonbattle, accidental deaths.

B. The majority of on-duty accidents involve combat vehicles and are associated with hatches, turrets, vehicle fires, and roll-overs and are too often linked to fatigue, excessive speed, and operation during periodS of limited visibility.

C. Safety considerations become even more important in wartime.

C-4. Elements of Safety Program. The following outlines the elements of the safety program in the brigade:

A. Risk assessments will be conducted prior to all operations.

B. Integration of safety considerations into all mission planning.

C. Safety plans prior to operations and weekends.

D. Safety briefings prior to field operations at battalion/company level, and by subordinate elements during operations, prior to movement or changes in personnel or duty.

E. Mission-related safety briefs.

F. Safety must be included in all AARs held during and after operations, and at the conclusion of each phase of training at all echelons, and especially at the soldier level.

G. Prompt accident reporting.

H. Prompt accident investigation.

I. Prompt action taken in response to the results of accident investigations.

J. Awards and recognition for those units and soldiers who prevent and avoid accidents.

C-5. Procedures. **APP C**

A. Battalion/company commanders are safety officers of their respective units.

B. Safety consideration will be imbedded into all tactical and training planning processes. Risk factors must be considered along with training objectives, tactical realism, or doctrinal precepts in developing plans and orders, whether in peace or war. Safety must not be an afterthought. Use principles of risk management to make operations safer by eliminating or reducing risks while retaining essential mission values.

(1) Upon receipt of mission, make risk assessment part of the mission analysis process. Use risk matrices to identify and assess the degree of risk in operations.

(2) Develop countermeasures to eliminate or reduce the hazards identified in the risk matrices. Integrate these countermeasures into consideration of friendly courses of action and the commander's concept. These countermeasures may include avoidance of activities or areas, changes in procedures, special education of personnel, etc.

(3) Ensure that, overall, the training or operational benefits to be gained justify the risk entailed.

C. Prior to field operations, a safety plan will be developed and implemented at each level.

(1) For field operations, this safety plan will emphasize risks associated with the operation in as much details as possible. The accident categories of vehicle operations, turrets, hatches, vehicle fires, and rollovers will receive priority for risk analysis. Specific situations and individuals should be priority for risk reduction, and appropriate measures designated. These might include, for example, inspections of turret floors or for hatch pins in use on a daily basis; or identification of soldiers particularly prone to injury. The safety plan provides the basis for pre-operation and daily safety briefings.

(2) Each tactical order will incorporate safety into the order. Oral and written orders will include safety precautions/topics.

(3) These plans will be assessed for their effectiveness in preventing accidents.

D. As one element of safety plans, safety briefings will be conducted to maintain among soldiers and leaders a high awareness of safety and to teach soldiers a "sixth sense" of safety.

(1) Battalions and companies will give safety briefs prior to field operations. These should be based on a safety plan which has looked at highest risk situations and individuals and should provide specific directions where possible. Exhortations to be safe are not enough. These briefs should also be made interesting to the soldier. Use of "training aids" to include damaged equipment or "true confessions" by those injured previously is encouraged. **APP C**

(2) Safety precautions will be addressed at company or platoon level prior to each operation.

(3) Squad leaders, vehicle commanders, or first echelon leaders will give safety warnings whenever personnel rotate duties, change activities, or practice new skills.

E. Safety will be a mandatory part of all AARs held upon return from field operations.

(1) The purpose is to identify potentially unsafe acts, practices, or situations, assess the safety plan, and increase soldier and leader awareness of safety. The investigation of accidents is not the purpose though discussions of accidents may occur. However, care must be taken to protect the rights of those who may be considered respondents or at fault in accident investigations.

(2) The most important echelon is platoon and below. This is because, ultimately, only soldier awareness and performance to standard will prevent accidents. Suggestions and recommendations must "bubble up" to affect planning and actions at higher levels, because safety is fundamentally bottom up, rather than top down.

APPENDIX D
SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

WHEELED VEHICLE OPERATIONS

1. Speed Limits

	SPEED (M.P.H.)					
	Walking	5	10	15	20	35
Day/Night-Assembly Area	X					
Day - Paved Rds/Tank Trails/Off-Rd					X	
Night - Service Drive:						
- Paved						X
- Unpaved					X	
Night - Blackout on:						
- Paved					X	
- Improved Dirt Rd				X		
- Other Dirt Rds			X			
- Off-Rd		X				

- Cdrs brief drivers on safe operating speeds.

ROE: Sec IIA - 2a-b, 2e; SGR: 5a, 5g, 7b

2. Precautions for Unsafe Road Condition
- Convoy commanders brief drivers on hazardous areas and conditions.
- Personnel protective equipment is required (CVC/ Helmet, safety belts, eye/hearing protection).
- Load must be secured IAW load plan.
- Ensure adequate seating. Riding on top of vehicles is prohibited.
- Safety straps and tailgates must be secured.

ROE: Sec IIa - 2a, 2c, 2l, 2l-m; SGR 5e

3. Night/Excessive Duty Hours
- Use only blackout markers/drives in field at night. In cantonment area, use service drive lights.
- Enforce sleep policy: optimum 7-8 hours/night, minimum 3 hours/night plus 1 in the afternoon.
  - * avoid activites from 0300-0500.
  - * use night owls 2400-0300; early-risers 0300 on.
  - * encourage high protein foods; carbohydrates promote sleepiness.
- Cdrs brief drivers on proper route, safe following distance, and rest periods.
- During low visibility, use dismounted guides.
- Cdrs provide training (NVG, ground guiding, etc)

ROE: Sec IIA - 2a, 2p; SGR: 5o-p, 7a-b; App G-13 - 5b, 5d; App G-14 - 5f-g

4. Mechanically Unsafe Vehicles
- Inspect before dispatch/operation
  - * horn
  - * lights
  - * brakes
  - * tires
  - * mirrors
  - * reflectors
  - * seatbelts
  - * exhaust systems
  - * chains/straps, hitches, etc.
  - * antennas (tipped)
  - * fire extinguisher
  - * steering mechanism
  - * windshield wipers
- Do not operate mechanically unsafe vehicles until deficiencies are corrected IAW with TMs.

ROE: Sec IIA - 2n; SGR: 5d, 5l, 5l, 8a, 8c

5. Improper Backing
- Ground guides are required:
  - * near parked vehicles
  - * in assembly/bivouac/maintenance areas
  - * when backing two guides are necessary one guide in front and one in rear.
- Cdrs provide ground guide training to all soldiers.
- While backing, drivers must:
  - * never leave the cab.
  - * conduct 360 degree search around vehicle.
  - * obey only one ground guide.
  - * stop vehicle when ground guide signal is unclear, or visual contact is lost.

ROE: Sec IIA - 2d, 2g, 2q; SGR: 5n, 5p-q, 5s, 6b-d

6. Following Too Close
- Convoy commanders will brief drivers and senior occupants on safe following distance.

ROE: Sec IIA - 2a

APPENDIX D (Cont)

SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

TRACKED VEHICLE OPERATIONS

1. Vehicle Inspection/Checks (IAW TMs)
   - Before dispatch/operation
     - * lights
     - * brakes
     - * exhaust systems
     - * fire extinguishers
     - * seatbelts
     - * safety chains/straps/hitches etc.
     - * intercom (no go inspection)
     - * hatch covers open, shake to test
     - * steering mechanisms
     - * friendly vehicle marking (on back of vehicle for live fire opns)
   - During operation
     - * secure hatches with latches/tie downs
     - * shake to test hatch covers.
   - Unsafe vehicles (faulty brakes, steering, or exhaust systems) will not be operated until safety deficiencies are corrected.
   - Equipment properly secured inside vehicle IAW load plan.
   - Before moving any vehicle, conduct a 360 walk around.
   - Radio antenna will be tipped with protective balls and tied down when in garrison areas.

   ROE: Sec IIA - 2c, 2j-k, 2m-o, 2q; SGR: 5a, 5i, 5l, 8c, 9f

2. Crew and Passenger Protection
   - CVC or helmet required.
   - Restraint systems are required while vehicle is in motion.
   - Drivers must wear eye protection when operating vehs.
   - Ensure adequate seating. Riding on top of vehicle is prohibited.
   - Ensure drivers are briefed on hazardous areas/conditions.
   - No firing or chambered rounds while vehicle is moving unless turret stabilization is on and functioning.

   ROE: Sec IIA - 2a, 2c, 2l, 2l; Sec IIIC - 4, 5

3. Speed Limits

	SPEED (M.P.H.)					
	Walking	5	10	15	20	35
Day/Night-Assembly Area	X					
Day - Tank Trails/Off-Rd					X	
Night - Service Drive:						
- Unpaved					X	
Night - Blackout on:						
- Improved Dirt Rd				X		
- Other Dirt Rds			X			
- Off-Rd		X				

   - NEVER use hard surface roads (except track crossings)
   - Cdrs brief drivers on safe operating speeds.

   ROE: Sec IIA - 2a-b, 2e, 2s; SGR: 5a, 5g, 7b

4. Night Operations
   - Enforce sleep policy
     - * optimum = 7-8 hours; minimum = 3 hours at night plus 1 hour in the afternoon.
     - * avoid activites from 0300-0500.
     - * use night owl soldiers 2400-0300; early-risers from 0300 on.
     - * encourage high protein foods, avoid carbohydrates which promote sleepiness.
   - Do not sleep under/in front of/behind vehicles or in/on vehicles while engine is running.
   - Use only blackout markers or blackout drives in the field. Use service drive light in cantonment area.
   - Brief drivers on proper route, safe following distance, and rest periods.

   ROE: Sec IIA - 2a, 2p; SGR: 5o-p, 7a-b; App G-13 - 5b, 5d; App G-14 - 5f-g

5. Ground Guiding
   - Ground guides are required:
     - * near parked vehicles.
     - * in occupied areas.
     - * while backing (front and rear).
     - * if road ahead is not visible.
   - Provide ground guide training to all personnel.
   - Signalling devices required for road guards at night or during reduced visibility.

   ROE: Sec IIA - 2d, 2g, 2q; SGR: 5n, 5p-q, 5s, 6b-d, 7a(2), 7b Note, 9a, 9c, 9e

6. Crew Coordination/Commo
   - TC in position during vehicle operation.
   - Driver 360 degree walk around before operation to ensure clearance under and around vehicle.
   - A fully operational intercom system is mandatory. Direct commo with artillery HQ is required.
   - During LFX, a 4-man, MOS-qualified crew is required.
   - Driver verify personnel not sleeping under/near vehicle prior to movement.

   ROE: Sec IIA - 2a, 2h, 2j, 2q; Sec IIF - 1a; Sec IIIC - 13; SGR: 5d, 5p, 9c

CALLAPD1

APPENDIX D (Cont)

SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

WEAPONS HANDLING OPS

1. Sighting/Firing/Throwing
- Before firing:

GENERAL:
* ensure safety-certified person is present during live fire
* All rotational artillery units/organizations must maintain direct commo with force artillery hdqtrs.
* fire units conduct grid location checks.
* clear danger area.
* all vehs mark position with 3 stakes if dug in & 5 if not dug in. These mark wpn's left/rt limit & center to guide driver
* no tanks, mortar/artillery tubes will be fired without current 2408-4boresccope and pullover gauge records.

HOWITZERS:
* verify lay of howitzers
* howitzer sections will conduct boresight & prefire checks.
* verify howitzer QE is no less than 267 mil.
* ensure cannon fire units meet requirements for Accurate Predicted Fires

MORTARS:
* ensure OC is present (mortars).
* mortar FDC inform OC of target number, intended grid, bump grid, OC's call sign, no. & type of rounds to be fired.
* ensure mortar carriers have turntable & std recoil stops
* mortar section chiefs must conduct known data checks to ensure impacts do not leave intended site

MLRS:
* MLRS firing will be IAW TC 6-60

ROE: Sec III - C 17-18; I- 1a, 2l, 5, 7d, 9, 10b, 11c, 11i-j, 11n; N

- During firing:
* store charges in sealed containers away from mortar pit and vehicles.
* ammo will be stored IAW TMs, not on cargo hatches.
* "pop and drop" mortar breaching method is prohibited.
* Grenades will be lobbed, not thrown.

ROE: Sec IID 2g; Sec III I11o; Sec IV C4

- Firing is prohibited:
* at anyone, equipment, or vehicles.
* overhead of troops.
* directly into firing ports.
* within 10 meters of dismounted soldiers.
* within 50 meters when using main guns/Hoffmans/blanks,
* before MICLIC firing, vehicles must be 200 meters to the rear.

ROE: Sec IIA 5b(1); IIB 5b; Sec III - C8, G2a, G2e, H4l, I11f

2. Unauthorized Use/Handling
- Ammo
* MOS-qualified, 3-man mortar crew required
* do not disturb duds, mark and report site to OC.
* store/carry only in authorized sites/areas.
* prohibited in cantonment area & during Force-on-Force ops
* maintain accountability

ROE: Sec IIA - 5c(2)-(3) , 5d(2); Sec III I11m; SGR: 26b-g

- Pyrotechnics
* do not remove gunpowder.
* do not use near flammable materials.
* do not activate in vehicles.
* use only when approved by an OC.

ROE: Sec II A5b(4)-(6)

- Demolitions
* maintain accountability.
* ensure danger zone is clear.
* obtain OC permission for use.

ROE: Sec III H4a(1), d

- Non-electrical primed explosive systems
* minimum of 2-min of time fuse required.
* conduct test burn same day of use.
* before use, OC safety verification required.
* Offensive ops - 5-min misfire wait period then, OC investigates.

Other conditions - 30 min misfire wait period.

ROE: Sec III H4b, 4f(1)

- Electrically primed explosive systems.
* shunt blasting cap/firing wire until use.
* before use, OC safety verification required.

ROE: Sec III H4c

3. Carrying/Moving
* do not transport mortar ammo on cargo hatches.
* do not stack uncrated anti-tank mines more than 4 high & keep at least 2 inches off ground.
* store ammo IAW TMs.

ROE: II E1l; III I11o

4. Disarm/Unload
- Download live ammo from weapons/vehicles before force on force ops.
- Download blanks before live fire exercises.

ROE: Sec III C15-16

5. Emplacing
- Ground-mounted mortars will be dug in IAW FM 7-90 and ammo will be covered with 18 inches overhead cover.

ROE: Sec III I11p

APPENDIX D (Cont)

SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

COMBAT SOLDIERING OPERATIONS

1. Precautions for Fatigue
   - Enforce sleep policy
   - optimum = 7-8 hours; minimum: 3 hours (night) plus 1 hour in the afternoon.
   - Avoid activities from 0300-0500
   - Use night owl personnel 2400-0300; early-risers from 0300 on.
   - Encourage high protein foods, avoid carbohydrates that promote sleepiness.

   SGR: App G-13 - 5b, d; G-14 - 5f-g

2. Personnel Protective Equipment
   - Provide, train, and enforce use.
   - Helmet/CVC: riding in tracked/wheeled vehicles.
   - Mask: in concentrations of HC, CS smoke or toxic vapors.
   - Hearing: noise at or above 85 dB.

   ROE: Sec IIA 2l, 7a, 7c; SGR: 14, 15

3. Precautions for Environment
   - Leave wildlife alone.
   - Inspect for snakes, scorpions, spiders, wasps and ants:
     * Bedding, clothing, socks, boots.
     * Where you step, sit, sleep, crawl and climb.
     * Especially near bushes, rocks, woodpiles, dark/damp places.
     * Sleep off ground if possible.
   - Use Buddy System.
   - Very hot/cold weather
     * 4-day gradual acclimatization period.
     * Avoid heat stress (reduce work schedules; plan heavy work for cooler hours; daily water consumption is 13 qts if over 80 ^{o}F (WBGT) and 9 qts if less than 80 ^{o}F (WBGT); additional salt consumption is detrimental.)
     * Special care for troops not physically fit.
     * Proper clothes discipline.

3. Precautions for Environment (continued)
   * Provide and ensure soldier carries: pocket knife, watch, matches/lighter, yard of strong cord, and wax lip balm.
   * Enforce sleep policy, fatigue promotes cold injuries.
   - Enforce "No Digging" rules, many areas are off-limits.
   - Flash floods
     * Avoid low sites for bivouac/maint/assembly areas.
     * If low sites tactically necessary, develop plans to reduce danger.
   - Obstacles such as single strand, head-high barbed wire that are inherently dangerous will not be used.

   ROE: Sec IIA - 4b-c, 4h(5), 5c(4), 6c, 6g(1)(a)&(c), 6k, 6m(1), 6p; Sec IIE - 1a(1), 6; SGR: 11a-e, 24a-b

MATERIEL HANDLING OPERATIONS

1. Unsecured/Unstable Load
   - A load plan is required for vehicle transport.
   - Loads must be secured IAW load plan.

   ROE: Sec IIA, 2m

MAINTENANCE OPERATIONS

No specific safety guidance in ROE or SGR.

CALLAPD2

APPENDIX D (Cont)

SAFETY GUIDANCE FROM NTC RULES OF ENGAGEMENT (ROE) & NTC SAFETY GUIDANCE FOR ROTATIONAL UNITS (SGR)

AVIATION OPERATIONS

1. Pyrotechnics will not be thrown from any aircraft.
   ROE: Sec IIA - 10a

2. Ensure all weapons are unloaded prior to boarding aircraft.
   SGR: 20c

3. Aircraft will not approach/land within 50 meters of any OPFOR personnel or vehicles.
   ROE: Sec IIA - 10c

4. No blackout operations are authorized at NTC.
   ROE: Sec IIK - 1f

5. For every person on board, all aircraft & vehs will have as a minimum:
   - Two quarts of water
   - One MRE
   - One blanket or poncho liner

   Cold/hot weather survival kit can be used in lieu of above items, with one kit for every two personnel.
   - AHs and OH-58D will have one quart of water and a survival vest per crew member due to space limits.

   ROE: Sec IIK - 1h

6. No air to air engagement or aerial maneuver against another aircraft is authorized.
   ROE: Sec IIK - 3a

7. Aircraft will not hover over target pits due to potential hazard of radio transmissions setting off pyrotechnics.
   ROE: Sec IIIE - 1m

8. Aircraft will not fire over heads of ground troops or vehicles.
   - Rounds will impact no closer than 1,000 meters from troops and vehicles.
   - Aircraft will not engage targets located between the aircraft and ground troops or vehicles.

   ROE: Sec IIIE - 1s

9. All aircraft will remain 1,000 meters from proposed artillery targets. All aircraft will observe all O/C-specified minimum safe distances & altitudes from demolitions.
   ROE: Sec IIIE - 1t

10. All aircraft PICs will have artillery and mortar platoon locations plotted on their maps. Company commanders/flight leaders will have friendly ground positions plotted on their maps.
    ROE: Sec IIIE - 1v

11. All helicopters will remain at 100 ft AGL or below at all times. TACAIR will remain at 300 ft AGL or above at all times.
    ROE: Sec IIIE - 1x

12. There are no moving targets in live fire area. Aircraft will not fire at any moving targets.
    ROE: Sec IIIE - 1y

NOTES

APPENDIX E
NTC READINESS AND OPERATIONAL SAFETY QUIZ

E-1. What are the correct tactical vehicle speed limits for driving on improved dirt roads during: (1) ***daylight*** hours and (2) ***night hours with blackout drive lights on,*** respectively?

a. 20 mph and 15 mph respectively.

b. 35 mph and 30 mph respectively.

c. 30 mph and 25 mph respectively.

d. 40 mph and 35 mph respectively.

E-2. Which statement describes the NTC policy on minimum qualifications for drivers?

a. Only properly licensed personnel will operate vehicles at NTC.

b. Student drivers may drive vehicles at NTC if accompanied by a master driver.

c. The unit commander can authorize unlicensed personnel to drive on unpaved surfaces only.

d. Unlicensed personnel may operate a vehicle in the maneuver box if the driver is "killed" in simulated combat.

E-3. When ground guiding, are voice signals better than hand signals?

a. Yes, if the ground guide and driver agree in advance.

b. No, voice and hand signals are equally effective.

c. No, voice signals can easily be misunderstood.

E-4. What are the restrictions on limited operation of track vehicles without an operable intercom?

a. There is no restriction.

b. The track commander must first instruct the crew on hand and arm signals.

c. After the track commander has approved the use of the vehicle with a circle X on the deficiency, there are no restrictions.

d. The vehicle may only be operated with a ground guide directing the vehicle.

E-5. Which is the ***incorrect*** procedure for dealing with a dud?

a. Do not disturb.

b. Mark the area distinctly.

c. Determine grid coordinates.

d. Build a berm around it to protect other personnel.

E-6. Hoffman charges and blanks (excluding small arms blanks) will not be fired within _____ meters of other soldiers.

a. 5 meters

b. 25 meters

c. 75 meters

d. 50 meters

E-7. When refueling from a fuel tanker, vehicles must be:

a. Chocked

b. Bonded

c. Grounded

d. All of the above

E-8. What is the minimum daily water intake to avoid heat injury during moderate activity (e.g., route march on level ground)?

	OVER 80°F	UNDER 80°F
a.	8 quarts	4 quarts
b.	10 quarts	6 quarts
c.	15 quarts	11 quarts
d.	12 quarts	9 quarts

APP E

E-9. Which of the following is ***not*** a good method to use to avoid a cold weather injury?

a. Change socks often.

b. Tighten boot laces to keep cold air out.

c. Keep body and clothes clean.

d. Drink fluids frequently.

APPENDIX F
ACCIDENT RISK ASSESSMENT OF PERSONNEL RATED BY COMMNDERS/LEADERS

(SEE REVERSE FOR GRAPHIC.)

ACCIDENT RISK ASSESSMENT OF PERSONNEL RATED BY COMMANDERS/LEADERS

- EXAMPLE -

NAMES OF RATED PERSONNEL

RISK FACTORS (FROM NEXT ACCIDENT ASSESSMENT)	POINTS	ABBOT,PATRICIA	BECKER,BRUCE	CAPPS,JOHN	DURDEN,ED	EVANS,TOM	FLOYD,ANN	GREEN,STEVE	HATCHER,JOE	LEVY,BERT	JACOBS,MIKE
1. Self discipline (dependability)											
a. Counseled for poor performance	8				8	8					
b. Had at fault accidents/citations	8					8					
c. Abused alcohol/drugs	8				8						
d. Had judicial/non-judicial punishment	8				8						
e. GT score of 90 or less	8					8					
f. Males under age 25	8		8	8	8	8		8		8	8
2. Leadership (enforcement of standards)											
a. Insufficient knowledge/experience	6		6								
b. Tolerates below-standard performance	12		12								
3. Training (job skills and knowledge)											
a. MOS SDT (SQT) score less than 70	9						9				
b. Not proficient in assigned tasks outside MOS	9			9							
4. Standards (task-cond-std/procedure)											
a. Do not exist	4										
b. Not clear/practical	4			4							
5. Support (insuff amount/type/condition)											
a. Equipment	2			2							
b. Supplies	2			2							
c. Services/facilities	2										
d. Personnel	2			2							
EACH PERSON'S POINTS		0	26	27	32	32	9	8	0	8	8
EACH PERSON'S RISK		L	M	M	H	H	L	L	L	L	L

CALLAPPF

APPENDIX G
SAMPLE AREAS AND INDICATORS OF PROTECTION (SAFETY) READINESS

- **Command**
  - Commander positions filled by individuals having extensive technical background in area of responsibility (AOR).
  - Commanders are strong in leadership and management abilities.
  - Commanders have specific safety goals, objectives and priorities.
  - Commander's safety intent is effectively communicated down the chain of command to the individual soldier.

- **Leader**
  - Leaders are technically competent in their AOR.
  - Leaders do not tolerate below-standard performance. They make on-the-spot corrections and are not reluctant to take disciplinary action.
  - NCOs "own" the safety program. They have been given the responsibility and the authority to make it work.
  - Leaders know the common causes of accidents and which of their soldiers is most likely to have the next accident.

- **Operations**
  - FTX and garrison activities are conducted by the book.
  - Safety Officer is involved in mission planning (identifies hazards and recommends controls).
  - Senior personnel assist in training/coaching inexperienced individuals.
  - OPTEMPO is reasonable and meets mission requirements. Soldiers are not driven to exhaustion and have quality time with families.

- **Maintenance**
  - Required maintenance manuals are supplied, updated, and present where the work is being done.
  - Maintenance is done by the book.
  - QC is considered essential. Sacrificing quality for quantity is not tolerated.

- **Training**
  - Highly selective process is used to assign personnel to leader and training positions, e.g., certification program.
  - Standards are established, and training is conducted to those standards (individual and collective).
  - Sufficient time is blocked for individual training. It is conducted by leaders and monitored by commanders.

- **Discipline**
  - Senior personnel accept the responsibility of "policing" their own.
  - Immediate actions by leaders and commanders have made personnel clearly aware of intolerable behaviors/deviations from safe operating procedures and the consequences.

NOTES

APPENDIX H
NTC OBSERVATIONS

OBSERVATION NO. 1

H-1. Strength: Unity of command from battalion to company level.

H-2. Discussion/Observation: All leaders interviewed reported that an open channel of communication exists up and down the chain of command. Subordinate commanders feel they can freely voice their opinion and that their input has been welcomed by the battalion commander. An excellent example occurred during a recent field problem. The battalion commander made a decision not to move the unit because of the assessed dangers posed by deteriorating weather conditions. Although the brigade commander questioned the decision, he accepted the merit upon which the decision was made and, in turn, supported it.

H-3. METL/Task Affected: All.

H-4. Readiness Factors: All.

H-5. Recommended Actions: None.

OBSERVATION NO. 2

H-1. Problem: Shortage of operator and maintenance technical manuals.

H-2. Discussion/Observation: During individual discussions with maintenance personnel from three companies, all indicated that they were critically short of technical manuals and that orders submitted had provided no relief. Research into the order chain revealed that two companies had valid requisitions for manuals while one company had no requisitions on file. According to the battalion publications representative, it usually takes a minimum of three months to begin to receive manuals from a particular order. A review of the 31 Aug 92 DA Form 4569 and DA Form 17 revealed that numerous technical manuals were ordered prior to August 25, 1992 (as evidenced by the publications requisition forms on file in the motor pool office), but had not been received as of 17 November. The majority of manuals on hand were either out of date or incomplete. Available technical manuals were not being used during observed vehicular service. When asked why, one soldier stated that he had been taught this procedure in AIT and didn't need the manual. He later admitted that this was only the second time he had performed this procedure since AIT. There was no leader action to ensure manuals were used.

APP H

H-3. METL/Task Affected: Support.

H-4. Readiness Factors:

- Support: Do not receive supply support needed to perform job tasks to standard.

- Leader: Not requiring subordinates to perform to standard.

- Individual: Overconfidence (i.e., relying on memory to perform vehicular service rather than using available technical manual).

H-5. Recommended Actions: Determine source of problem, whether generated here or at pinpoint distribution system, and intervene to obtain needed manuals ASAP. In the interim, canvas area for possible cross-leveling to fill shortages.

OBSERVATION NO. 3

H-1. Problem: Lack of NCO ownership of the Safety Program.

H-2. Discussion: There is significant command emphasis on safety, with the proper focus on high risk areas (e.g., ground guiding, safety belts and use of protective gear). This high level of concern starts at division headquarters and is evident throughout battalion command. However, in spite of this emphasis, NCOs were observed not enforcing standards and their knowledge of safety standards was low. Their lack of knowledge is validated by scores on the **"NTC Readiness and Operational Safety Quiz,"** and through several discussions with NCOs who, when asked specific questions regarding standards, did not know the correct responses.

H-3. METL Tasks Affected: All, especially the CSS tasks where soldiers are required to work with less supervision.

H-4. Readiness Factors: **APP H**

- Leader: Not enforcing known standards.

- Training: NCO leadership cannot enforce standards if they don't know the standards.

H-5. Recommendations:

- Continue same level of command safety emphasis.

- Allocate more responsibility and authority to NCO chain of command to develop and implement safety programs/initiatives.

  - Make the brigade and battalion sergeants major the Safety NCOs for the command.

  - Give the safety NCOs the requirement to develop safety performance-oriented training (i.e., safety stakes using **"each one teach one"** technique during team training). Safety should focus on known high risk or weak areas.

  - Have NCOs integrate this training into their team training.

  - Safety certify all NCOs. Test knowledge of standards, procedures, and guidance with METL focus.

OBSERVATION NO. 4

H-1. Strength: Leader Certification Program.

H-2. Discussion:

– FY93 division training guidance includes a leader certification program. This appears to be an outstanding program.

– 1st Brigade 2d Qtr FY93 training guidance includes the objective of certifying all leaders by means of such programs at battalion and company levels.

H-3. METL/Tasks Affected: All.

H-4. Readiness Factor: The Leader Certification Program will ensure leaders have the technical knowledge and experience to be effective leaders. **APP H**

H-5. Recommendations:

– Expand 1st Brigade leader certification program to include METL safety knowledge and skill requirements.

– Include risk management skills in the leader certification process.

– Consider implementing a written exam on safety policy, guidance and procedures.

APPENDIX I
FORCE PROTECTION (SAFETY) METL ASSESSMENT INPUT TO COMMANDER'S TRAINING ASSESSMENT

(SEE REVERSE FOR GRAPHIC.)

FORCE PROTECTION (SAFETY) METL ASSESSMENT
INPUT TO
COMMANDER'S TRAINING ASSESSMENT
(FM 25-100 & FM 25-101)

FORCE PROTECTION READINESS ASSESSMENT OF COMBAT FUNCTIONS

MISSION ESSENTIAL TASK	INT	MAN	FS	AD	MOB	LOG	BC	ALL	ACDT RISK
MOVE THE BDE						ILTS	LT		H

ACCIDENT RISK CONTROL OPTIONS

LONG TERM (EXAMPLES)

- HAVE NCOs DEVELOP AND IMPLEMENT A COMPLETE BRIGADE-LEVEL SAFETY TRAINING PROGRAM (LOG-L,T &BC-T, L)
- ADD SAFETY CRITERIA TO THE LEADER CERTIFICATION PROGRAM AT BATTALION AND COMPANY LEVELS (LOG-L,T & BC-L,T)
- COUNTER SHORTAGE OF PVS-7 NVGs BY REDISTRIBUTING FROM SISTER UNITS FOR TRAINING AND USE IN FTX NIGHT MISSIONS (LOG-T, S)

NEAR TERM (EXAMPLE)

- INITIATE DEVELOPMENTAL/SUSTAINMENT PERFORMANCE-ORIENTED TRAINING (SAFETY STAKES) FOR GUIDANCE IN NTC RULES OF ENGAGEMENT AND INSTALLATION'S TACTICAL SAFETY HANDBOOK. (LOG-T & BC-T,L)

SHORT TERM (EXAMPLE)

- FTXs - IN ADDITION TO NORMAL DUTIES, REQUEST C/Ts FOCUS SAFETY ON-SPOT CORRECTIONS AND AAR OBSERVATIONS ON THE FOLLOWING ACCIDENT PROBLEM AREAS: WHEEL-EXCESSIVE SPEED & FOLLOWING TOO CLOSE; TRACK-B/D/A OPERATION CHECKS, ROUGH TERRAIN PRECAUTIONS (SEAT BELTS & EQUIPMENT SECURED) & IMPROPER GROUND GUIDING. (LOG-I, L)

LEGEND - COMBAT FUNCTIONS READY TO EXECUTE TRAINING (R)

-COMBAT FUNTIONS NOT READY DUE TO SHORTCOMINGS IN: TRAINING (T), LEADERSHIP (L), STANDARDS/PROCEDURES (P), SUPPORT (S), OR SELF DISCIPLINE OF INDIVIDUALS (I)

- ACCIDENT RISK: EXTREMELY HIGH (E), HIGH (H), MEDIUM (M), LOW (L)

CALLAPPI

APPENDIX J
FORCE PROTECTION (SAFETY) - EXECUTION PHASE

(SEE REVERSE FOR GRAPHICS.)

FORCE PROTECTION (SAFETY) - EXECUTION PHASE

MISSION RISK MANAGEMENT	DECISION - MAKING PROCESS
1. PERFORM HASTY RISK ASSESSMENT A. GATHER & ANALYZE METT-T FACTS TO IDENTIFY MOST SEVERE & MOST PROBABLE HAZARDS B. COMPLETE RISK ASSESSMENT FOR EACH COURSE OF ACTION (COA) C. ENTER RISK LEVEL OF EACH COA AS A DECISION CRITERION	1. RECEIVE MISSION 2. GATHER AND CONSIDER INFORMATION 3. COMPLETE MISSION ANALYSIS, RESTATE MISSION AND ISSUE PLANNING GUIDANCE 4. COMPLETE STAFF ESTIMATES A. DEVELOP/ANALYZE/COMPARE COAs (WARGAME) B. RECOMMEND COA
2. PERFORM DELIBERATE RISK MANAGEMENT A. MAKE RISK DECISION - ACCEPT RISK LEVEL OR MODIFY CONTROLS AND RECOMPUTE OR GET MORE INFO OR ELEVATE DECISION B. FOR SELECTED COA, COMPLETE MISSION RISK MANAGEMENT WORKSHEET TO IDENTIFY CONTROLS FOR MOST SEVERE & MOST PROBABLE HAZARDS/ACCIDENTS AND REDUCE RISK	5. COMPLETE COMMANDER'S ESTIMATE A. ANALYSIS OF COAs B. DECISION (SELECT COA) C. CONCEPT OF OPERATION (SELECT CONTROLS AND MAKE RISK DECISION)
C. COMMUNICATE & IMPLEMENT CONTROLS - INTEGRATE INTO PARAGRAPHS OF OP ORDER	6. PREPARE 7. APPROVE 8. ISSUE } PLANS/ORDERS
D. SUPERVISE - MONITOR/ENFORCE IMPLEMENTATION OF CONTROLS	9. SUPERVISE

NEWAPPJ

MISSION RISK MANAGEMENT WORKSHEET

DTG: XXXXXX

UNIT: XXX INF

STAFF OFFICER: S4

MISSION/METL TASK

PEACE ENFORCEMENT (RESUPPLY)

RISK OF ACCIDENT

LOW	MOD	HIGH
	X	

(Check one)

INSTRUCTIONS

1. Enter: DTG, Unit, Mission/METL Task.
2. Complete Risk Assessment Matrix & check result (Low, Mod, High).
3. Based on risk assessment, identify most probable & most severe types of accidents.
4. For each type accident, identify most likely cause factors, most likely readiness reasons and controls to reduce risk of this accident. For each control, identify echelon(s) responsible for action.
5. Communicate and implement controls.

TYPE:	READINESS REASONS (see list)	CONTROLS	ECHELON (Check all that apply) BDE	BN	CO	PLT	SQD
Accident (See List): WHEELED VEHICLE Cause Factor: [X] Human Error [ ] Materiel Failure [ ] Environment (Check one) DESCRIBE FACTOR (see list): EXCESSIVE SPEED	INDIVIDUAL	ADMIN/LOG ORDER - NO EXCEPTIONS TO SPEED LIMITS	X	X			
		OP ORD COORD INSTRUCTIONS - ALL LDRS REQUIRED TO MONITOR FOR VIOLATIONS	X	X			
		BSA/TRAINS ROADGUARDS WILL REMIND DRIVERS OF SPEED LIMITS ON EVERY CHECK	X	X			

TYPE:	READINESS REASONS (see list)	CONTROLS	ECHELON (Check all that apply) BDE	BN	CO	PLT	SQD
Accident (See List): WHEELED VEHICLE Cause Factor: [X] Human Error [ ] Materiel Failure [ ] Environment (Check one) DESCRIBE FACTOR (see list): NIGHT/EXCESSIVE DUTY HOURS	STANDARDS	ADMIN/LOG ORDER ESTABLISH DAILY DRIVER'S REST REQUIREMENTS	X	X			
		BSA/TRAINS LEADERS WILL ESTABLISH AND ENFORCE DRIVER REST PLAN	X	X	X	X	
		REQUIRE ASSISTANT DRIVER FOR ALL NIGHT OPERATIONS	X	X	X		
	LEADER	CONVOY PLAN WILL BE BRIEFED AND BACK BRIEFED	X	X			

TYPE:	READINESS REASONS (see list)	CONTROLS	ECHELON (Check all that apply) BDE	BN	CO	PLT	SQD
Accident (See List): MATERIEL HANDLING Cause Factor: [X] Human Error [ ] Materiel Failure [ ] Environment (Check one) DESCRIBE FACTOR (see list): IMPROPER TECHNIQUE (Lifting/Carrying Barrier Materiels)	TRAINING	BSA/TRAINS LEADERS WILL PROVIDE INSTRUCTION ON PROPER LIFTING/CARRYING TECHNIQUES	X	X			

NEWAPPJ2

TYPES OF ACCIDENTS

- **GROUND OPERATIONS**
  - Wheeled Vehicle
  - Tracked Vehicle
  - Weapons Handling
  - Maintenance
  - Materiel Handling
  - Combat Soldiering
  - Other (specify)
- **AVIATION OPERATIONS**
  - Tree Strike
  - Wire Strike
  - Brownout
  - Overtorque
  - Hard Landing
  - Other (specify)

CAUSE FACTORS

Human Error (80%) (See List Below)

Materiel/Equipment Failure (5%)

- Wheeled Vehicle *(Brakes, Tires, Electrical system, etc.)*
- Tracked Vehicle *(Hatches, Weapon system, Tracks, etc.)*
- Aircraft *(Fuel control, Compressor, Cargo hook/sling, etc.)*
- Weapon *(Machine gun, Pistol, Pyrotechnic simulator, etc.)*
- Maintenance *(Wheel split rims, winches/hoists, hand tools, etc.)*
- Other (specify)

Environment (15%)

- Surface/Space (e.g., rough, inclined, slippery, confined)
- Illumination (e.g., dark, bright)
- Temperature/Humidity (e.g., cold, hot)
- Precipitation (e.g., rain, ice, snow)
- Wind/Turbulence
- Contaminants (e.g., carbon monoxide, fumes, chemicals, foreign objects/debris)
- Animals/Bugs/Birds/Snakes/Poison Plants
- Other (specify)

HUMAN ERROR - Ground Operations	COMMON READINESS REASONS				
	INDIVIDUAL	LDR	TNG	STDS	SUPPORT
WHEELED VEHICLE					
Excessive Speed	X	X	X		
Unsafe Road Conditions	X		X	X	
Night/Excessive Duty Hours		X		X	
Improper Turning	X		X		
Unsafe Mechanical Condition			X		X
Improper Passing			X		
Following too Close	X	X	X		
Other (Specify)					
TRACKED VEHICLE					
B-D-A Operations Checks	X	X			X
Rough Terrain	X		X		
Excessive Speed	X	X	X	X	
Darkness/Fatigue	X	X	X	X	
Improper Ground Guiding	X	X			
Crew Coordination/Commo	X		X	X	X
Other (Specify)					
WEAPONS HANDLING					
Sighting/Aiming/Firing/Throwing	X	X	X		X
Unauthorized Use/Handling (Duds)	X	X	X		
Carrying/Lifting/Transporting	X				
Disarming/Unloading (Improper clearing)	X		X		
Body Positioning	X				
Loading/Arming	X		X		
Emplacing	X				
Assembling/Cleaning/Disassembling *(Improper clearing)*	X		X		
Other (Specify)					
MAINTENANCE					
Improper Use of Tools/Equipment	X	X	X	X	X
Improper Lifting	X			X	
Improper Body Position	X		X		
Improperly Secured Materiel/Equip/Veh	X	X			
Improper Push/Pull/Grip/Hold	X				
Inadequate Inspection (Components, Equip/Area)			X		
Other (Specify)					

HUMAN ERROR - Ground Operations(Cont'd)	COMMON READINESS REASONS				
	INDIVIDUAL	LDR	TNG	STDS	SUPPORT
MATERIEL HANDLING					
Improper Technique	X	X	X		
Unsecured/Unstable Load	X		X		
Environmental Hazard		X			X
Getting On/Off Vehicle	X				
Equipment Usage		X			
Other (Specify)					
COMBAT SOLDIERING					
Tactical Parachuting - Improper Exit					
- Improper Descent					
- Improper PLF					
Traversing Terrain Under Adverse Env Conditions					
Camouflaging:					
- Removing/Emplacing Net *(Entanglements/Falls)*					
- Failing to Maintain 3 Points of Contact on Veh					
Other (Specify)					
OTHER (SPECIFY)					

HUMAN ERROR - Aviation Operations	COMMON READINESS REASONS				
	INDIVIDUAL	LDR	TNG	STDS	SUPPORT
Scan	X	X	X	X	
Coordinate	X	X	X	X	
Detect Hazards/Obstacles					
Maintain/Recover Orientation	X	X			
Plan - Preflight	X				
Plan - During Flight	X	X			
Diagnose/Respond to Emergency					
Estimate Distance/Closure					
Other (Specify)					

READINESS REASONS

INDIVIDUAL (48%) - SOLDIER KNOWS AND IS TRAINED TO STANDARD BUT ELECTS NOT TO FOLLOW STANDARD (SELF DISCIPLINE).
- ATTITUDE
- FATIGUE (SELF-INDUCED)
- OVERCONFIDENCE
- ALCOHOL, DRUGS
- HASTE

LEADER (18%) - LEADER DOES NOT ENFORCE KNOWN STANDARD.
- DIRECT SUPERVISION
- UNIT COMMAND SUPERVISION
- HIGHER COMMAND SUPERVISION

TRAINING (18%) - SOLDIER NOT TRAINED TO KNOWN STANDARD (INSUFFICIENT, INCORRECT OR NO TRAINING ON TASK).
- SCHOOL
- UNIT
- EXPERIENCE, OJT

STANDARDS (8%) - STANDARDS/PROCEDURES NOT CLEAR OR PRACTICAL, OR DO NOT EXIST.
- TASK - CONDITION - STANDARD
- OPERATING PROCEDURES (AR, TM, FM, SOP, ETC.)

SUPPORT (8%) - EQUIPMENT/MATERIEL IMPROPERLY DESIGNED/NOT PROVIDED; INSUFFICIENT NUMBER/TYPE OF PERSONNEL; INADEQUATE MAINTENANCE/FACILITIES/SERVICES

NEWAPPJ3

APPENDIX K
RISK MANAGEMENT REFERENCE CARD

(SEE REVERSE FOR GRAPHIC.)

APP K

RISK MANAGEMENT PROCESS

IDENTIFY HAZARDS - Identify hazards for this mission. HAZARD - a condition with the potential of causing injury to personnel, damage to equipment, loss of materiel, or lessening of ability to perform a task or mission.

ASSESS HAZARDS - Analyze each hazard to determine the probability of it causing an accident and the probable severity of the accident. Identify control options to eliminate or reduce hazards.

MAKE RISK DECISION - Weigh the risk against the benefits of performing the operation. Accept no unneccessary risks. Make decisions at proper level.

IMPLEMENT CONTROLS - Integrate specific controls (identified in 2nd step) into plans, OPORDs, and rehearsals.

SUPERVISE - Determine the effectiveness of controls in reducing the probability and the severity of hazards identified. Ensure that risk controls are performing as expected Includes following-up during & after an action to ensure all went according to plan, re-evaluating/adjusting plan as required and developing lessons learned.

READINESS SHORTCOMINGS

INDIVIDUAL (48%) - SOLDIER KNOWS AND IS TRAINED TO STANDARD BUT ELECTS NOT TO FOLLOW STANDARD (SELF DISCIPLINE).

- ATTITUDE
- OVERCONFIDENCE
- HASTE
- FATIGUE (SELF-INDUCED)
- ALCOHOL, DRUGS

LEADER (18%) - LEADER DOES NOT ENFORCE KNOWN STANDARD.

- DIRECT SUPERVISION
- UNIT COMMAND SUPERVISION
- HIGHER COMMAND SUPERVISION

TRAINING (18%) - SOLDIER NOT TRAINED TO KNOWN STANDARD (INSUFFICIENT, INCORRECT OR NO TRAINING ON TASK).

- SCHOOL
- UNIT
- EXPERIENCE, OJT

STANDARDS (8%) - STANDARDS/PROCEDURES NOT CLEAR OR PRACTICAL, OR DO NOT EXIST.

- TASK - CONDITION - STANDARD
- OPERATING PROCEDURES (AR, TM, FM, SOP, ETC.)

SUPPORT (8%) - EQUIPMENT/MATERIEL IMPROPERLY DESIGNED/NOT PROVIDED; INSUFFICIENT NUMBER/TYPE OF PERSONNEL; INADEQUATE MAINTENANCE/FACILITIES/SERVICES

SAFETY OBSERVATION INFORMATION ELEMENTS

1. UNIT 2. TYPE OF OPERATION 3. PROBLEM AREA 4. READINESS SHORTCOMING(S)

PROBLEM AREAS - Aviation Operations	COMMON READINESS SHORTCOMINGS				
	INDIVIDUAL	LDR	TNG	STDS	SUPPORT
Scan	X	X	X	X	
Coordinate	X	X	X	X	
Detect Hazards/Obstacles					
Maintain/Recover Orientation	X	X			
Plan - Preflight	X				
Plan - During Flight	X	X			
Diagnose/Respond to Emergency					
Estimate Distance/Closure					
Other (Specify)					

SAFETY OBSERVATION INFORMATION ELEMENTS

1. UNIT 2. TYPE OF OPERATION 3. PROBLEM AREA 4. READINESS SHORTCOMING(S)

PROBLEM AREAS - Ground Operations	COMMON READINESS SHORTCOMINGS				
	INDIVIDUAL	LDR	TNG	STDS	SUPPORT
WHEELED VEHICLE					
Excessive Speed	X	X	X		
Unsafe Road Conditions	X		X	X	
Night/Excessive Duty Hours		X		X	
Improper Turning	X		X		
Unsafe Mechanical Condition			X		X
Improper Passing			X		
Following too Close	X	X	X		
Other (Specify)					
TRACKED VEHICLE					
B-D-A Operations Checks	X	X			X
Rough Terrain	X		X		
Excessive Speed	X	X	X	X	
Darkness/Fatigue	X	X	X	X	
Improper Ground Guiding	X	X			
Crew Coordination/Commo	X		X	X	X
Other (Specify)					
WEAPONS HANDLING					
Sighting/Aiming/Firing/Throwing	X	X	X		X
Unauthorized Use/Handling (Duds)	X	X	X		
Carrying/Lifting/Transporting	X				
Disarming/Unloading (Improper clearing)	X		X		
Body Positioning	X				
Loading/Arming	X		X		
Emplacing	X				
Assembling/Cleaning/Disassembling *(Improper clearing)*	X		X		
Other (Specify)					
MAINTENANCE					
Improper Use of Tools/Equipment	X	X	X	X	X
Improper Lifting	X			X	
Improper Body Position	X		X		
Improperly Secured Materiel/Equip/Veh	X	X			
Improper Push/Pull/Grip/Hold	X				
Insdequate Inspection (Components, Equip/Area)			X		
Other (Specify)					
MATERIEL HANDLING					
Improper Technique	X	X	X		
Unsecured/Unstable Load	X		X		
Environmental Hazard		X			X
Getting On/Off Vehicle	X				
Equipment Usage		X			
Other (Specify)					
COMBAT SOLDIERING					
Improper PLF					
Traversing Terrain Under Adverse Env Conditions					
Camouflaging (Removing/Emplacing Net)					
Camouflaging (Failed to Maintain 3 point contact)					
Patrolling/Reconnoitering/Scouting					
Infiltrating/Assaulting/Retreating					
Tactical Road March					
Other (Specify)					
OTHER (SPECIFY)					

CALLAPPK

APPENDIX L
RISK MANAGEMENT ASSESSMENT

(SEE REVERSE FOR GRAPHIC.)

RISK MANAGEMENT ASSESSMENT

+ STRENGTH
- WEAKNESS

BEFORE THE MISSION

1. ASSESSMENT ACCOMPLISHED?

WAS A SAFETY RISK ASSESSMENT ACCOMPLISHED AT TF/BN LEVEL?

(-) NO — REPORT FINDING TO TF/BDE CDRI

(+) YES

2. HAZARDS IDENTIFIED?

WERE THE "MOST PROBABLE" HAZARDS IDENTIFIED FOR EACH TYPE OF OPERATION (E.G., WHEELED VEH, TRACKED VEH, ETC)?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

3. PROBABILITY ASSESSED?

WAS PROBABILITY OF EACH HAZARD'S OCCURRENCE/SEVERITY APPROPRIATELY ASSESSED?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

4. CONTROL OPTIONS IDENTIFIED?

WERE CONTROL OPTIONS IDENTIFIED TO ELIMINATE/REDUCE HAZARDS IDENTIFIED?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

5. DECISION LEVEL?

WAS DECISION TO ACCEPT MISSION RISK MADE AT APPROPRIATE COMMAND LEVEL?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

6. CONTROLS COMMUNICATED?

WERE IDENTIFIED HAZARDS AND CONTROLS CLEARLY COMMUNICATED TO PERSONNEL RESPONSIBLE FOR IMPLEMENTING CONTROLS, E.G., CO/PLT LEADERS?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

DURING THE MISSION

7. CONTROLS IMPLEMENTED?

WERE IDENTIFIED CONTROLS APPROPRIATELY IMPLEMENTED AND ENFORCED AT CO/PLT LEVEL?

(-) NO/ INADEQUATE

(+) YES/ ADEQUATE

AFTER THE MISSION

8. RISK MGMT EFFECTIVE?

WAS RISK MGMT PROCESS EFFECTIVE IN IDENTIFYING AND CONTROLLING HAZARDS ACTUALLY EXPERIENCED DURING MISSION?

(-) NO/ INADEQUATE

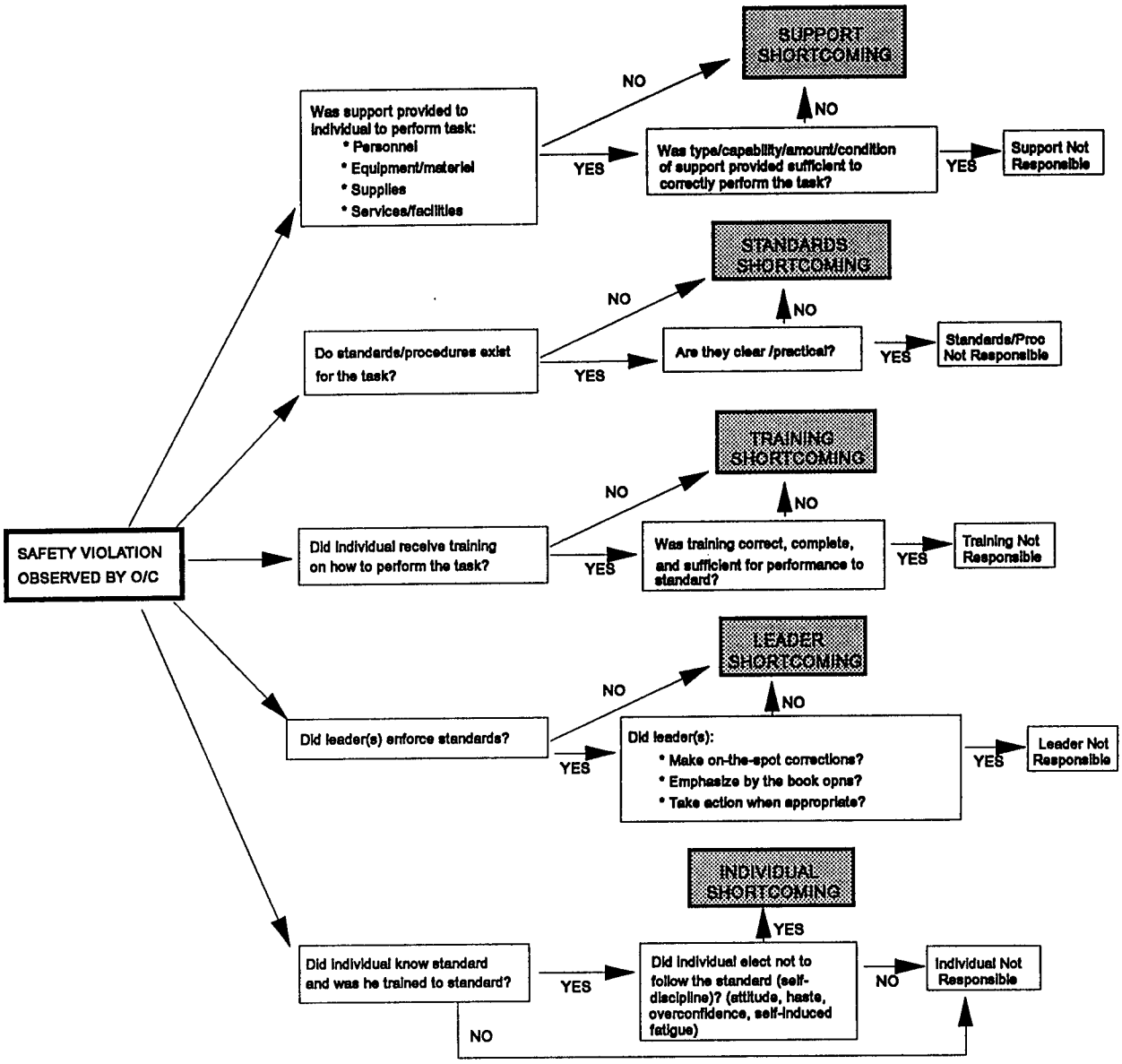
(+) YES/ ADEQUATE

(WHICH STEP(S) TURNED OUT TO BE INEFFECTIVELY EXECUTED?)

APPENDIX M
DETERMINING READINESS SHORTCOMING(S) RESPONSIBLE FOR SAFETY VIOLATIONS

(SEE REVERSE FOR GRAPHIC.)

DETERMINING READINESS SHORTCOMING(S) RESPONSIBLE FOR SAFETY VIOLATIONS



CALL:APPM

APPENDIX N
FORCE PROTECTION (SAFETY) OBSERVATION EXAMPLES

(SEE REVERSE FOR GRAPHIC.)

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE	X	MATERIEL HANDLING	
TRACKED VEHICLE		COMBAT SOLDIERING	
WEAPONS HANDLING		AVIATION OPS	
MAINTENANCE		OTHER	

3. PROBLEM AREA (SEE LIST)

- *Mounting/dismounting*

Soldier jumped off HEMMT not using 3 pts of contact. Bruised foot severly.

[Ref: BDE TACSOP]

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER	X	SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES _____ NO X

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE		MATERIEL HANDLING	
TRACKED VEHICLE	X	COMBAT SOLDIERING	
WEAPONS HANDLING		AVIATION OPS	
MAINTENANCE		OTHER	

3. PROBLEM AREA (SEE LIST)

- *Operation/precautions for rough terrain*

Two soldiers, one standing and the other kneeling on top of M548 ammunition carrier while the vehicle was moving forward/

[Ref: NTC ROE - Tracked Vehicle Operations, Crew and Passenger Protection]

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER	X	SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES _____ NO X

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE		MATERIEL HANDLING	
TRACKED VEHICLE		COMBAT SOLDIERING	X
WEAPONS HANDLING		AVIATION OPS	
MAINTENANCE		OTHER	

3. PROBLEM AREA (SEE LIST)

Soldiers dismantling BDE TOC not wearing helmets nor eye protection (antennas).

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER	X	SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES X NO _____

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE		MATERIEL HANDLING	
TRACKED VEHICLE		COMBAT SOLDIERING	
WEAPONS HANDLING		AVIATION OPS	
MAINTENANCE	X	OTHER	

3. PROBLEM AREA (SEE LIST)

- *Improperly secured material/equip/vehicle*

Soldier failed to engage parking brake and/or chock vehicle (small emplacement excavator (SEE)) before working under vehicle. Vehicle rolled, pinning him under the wheel.

[Ref: Standard maintenance practice]

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER		SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES _____ NO X

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE		MATERIEL HANDLING	
TRACKED VEHICLE		COMBAT SOLDIERING	
WEAPONS HANDLING	X	AVIATION OPS	
MAINTENANCE		OTHER	

3. PROBLEM AREA (SEE LIST)

- *Sighting/aiming/firing*

Soldier standing in backblast area of a TOW while gunner was scanning for targets.

[Ref: NTC ROE, Sections II & III]

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER		SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES _____ NO X

FORCE PROTECTION
(SAFETY) OBSERVATION

CALL SIGN _____

1. UNIT _____ DTG _____

2. TYPE OPERATION (CHECK ONE)

WHEELED VEHICLE		MATERIEL HANDLING	
TRACKED VEHICLE		COMBAT SOLDIERING	X
WEAPONS HANDLING		AVIATION OPS	
MAINTENANCE		OTHER	

3. PROBLEM AREA (SEE LIST)

Soldier driving stake with sledge hammer while not wearing eye protection.

4. READINESS SHORTCOMING(S) - (CHECK ONE OR MORE)

INDIVIDUAL	X	STANDARDS	
LEADER		SUPPORT	
TRAINING			

5. CONTROLS COMMUNICATED? YES X NO _____

6. CONTROLS IMPLEMENTED? YES _____ NO X

CALLAPPN

APPENDIX O
FORCE PROTECTION (SAFETY) PERFORMANCE WORKSHEET (INDIVIDUAL MISSION)

(SEE REVERSE FOR GRAPHIC.)

FORCE PROTECTION (SAFETY) PERFORMANCE

UNIT *X BDE*

MISSION *DELIBERATE ATTACK*

TYPE OF OPERATION

	WHEELED VEHICLE	TRACKED VEHICLE	MAINTENANCE	MATERIEL HANDLING	WEAPONS HANDLING	COMBAT SOLDIERING	AVIATION OPERATIONS	OTHER (Specify)
RISK MANAGEMENT 1. ASSESSMENT ACCOMPLISHED? 2. HAZARDS IDENTIFIED? 3. PROBABILITY ASSESSED? 4. CONTROL OPTIONS IDENTIFIED? 5. DECISION LEVEL? 6. CONTROLS COMMUNICATED? 7. CONTROLS IMPLEMENTED? 8. RISK MGMT EFFECTIVE?	*+ Safety awareness/discipline of individual soldiers was excellent.* *- Only one risk assessment performed at BDE level (none at BN level).* *- Safety was separate para in OP Order vs risk mgt being integrated into planning process, course of action development and each para of OP Order.*							
	+ Ground guides enforced in para 6 of order.	*+ Ground guides enforced in para 6 of order.*						*+ Sleep planning encouraged in para 6 of order.*
READINESS ELEMENTS **INDIVIDUAL** (Self discipline to standard)	*- Excessive speed [Driver aware of speed limits, ignored them. (40 in 20)]*				*- 1 Frat of M1A1 by TOW gunner failure to ID friendly vehicle*			
LEADERSHIP (Enforce standards)	*- Sr occupant allowed excessive speed*	*- M2 hit tank ditch in smoke. 3 soldiers injured/ released.*			*- 2 incidents of minefield fratricide, friendly side not marked.* *- 1 Frat of M1A1 by TOW gunner failure to ID friendly vehicle*			
TRAINING (Skills to standard)								
STANDARDS (Standards/procedures clear & practical)								
SUPPORT (Equipment, personnel, facilities maintenance, services to standard)								

APPENDIX P
FORCE PROECTION (SAFETY) PERFORMANCE WORKSHEET (END OF EXERCISE)

(SEE REVERSE FOR GRAPHIC.)

UNIT X BDE

MISSION EXERCISE SUMMARY

FORCE PROTECTION (SAFETY) PERFORMANCE

TYPE OF OPERATION

	WHEELED VEHICLE	TRACKED VEHICLE	MAINTENANCE	MATERIEL HANDLING	WEAPONS HANDLING	COMBAT SOLDIERING	AVIATION OPERATIONS	OTHER (Specify)
RISK MANAGEMENT 1. ASSESSMENT ACCOMPLISHED? 2. HAZARDS IDENTIFIED? 3. PROBABILITY ASSESSED? 4. CONTROL OPTIONS IDENTIFIED? 5. DECISION LEVEL? 6. CONTROLS COMMUNICATED? 7. CONTROLS IMPLEMENTED? 8. RISK MGMT EFFECTIVE?	+ Staff made an honest effort to integrate safety (force protection) into the course of action selection process by making Force Protection one of the decision criteria. + Once the course of action was selected, a detailed risk assessment was conducted and additional controls were identified to reduce that risk. + Hazards and control actions were integrated into paragraphs of OP order.						
	+ Seat belts + Head gear + Ground guide + Speed	+ Seat belts + Head gear + Load plan + Convoy			+ Duds			+ Sleep plan
READINESS ELEMENTS **INDIVIDUAL** (Self discipline to standard) (18)*	- Soldier failed to engage parking brake on SEE before crawling under vehicle - was pinned under wheel. - Soldier jumped from top of HEMTT-injuring foot. (9)	- Soldier jumped from top of Vulcan. - Soldier climbing inside Howitzer knocked a preposition round over, fracturing finger (2)			- Soldier failed to unload weapon after mission. Weapon discharged 3 days later. - Soldier walked into path of recoil when M109 was ready to fire. (2)	- Soldier walked off embankment in dark. Injured neck. (1)		- Soldier splashed fuel in his face during refueling ops (3 incidents). - No fire extinguisher during refuel ops (4)
LEADERSHIP (Enforce standards) (62)	- Soldier riding in vehicle without wearing seatbelts (Ldr present). (9)	- TC failed to check rear hatch. Driver pulled off, passenger almost fell out of vehicle. (14)		- Powder increments carried in back of M548 unsecured & uncovered. (11)	- Soldier was allowed to stand in back blast area of TOW with gunner preparing to fire (14)	- CMD Group M113 stopped to rear of Bradley firing TOW (In back blast area). (1)		- Open flame (stove) in Bradley. - Soldier smoking in Howitzer. (13)
TRAINING (Skills to standard) (2)						- Soldier misidentified colt as BRDM - fired on. (2)		
STANDARDS (Standards/procedures clear & practical)								
SUPPORT (Equipment, personnel, facilities maintenance, services to standard)								

* Numbers of readiness shortcomings observed.

CALLAPPP

READER'S SURVEY

The Center for Army Lessons learned (CALL) disseminates significant lessons learned Armywide (Active and Reserve Components). We welcome your comments and any lessons learned you might have for articles in subsequent publications.

Comments:

1. To which publication are you responding (Title or Number)?

2. Do the diagrams, charts, table and photographs adequately enhance the clarity of the articles?

3. What would you like to see added to the publication that would be of general interest to the Army at large?

4. Do you have any successful tactics, techniques or procedures from your own unit's experience to share with the rest of the Army? If so, write them down here, then detach this page, fold it over and forward it to the address shown on the reverse side. Include your name, address and DSN in case we need to clarify the information you provide.

5. Have we used your correct mailing address? If not, please provide your correct address.

Other comments:

Detach, fold over and mail to CALL.

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Sep 93	93-5 Counterdrug Operations II
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Jul 93	93-3 The Battalion and Brigade Battle Staff
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