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Safety

Small Unit Risk Management

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Document Management

Summary. This pamphlet provides information on risk management.

Summary of Change. This revision—

- Changes the title of the pamphlet and replaces the term “composite risk management” by the term “risk management” throughout.
- Updates the applicability statement (below).
- Adds civilians to the framework for identifying hazards ([para 3](#)).
- Removes the previously used Composite Risk Management Worksheet including instructions and requires use of the Deliberate Risk Assessment Worksheet (DA Form 2977) instead to document risk assessments ([para 9](#)).
- Replaces the previously used composite-risk assessment matrix including descriptions with the standardized Army risk matrix as the basis for assessing individual hazards ([para 10](#) and [fig 1](#)).
- Adds a description of risk-assessment codes ([para 11](#)).

- Updates information regarding the determination of risk-acceptance decision authority (para 12).
- Adds documentation requirements for operations that deviate from written safety standards (para 13).
- Provides a risk-acceptance matrix to help determine the risk-acceptance decision authority (fig 2) and a matrix showing civilian equivalency to military grades (fig 3).
- Makes administrative changes throughout.

Applicability. This pamphlet applies to U.S. Army elements and regionally allocated forces stationed or training within the Army in Europe area of operations.

Records Management. Records created as a result of processes prescribed by this pamphlet must be identified, maintained, and disposed of according to AR 25-400-2. Record titles and descriptions are available on the United States Army Records Information Management System website at <https://www.arims.army.mil>.

Suggested Improvements. The proponent of this pamphlet is the Safety Division, Office of the Chief of Staff, HQ USAREUR (USAREUR Safety Division (mil 537-3092)). Users may send suggested improvements to this pamphlet by e-mail to the USAREUR Safety Division at usarmy.wiesbaden.usareur.list.safety-office-mbx.

Distribution. This pamphlet is available only electronically and is posted in the Army in Europe Library & Publishing System at <http://www.aepubs.eur.army.mil/>.

CONTENTS

1. Risk-Management Process
2. Risk-Management Terms
3. Framework for Identifying Hazards–METT-TC
4. Types of Accidents
5. Cause Factors
6. Sources of Cause Factors
7. Most Likely Hazards and Their Controls
8. Are You and Your Soldiers Ready to Perform Duties?
9. Deliberate Risk Assessment Worksheet (DD Form 2977)
10. Risk-Assessment Matrix for Individual Hazards
11. Risk-Assessment Codes and Descriptions
12. Determining the Risk-Acceptance Decision Authority
13. Deviation Documentation and Risk Acceptance
14. Risk Management Integrated Into Troop-Leading Procedures

Figures

1. Standardized Army Risk Matrix
2. Risk-Acceptance Authority for Safety Standards Deviation
3. Military–Army Civilian Equivalent Grades

Appendixes

- A. References

Glossary

1. RISK-MANAGEMENT PROCESS

Risk management is the process of identifying and controlling hazards to protect the Force. It is applicable to any mission and environment. The five steps of the risk-management process are as follows:

- a. Identify Hazards.** Identify hazards to the Force. Consider all aspects of current and future situations, the environment, and known historical problem areas.
- b. Assess Hazards.** Assess hazards to determine risks. Assess the effect of each hazard in terms of potential loss and cost based on probability and severity.
- c. Develop Controls and Make Risk Decisions.** Develop control measures that eliminate the hazard or reduce its risk. As control measures are developed, risks must be reevaluated until all risks are reduced to a level where benefits outweigh the potential cost.
- d. Implement Controls.** Put controls in place that eliminate hazards or reduce their risks.
- e. Supervise and Evaluate.** Enforce standards and controls. Evaluate the effectiveness of controls and adjust and update them as necessary.

2. RISK-MANAGEMENT TERMS

Controls	Actions taken to eliminate hazards or reduce their risks
Exposure	The frequency and length of time subjected to a hazard
Hazard	Any real or potential condition that can cause injury, illness, or death; damage to or loss of equipment or property; or mission degradation
Probability	The likelihood that an event will occur
Residual Risk	The level of risk remaining after controls have been identified and selected for hazards that may result in loss of combat power. Controls are identified and selected until the residual risk is at an acceptable level or until it cannot be practicably reduced further.
Risk	The chance of hazard or bad consequences, or exposure to a chance of injury or loss. The risk level is expressed in terms of hazard probability and severity.
Risk Assessment	The identification and assessment of hazards (first two steps of the risk-management process)
Risk Decision	The decision to accept or not accept the risks associated with an action, made by the commander, other leader, or individual responsible for performing the action
Severity	The expected consequence of an event that could occur in terms of degree of injury, property damage, or other mission-impairing factors (for example, loss of combat power, adverse publicity)

3. FRAMEWORK FOR IDENTIFYING HAZARDS—METT-TC (Mission, Enemy, Terrain, Troops, Time, Civilians)

MISSION:

- Specified, implied, and subtasks

ENEMY:

- Size and capability (size, activity, location, unit, time, equipment (SALUTE))

TERRAIN (AND WEATHER):

- Environmental conditions

TROOPS (AND EQUIPMENT):

- Troops: training, type, number, and physical condition
- Equipment: amount, type, design, and condition

TIME AVAILABLE:

- Time to plan, rehearse, and execute

CIVILIANS:

- Situations involving civilians (including stability and support operations)

4. TYPES OF ACCIDENTS

GROUND	AVIATION
Combat Soldiering	Brownout
Maintenance	Hard landing
Materiel handling	Overtorque
Tracked vehicle	Tree strike
Weapons handling	Wire strike
Wheeled vehicle	

5. CAUSE FACTORS

Human Error (80 percent)

Environment (15 percent)

- Birds, bugs, snakes, and other animals; poisonous plants
- Contaminants (carbon monoxide, chemicals, debris, foreign objects, fumes)
- Illumination (bright, dark)
- Precipitation (ice, rain, snow)
- Surface and space (confined, inclined, rough, slippery)
- Temperature and humidity (cold, hot)
- Wind and turbulence

Materiel and Equipment Failure (5 percent)

- Aircraft (cargo hook and sling, compressor, fuel control)
- Maintenance (hand tools, wheel split rims, winches and hoists)
- Tracked vehicle (hatches, tracks, weapon system)
- Weapon (machinegun, pistol, pyrotechnic simulator)
- Wheeled vehicle (brakes, electrical systems, tires)

6. SOURCES OF CAUSE FACTORS

INDIVIDUAL 48 percent	Soldier knows and is trained to the standard, but chooses not to follow the standard (lack of self-discipline). <ul style="list-style-type: none"> ● Alcohol and drugs ● Attitude ● Fatigue (self-induced) ● Haste ● Overconfidence
LEADER 18 percent	Leader does not enforce the standard. <ul style="list-style-type: none"> ● Lack of direct supervision ● Lack of higher command supervision ● Lack of unit command supervision
TRAINING 18 percent	Soldier is not trained to the standard (incorrect, insufficient, or no training on the task). <ul style="list-style-type: none"> ● Insufficient experience or on-the-job training ● Lack of school attendance ● Insufficient unit training
STANDARDS 8 percent	Standards and procedures are not clear or practical, or do not exist. <ul style="list-style-type: none"> ● Unclear tasks, conditions, and standards (common tasks, mission training plans) ● Insufficient or nonexistent operating procedures
SUPPORT 8 percent	Equipment is improperly designed or resources are not provided. <ul style="list-style-type: none"> ● Inadequate maintenance or facilities ● Insufficient number or type of personnel services

7. MOST LIKELY HAZARDS AND THEIR CONTROLS

Dismounted movement in conditions of limited visibility or adverse terrain

- Use night-vision devices.
- Wear eye protection.
- Run and jump only when tactically necessary.
- If you cannot see, STOP!
- Use marked lanes when available.
- Warn others of hazards encountered.
- Maintain three points of contact on steep or slippery slopes.

Excessive speed

- Brief track commanders (TCs), drivers, and senior occupants on speed limits—
 - In bivouac areas and battle positions.
 - During closed and open nuclear, biological, and chemical (NBC) protection modes.
 - During convoy “catch up.”
 - When visibility is limited.
 - Near road, terrain, and trail hazards.
 - For different vehicle designs and cargo loads.

Following too closely

- Set convoy-vehicle intervals based on the condition of drivers, visibility, road conditions, and the vehicles. Increase intervals when—
 - Drivers are fatigued.
 - Visibility is limited (dust, fog, night, rain, snow).
 - The road is rough or slippery.
 - Vehicles are heavily loaded or in poor condition.

Hot- and cold-weather injuries

- Identify Soldiers who are not acclimated or have had previous hot- or cold-weather injuries and—
 - Report these Soldiers to the chain of command.
 - Assign appropriate duties.
 - Watch closely for symptoms.
- Enforce work, rest, and hydration schedules.
- Adjust the workload when temperatures are extreme (more than 80 °F, less than 32 °F).

Improper crew coordination

- Use positive communication (confirm that crewmembers have received and understand your communication or signal).
- Announce decisions and actions.
- Perform all actions in the proper sequence and at the right time.
- Provide and request assistance when needed.

Improper ground-guiding

- Use ground guides when—
 - Operating in congested areas (assembly and battle positions, bivouac areas, maintenance areas).
 - Operating with limited visibility.
 - The vehicle intercom system is inoperative (tracked vehicles only).

Improper lifting and carrying of weapons and individual equipment

- Brief and enforce the following precautions:
 - Use safe lifting, balancing, and carrying techniques.
 - Schedule rest halts and rotate heavy loads during halts.
 - Treat all weapons as if they were loaded.
 - Keep blank and live ammunition separate.
 - Keep weapons on safe until ready to fire.
 - Do not use a weapon as a support or pull stick.

Improper passing

- Pass other vehicles only at safe places and times considering road, visibility, and traffic conditions.
- Know the clearance space needed for both the vehicle and the trailer.

Improper turning

- Yield the right-of-way.
- Avoid oversteering.
- Perform U-turns only in authorized areas and locations.

Passengers or crew exposed during operation on rough terrain (tracked vehicles)

- Ensure that passengers and crew are positioned no higher than nametag defilade.
- Ensure that equipment and cargo are stowed and secured according to the load plan.
- Wear seatbelts when seated.

Seating and placement of passengers (wheeled vehicles)

- Spot check vehicles to ensure that—
 - No passengers are in the trailer or cargo area of vehicles carrying ammunition, explosives, or hazardous material, or in the last vehicle of a convoy.
 - Only one driver and passenger are in the cab of vehicles that have manual transmission.
 - Seating provides for three points of contact on a fixed surface inside the vehicle and on sideboards.

Unsafe road conditions (wheeled vehicles)

- Select and provide a briefing on routes that minimize unsafe conditions, including—
 - Curves.
 - Inclines.
 - Narrow or congested passages.
 - Slippery surfaces (icy, muddy, wet).

Unsecure hatches and ramps

- Inspect hatches and ramps and repair those that are unsecure.
- Secure hatches and ramps with a locking pin or latch devices during operation.

Unsecure or unstable load

- Ensure that loads are secured according to the load plan and applicable manuals.
- Spot-check vehicles with emphasis on ammunition, cargo center of gravity, and pyrotechnics.

Vehicle deficiencies not identified or fixed due to improper preventive maintenance checks and services (PMCS)

- Report deficiencies to the proper authority in a timely manner.
- Ensure proper PMCS by conducting maintenance spot-checks on vehicles before dispatch or operation.

Vehicle fire

- Give a briefing on and rehearse fire procedures according to appropriate operators manuals.

Vehicle rollover

- Ensure that the TC or senior occupant gives a briefing on rollover procedures and that rollover drills are conducted.

8. ARE YOU AND YOUR SOLDIERS READY TO PERFORM DUTIES?

QUALIFICATION	Yes	No
● Combat Lifesaver		
● Leader and Noncommissioned Officer Certification		
TRAINING	Yes	No
● Accident and unsafe-act reporting and correction procedures		
● Avoiding poisonous plants		
● Avoiding wild animals, insects, snakes, and so on		
● Drivers training (tracked vehicles only)		
○ Crew coordination		
○ Rollover procedures (passengers and crew)		
● Drivers training (wheeled and tracked vehicles)		
○ Adverse weather or terrain		
○ Convoy procedures (tactical and nontactical)		
○ Ground-guide procedures (for example, signal, distance)		
○ PMCS (before, during, and after)		
○ Safe speed for conditions		
○ Vehicle capabilities		
● Loading and securing (vehicles and trailers)		
○ Equipment		
○ Personnel		
● Materiel handling (lifting, carrying, balancing, footing, and so on)		
● Night operations (collective, individual, and mission-essential task list (METL) tasks)		
● Night-vision devices		
○ Capabilities		
○ Maintenance		
○ Wear while performing—		
■ Collective tasks		
■ Individual tasks		
■ METL tasks		
● Weapons handling (safety procedures)		
○ Ammunition		
○ Clearing		
○ Duds		

TRAINING (Continued)	Yes	No
○ Fratricide prevention		
○ Laser		
○ Limited visibility and adverse weather		
○ Pyrotechnics		
EXPERIENCE	Yes	No
● Newly assigned personnel		
○ Proficient		
○ Current		
PHYSICAL AND DECISION-MAKING ABILITY	Yes	No
● Well rested and alert (for example, less than 15 hours of continuous duty and more than 5 hours of sleep in the last 24 hours)		
EQUIPMENT (PERSONAL PROTECTIVE AND OPERATIONAL)	Yes	No
● Canvas and bows		
● Insect repellent and stinger kits		
● Night vision devices		
● Personal protective equipment		
○ Hearing protection		
○ Goggles and scarf (for dust, mud, snow, rain, and so on)		
○ Kevlar and combat vehicle crewman helmet		
○ Seatbelts (when available)		
○ Tailgate and ramp safety (safety strap if applicable)		
CLOTHING	Yes	No
● Appropriate gear (seasonal)		
○ Inventory (accountability)		
● NBC protective gear		

9. DELIBERATE RISK ASSESSMENT WORKSHEET (DD FORM 2977)

A Deliberate Risk Assessment Worksheet (DD Form 2977) must be used to document risk assessments. The form, including instructions, is available at <https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd2977.pdf>.

10. RISK-ASSESSMENT MATRIX FOR INDIVIDUAL HAZARDS

Standardized Army Risk Matrix						
		Probability (expected frequency)				
		Frequent: Continuous, regular, or inevitable occurrences	Likely: Several or numerous occurrences	Occasional: Sporadic or intermittent occurrences	Seldom: Infrequent occurrences	Unlikely: Possible occurrences but improbable
Severity (expected consequence)		A	B	C	D	E
Catastrophic: Death, unacceptable loss or damage, mission failure, or unit readiness eliminated	I	EH	EH	H	H	M
Critical: Severe injury, illness, loss, or damage; significantly degraded unit readiness or mission capability	II	EH	H	H	M	L
Moderate: Minor injury, illness, loss, or damage; degraded unit readiness or mission capability	III	H	M	M	L	L
Negligible: Minimal injury, loss, or damage; little or no impact to unit readiness or mission capability	IV	M	L	L	L	L
EH – extremely high risk H – high risk L – low risk M – medium risk						

Figure 1. Standardized Army Risk Matrix

11. RISK-ASSESSMENT CODES AND DESCRIPTIONS

Symbol	Risk-Assessment Code	Description
EH	1	Extremely High
H	2	High
M	3	Medium
L	4	Low

12. DETERMINING THE RISK-ACCEPTANCE DECISION AUTHORITY (Who Can Accept Which Level of Risk?)

Once potential countermeasures and controls have been developed, risk decisions need to be made. This involves deciding which countermeasures to use and accepting residual risks.

a. The decision to select countermeasures and controls can often be made at the lowest levels by the immediate leader, designer, or process developer. However, when the hazard is not eliminated or controlled to tolerable limits, Army leaders need to decide on the acceptability of the risk based on mission requirements. Accepting risk is a serious matter; therefore, the appropriate level of Army leadership must weigh the increased danger to the mission, personnel, equipment, public, property, and environment against the operational requirement that necessitated acceptance of a significant level of risk. As a decision-making tool, risk management is effective only when the information is passed to the appropriate level of command for decision.

b. The appropriate risk-acceptance authority is typically determined by three factors: the duration of the risk, the level of risk, and the ownership of the resources necessary to control, eliminate, or correct the hazard within an appropriate timeframe. The exposure of unrelated personnel to risk and the resulting level of required coordination may also affect the required level of risk acceptance (for example, the exposure of host-nation facilities to risk from an Army operation).

c. Army service component commanders are required to establish and publicize the approval authorities for risk acceptance and decision-making for their commands or adopt, in writing, the standards in table 4-1 of DA Pamphlet 385-30 (fig 2).

d. The duration of the risk is the total length of time that the mission, personnel, equipment, property, or environment will be exposed to the hazard. When determining the required risk-acceptance level in figure 2, the duration of the risk will not be divided into shorter increments to lower the level of authority for accepting the risk. Consideration must be given to whether the mission is recurring or nonrecurring.

(1) Recurring Missions. Recurring missions are operations that are cyclic in nature, are anticipated to occur again in the near future, and involve the same hazards, control measures, and risks during each occurrence, such as night-training flights, rifle-range training, and so on. For recurring missions, the duration should be based on the anticipated total amount of time to accomplish all recurring missions. If, for example, the mission will be conducted for 1 week every month for 3 years, the duration used would be 3 years, not 1 week or 1 month.

(2) Nonrecurring Missions. Nonrecurring missions are missions that are not anticipated to occur again in the near future. Normally, these types of operations occur during contingencies, wartime conditions, or other unique situations.

e. The level of authority accepting the potential consequences of a given hazard is determined by the level of residual risk associated with that hazard, mission, or event. The greater the risk and longer the duration, the higher that decision must be elevated. In organizations led by Army civilian leaders, equivalent civilian grades may be substituted for military ranks (fig 3).

Risk Acceptance Matrix ^{2, 3, 4, 5}				
Duration of risk				
	Event Waiver	Waiver		Exemption
Category of Risk	1 month or less	1 month to 1 year	1 year to 5 years	Permanent or greater than 5 years
Extremely High Risk	General officer (GO)	Army Headquarters Commanding General (CG)	Army Headquarters CG	Army Headquarters CG
High Risk	Brigade Commanding Officer (CO) or responsible O-6	GO	GO	GO
Medium Risk	Battalion CO ¹ or responsible O-5	Brigade CO ¹ or responsible O-6	GO ¹	GO ¹
Low Risk	Company CO or responsible O-3	Battalion CO ¹ or responsible O-5	Brigade CO ¹ or responsible O-6	Brigade CO ¹ or responsible O-6

Legend for Table 4-1.:

In organizations led by Army civilian leaders, equivalent civilian grades may be substituted for military ranks (see table 4-2).

The term "Army Headquarters CG" used in the table refers to Army commands (ACOMs), Army service component command (ASCCs) (including Joint Forces Land Component Commands (JFLCC) and GO level Joint Task Forces (JTFs)), direct reporting units (DRUs), and the Director, Army National Guard.

Notes:

¹ May delegate in writing authority to accept at the next lower command level.

² For deviations involving violations of Ammunition and Explosives or chemical agent safety standards during Joint operations planning, training, and execution, refer to CJCSI 4360.01 and Service risk acceptance guidance. See also DA Pam 385-30, paragraph 4-6i.

³ H risk (beyond 1 month) or EH risk will always be accepted by a GO or flag officer.

⁴ For hazards discovered in fielded acquisition programs, risk will be accepted per DA Pam 385-16.

⁵ Deviations from range standards and procedures are addressed in AR 385-63.

**Figure 2. Risk-Acceptance Authority for Safety Standards Deviation
(Table 4-1 of DA Pam 385-30)**

Military Rank	O-7 through O-10	O-6	O-5	O-4	O-3
Army Civilian Grade	Senior executive service (SES)-1 through SES-6	General schedule (GS)-15 or equivalent	GS-13 and GS-14 or equivalent	GS-12 or equivalent	GS-10 and GS-11 or equivalent

**Figure 3. Military-Army Civilian Equivalent Grades
(Table 4-2 of DA Pam 385-30)**

NOTE: Military grade abbreviations used in figures 1 and 2 are defined in the glossary.

f. Risk can be accepted only by the commander who has the resources or authority, or both, necessary to control, eliminate, or correct the hazard within an appropriate timeframe. When unrelated personnel, facilities, or equipment are exposed to a hazard, the appropriate authority in the exposed organization will acknowledge the hazard and accept the risk to their personnel, facilities, or equipment. On Army installations, the installation commander is ultimately responsible for all risk on the installation and must be made aware of and acknowledge the risk before accepting it. Coordination will be made with all units that are exposed to this risk. The most common scenario is when the risk results from operations of one organization (for example, a tenant on an installation), but exposes other organizations' personnel, facilities, or equipment to hazards. In this case, the leaders of the affected organizations (for example, the garrison commander and the installation commander) must be made aware of and acknowledge the risk before the organization that creates the risk accepts it. Examples would include the risk associated with explosives arcs exposing another tenant's assets, a tenant unit arms room in an installation-owned facility, or the storage of hazardous material in an installation-owned facility.

(1) When an Army organization exposes another Service's or another nation's personnel to a hazard, the risk-acceptance authority must communicate that risk to the exposed personnel's chain of command at a level equivalent to the risk-acceptance authority.

(2) For all hazards that expose the public to high or extremely high risk, the risk-acceptance authority for the Army in Europe is the CG, USAREUR.

13. DEVIATION DOCUMENTATION AND RISK ACCEPTANCE

a. When intentionally deviating from written safety standards, documentation will include specifics regarding the initial and residual levels of risk associated with the deviation; the policy or standard (that is, the publication and paragraph numbers), or both, from which the operation will deviate; the control measures selected; and the required level of risk acceptance according to [figure 2](#). Safety offices need to track and review all approved deviations for trends. Deviations (waivers, exemptions, and secretarial certifications) involving ammunition and explosives or chemical agents must be documented using the Deviation Approval and Risk Acceptance Document (DA Form 7632). DA Form 7632 may also be used to document safety deviations other than those involving ammunition and explosives and chemical agents.

b. Addressing a general risk (that is, a situation involving management of a risk that does not involve a standard) is referred to as risk acceptance. Risk-acceptance documentation must include specifics regarding the initial and residual levels of risk, the control measures selected, and the required level of risk acceptance in accordance with [figure 2](#). Safety offices track and review all approved risk acceptances for trends.

14. RISK MANAGEMENT INTEGRATED INTO TROOP-LEADING PROCEDURES

Risk Management Integrated Into Troop-Leading Procedures						
Troop-Leading Procedures		Risk Management				
Troop-leading steps	Task/Subtask	Identify hazards	Assess hazards	Develop controls/ make decision	Implement controls	Supervise and evaluate
1	Receive mission	X				
	• Perform initial METT-TC analysis	X				
2	Issue the warning order	X				
3	Make a tentative plan	X	X			
3A	• Make an estimate of the situation	X	X			
3B	• Make a detailed mission analysis	X	X			
3C	• Develop situations and courses of action (COAs) for the following:	X	X			
3C1	○ Enemy situation (enemy COAs)	X	X			
3C2	○ Terrain and weather (observation, cover and concealing, obstacles, key terrain, avenues of approach)	X	X			
3C3	○ Friendly situation (troops and time available)	X	X			
3C4	○ Friendly situation	X	X			
3D	• Analyze COAs (wargame)	X	X			
3E	• Compare COAs			X		
3F	• Make a decision			X		
3G	• Expand the selected COA into a tentative plan			X		
4	Initiate movement				X	
5	Reconnoiter				X	
6	Complete the plan				X	
7	Issue the order				X	
8	Supervise and refine the plan					X

APPENDIX A REFERENCES

SECTION I PUBLICATIONS

AR 25-400-2, The Army Records Information Management System (ARIMS)

DA Pamphlet 385-30, Risk Management

SECTION II FORMS

DD Form 2977, Deliberate Risk Assessment Worksheet

DA Form 7632, Deviation Approval and Risk Acceptance Document

GLOSSARY

°F	degrees Fahrenheit
COA	course of action
DA	Department of the Army
DD	Department of Defense [form]
EH	extremely high
fig	figure
H	high
HQ USAREUR	Headquarters, United States Army Europe
L	low
M	moderate
METL	mission-essential task list
METT-TC	mission, enemy, terrain, troops, time, civilians
mil	military
NBC	nuclear, biological, and chemical
O-3	captain
O-4	major
O-5	lieutenant colonel
O-6	colonel
O-7	brigadier general
O-8	major general
O-9	lieutenant general
O-10	general
PMCS	preventive maintenance checks and services
TC	track commander
USAREUR	United States Army Europe