
UNITED STATES MARINE CORPS
THE BASIC SCHOOL
MARINE CORPS TRAINING COMMAND
CAMP BARRETT, VIRGINIA 22134-5019

**OPERATIONAL RISK
MANAGEMENT
B130786
STUDENT HANDOUT**

Operational Risk Management (ORM)

Introduction

This purpose of this class is to provide basic instruction on the fundamentals of Operational Risk Management (ORM) and to highlight the procedures and responsibilities that all Marines must take in both an operational and non-operational environment in order to identify hazards and eliminate or reduce the risks associated with them.

Importance

Operational Risk Management is every Marine's duty and responsibility, regardless of rank. By properly applying the fundamentals of ORM, Marines have the ability to correctly identify hazards and eliminate unnecessary risk or reduce necessary risk to an acceptable level.

In This Lesson

This lesson covers the following topics:

Topic	Page
Risk Management Fundamentals	4
Operational Risk Management (ORM) Principles	5
ORM 5 Step Process/ BAMCIS/METT-T	6
ORM Levels	13
Summary/CMC Guidance	13
References	14
Glossary of Terms and Acronyms	14
Notes	15

Operational Risk Management (ORM) (Continued)

Learning Objectives

Terminal Learning Objectives

TBS-TRNG-2008 Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with the aid of references, conduct Operational Risk Assessment to mitigate risks associated with each training event by identifying and incorporating control measures through the Operational Risk Assessment Worksheet (ORAW) in accordance with the references.

Enabling Learning Objectives

TBS-TRNG-2008a Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with the aid of references, identify hazards to mitigate risks associated with each training event by identifying and incorporating control measures through the Operational Risk Assessment Worksheet (ORAW).

TBS-TRNG-2008b Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with the aid of references, assess hazards to mitigate risks associated with each training event by identifying and incorporating control measures through the Operational Risk Assessment Worksheet (ORAW).

TBS-TRNG-2008c Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with the aid of references, make risk decisions to mitigate risks associated with each training event by identifying and incorporating control measures through the Operational Risk Assessment Worksheet (ORAW).

TBS-TRNG-2008d Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with event by identifying and incorporating control measures through the Operational Risk Assessment Worksheet (ORAW).

TBS-TRNG-2008f Given an Operational Risk Assessment Worksheet (ORAW), training materials, training plan, and with the aid of references, describe how to assess effectiveness of control measures to ensure continued safety throughout each training event.

TBS-TRNG-2008g Without the aid of reference, describe the purpose of operational risk assessment, without error.

TBS-TRNG-2008h Given an evaluation, describe safety as part of professionalism without error.

Risk Management Fundamentals

Risk management is the process of identifying, assessing, and controlling risks arising from operational factors and making decisions that balance risk costs with mission benefits. Leaders and Marines at all levels use risk management. It applies to all missions and environments across the wide range of Marine Corps operations. Risk management is fundamental in developing confident and competent leaders and units. Proficiency in applying risk management is critical to conserving combat power and resources. Commanders must firmly ground current and future leaders in the critical skills of the five-step risk management process.

- **What is risk?**

Risk is characterized by both the probability and severity of a potential loss that may result from hazards due to the presence of an enemy, adversary, or some other hazardous condition. Perception of risk varies from person to person. What is risky or dangerous to one person may not be to another. Perception influences leaders' decisions. A publicized event such as a training accident or a relatively minor incident may increase the public's perception of risk for that particular event and time — sometimes to the point of making such risks unacceptable. Failure to effectively manage the risk may make an operation too costly — politically, economically, and in terms of combat power (Marines' lives and equipment).

- The two types of risk that exist across the wide range of Marine Corps operations are *tactical risks* and *accident risks*.
 - *Tactical risk* is risk concerned with hazards that exist because of the presence of either the enemy or an adversary. It applies to all levels of war and across the spectrum of operations.
 - *Accident risk* includes all operational risk considerations other than tactical risk. It includes risks to the friendly force. It also includes risks posed to civilians by an operation, as well as an operation's impact on the environment. It can include activities associated with hazards concerning friendly personnel, civilians, equipment readiness, and environmental conditions.

Risk management applies to all situations and environments across the wide range of Marine Corps operations, activities, and processes. Risk management is useful in developing, fielding, and employing the total Marine Corps force.

Risk management assists the commander or leader in:

- Conserving lives and resources and avoiding unnecessary risk.
- Making an informed decision to implement a COA.
- Identifying feasible and effective control measures where specific standards do not exist.
- Providing reasonable alternatives for mission accomplishment.

Risk Management Fundamentals (Continued)

Risk management does not:

- Inhibit the commander's and leader's flexibility and initiative.
- Remove risk altogether, or support a zero defects mindset.
- Require a GO/NO-GO decision.
- Sanction or justify violating the law.
- Remove the necessity for standard drills, tactics, techniques, and procedures.

BOTTOM LINE - As commanders ***we must*** educate ourselves on managing risk proficiently in order to mitigate unnecessary and costly losses of combat power and resources in training or on the battlefield.

Operational Risk Management (ORM) Principles

ORM enhances hazard identification in the operational environment in order to eliminate risks or reduce them to acceptable level. The commander directs the organization and sets priorities and the command climate (values, attitudes, and beliefs). Successful preservation of combat power requires embedding risk management into unit behavior. This requires commitment and creative leadership — innovative planning, careful management. It also requires the chain of command's demonstrated support of the risk management process. Only then will the Marine Corps begin to capture the full power of risk management. Commanders establish a command climate favorable for risk management integration by:

- Demonstrating consistent and sustained risk management behavior through leading by example — habitually doing risk management — and actively participating throughout the risk management process.
 - Providing clear guidance, when appropriate, on where or what risk to accept.
 - Obtaining and providing to subordinates the necessary assets to control risk.
 - Knowing their own limitations, their leaders' and Marines' limitations, and their unit's capabilities.
 - Preventing a zero-defects mindset from creeping into their command's culture.
 - Allowing subordinates to make mistakes and learn from them.
 - Demonstrating full confidence in subordinates' mastery of their trade and their ability to execute a chosen course of action.
 - Keeping subordinates informed; consulting with subordinate leaders before making a decision, if feasible.
 - Listening to subordinates.
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Operational Risk Management (ORM) Principles (Continued)

PRINCIPLES OF ORM

- Accept no unnecessary risk.
- Accept risks only when benefits outweigh cost.
- Make risk decisions at the right level.
- Anticipate and manage risk by planning.

ORM 5-Step Process/ BAMCIS/METT-T

BAMCIS and ORM

- Risk management is the process of identifying and controlling hazards to conserve combat power and resources. The five steps of risk management are:
 - Step 1. Identify hazards
 - Step 2. Assess hazards to determine risk
 - Step 3. Develop controls and make risk decisions
 - Step 4. Implement controls
 - Step 5. Supervise and evaluate
- This five-step process is integrated into the decision-making process (BAMCIS)
 - Begin Planning
 - Arrange for Reconnaissance
 - Make Reconnaissance
 - Complete the Plan
 - Issue the Order
 - Supervise

Risk Management Steps

Decision-Making Process (BAMCIS)	Step 1 Identify Hazards	Step 2 Assess Hazards	Step 3 Develop Controls/Make Risk Decision	Step 4 Implement Controls	Step 5 Supervise and Evaluate
Mission Receipt	X				
Begin Planning	X	X			
Arrange for Reconnaissance	X	X	X		
Make Reconnaissance	X	X	X		
Complete the Planning		X	X		
Issue the Order				X	
Supervise					X

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

STEPS 1 AND 2

Together these steps comprise the risk assessment. In Step 1, individuals identify the hazards that may be encountered in executing a mission. In Step 2, they determine the direct impact of each hazard on the operation and prioritize the risks. The risk assessment provides for enhanced situational awareness. This awareness builds confidence and allows Marines and units to take timely, efficient, and effective protective measures.

STEPS 3 THROUGH 5

Steps 3 through 5 are the essential follow-through actions to effectively manage risk. In these steps, leaders balance risk against costs political, economic, environmental, and combat power — and take appropriate actions to eliminate unnecessary risk. During execution, as well as during planning and preparation, leaders continuously assess the risk to the overall mission and to those involved in the task. Finally, leaders and individuals evaluate the effectiveness of controls and provide lessons learned so that others may benefit from the experience.

THE FIVE STEPS APPLIED

STEP 1. IDENTIFY HAZARDS

- A *hazard* is an actual or potential condition where the following can occur due to exposure to the hazard:
 - Injury, illness, or death of personnel.
 - Damage to or loss of equipment and property.
 - Mission degradation.

Hazards are sources of danger or risks due to enemy or adversary presence and other conditions not due to enemy or adversary capabilities. Hazards are found in all operational environments. Combat operations, stability operations, base support operations, and training present unique hazards for units involved in these kinds of missions. Hazards are identified during nearly all levels of the decisionmaking process: mission receipt, begin planning, arrange for reconnaissance, and make reconnaissance. The factors of **METT-T** provide a sound framework for identifying hazards when planning, preparing, and executing operations.

Mission

Leaders first analyze the assigned mission. They look at the type of mission to be accomplished and consider possible subsequent missions. Certain kinds of operations are inherently more dangerous than others. Identifying missions that routinely present great risk is imperative.

Enemy

Commanders look for enemy capabilities that pose significant hazards to the operation.

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

METT-T Factors (Continued)

Terrain and Weather

In addition to those due to the enemy or adversaries, the most obvious hazards to military operations are due to terrain and weather. Terrain and weather affect the type of hazard encountered. When the enemy uses terrain to his advantage, the risk is clearly tactical. The aspects of terrain and weather may create situations where accident risks predominate. When looking at this from a purely mission perspective, familiarity of the unit with the terrain and its associated environment must be paramount.

Troops

Leaders analyze the capabilities of available friendly troops. Associated hazards impact both the Marine and unit. Key considerations are level of training, manning levels, the condition and maintenance of vehicles and equipment, morale, availability of supplies and services, and the physical and emotional health of Marines. All Marines must be vigilant to the fact that hazards in these areas can adversely affect a mission, even when all tactical considerations point to success.

Time Available

The hazard is insufficient time to plan, prepare, and execute operations. Planning time is always at a premium. Leaders routinely apply the one-third/two-thirds rule to ensure their subordinate units are given maximum time to plan. Failure to accomplish a mission on time can result in shortages of time for subordinate and adjacent units to accomplish their mission.

STEP 2. ASSESS HAZARDS

Step 2 completes the risk assessment. Risk is the chance of hazard or bad consequences. This step examines each hazard in terms of probability and severity to determine the risk level of one or more hazardous incidents that can result from exposure to the hazard. This step is conducted during four steps of the decision-making process — *begin planning*, *arrange for reconnaissance*, *make reconnaissance*, and *complete the plan*. This step is also conducted after controls are developed. **The hazardous incident must be credible in that it must have a reasonable expectation of happening.**

- **Substep A**

- Leaders and staffs assess each hazard in relation to the *probability* of a hazardous incident. The probability levels estimated for each hazard may be based on the mission, COAs being developed and analyzed, or frequency of a similar event. The table provides a summary of the four degrees of probability. The letters in parentheses following each degree (A through D) provide a symbol for depicting probability.

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

Hazard Probability

Degree of Probability	Description
Likely (A)	Likely to occur immediately or within a short period of time. Expected to occur frequently to an individual item or person or continuously to a fleet inventory, or group.
Probably (B)	Probably will occur in time. Expected to occur several times to an individual item or person or frequently to a fleet, inventory, or group.
May (C)	May occur in time. Can reasonably be expected to occur some time to an individual item or person or several times to a fleet, inventory, or group.
Unlikely (D)	Unlikely to occur.

- **Substep B**

- Substep B addresses the *severity* of each hazard. It is expressed in terms of:

- Degree of injury or illness.
- Loss of or damage to equipment or property.
- Environmental damage.
- Other mission-impairing factors such as lost combat power.

The degree of severity estimated for each hazard may be based on knowledge of the results of similar past events. The table provides a summary of the four degrees of hazard severity. Hazard severity categories are assigned Roman numerals to depict each degree of severity (I through IV) in descending order. For example, Category I represents the highest degree of severity and Category IV represents the lowest degree of severity.

Hazard Severity

CATEGORY	DEGREE OF SEVERITY
Category I	The hazard may cause death, loss of facility/asset or result in grave damage to national interests.
Category II	The hazard may cause severe injury, illness, property damage, damage to national or service interests, or degradation to efficient use of assets.
Category III	The hazard may cause minor injury, illness, property damage, damage to national, service or command interests or degradation to efficient use of assets.
Category IV	The hazard presents a minimal threat to personnel safety or health, property, national, service or command interests, or efficient use of assets.

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

- Substep C
 - In this substep leaders and staffs expand what they understand about probable hazardous incidents into estimates of levels of risk for each identified hazard and an estimate of the overall risk for the operation. Estimating risk follows from examining the outcomes of Substeps A and B; that is, both the probability and severity of hazardous incidents. Assessment of risk requires good judgment.
- Risk Assessment Matrix. The Marine Corps' policy on using a risk assessment matrix is that it should be used to accomplish the second step of the ORM process. Using a matrix to quantify and prioritize the risk(s) does not lessen the inherently subjective nature of risk assessment. However, a matrix does provide a consistent framework for evaluating risk. Although different matrices may be used for various applications, **any risk assessment tool should** include the elements of hazard severity and mishap probability. The Risk Assessment Code defined in the matrix represents the degree of risk associated with a hazard considering these two elements. While the degree of risk is subjective in nature, the RAC does accurately reflect the relative amount of perceived risk between various hazards.

The example matrix described below is used in naval occupational safety and health assessments. The following is a standardized matrix that can be used to assist in this process. Leaders and staffs enter the estimated degree of severity and probability for each hazard in Substeps A and B from the severity row and probability column, respectively. The point where the severity row and probability column intersect defines the level of risk, and is known as the Risk Assessment Code (RAC).

Risk Assessment Matrix

		PROBABILITY			
CATEGORY		A	B	C	D
SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

Risk Assessment Code (RAC)	
Number	Corresponding Level of Risk
1	Critical
2	Serious
3	Moderate
4	Minor
5	Negligible

STEP 3 DEVELOP CONTROLS/ MAKE RISK DECISION

Step 3 is accomplished in two substeps: develop controls and make risk decisions. This is done during *arrange for reconnaissance*, *make reconnaissance*, and *complete the plan* steps of the decision-making process.

- **Substep A: Develop Controls**

After assessing each hazard, leaders develop one or more controls that either eliminate the hazard or reduce the risk (probability and/or severity) of a hazardous incident. When developing controls, they consider the reason for the hazard not just the hazard itself.

- **Types of Controls.** Controls can take many forms, but they fall into three basic categories — *educational controls*, *physical controls*, and *avoidance*.
 - *Educational controls.* These controls are based on the knowledge and skills of the unit and individuals. Effective control is implemented through individual and collective training that ensures performance to standard.
 - *Physical controls.* These controls may take the form of barriers, guards, or signs to warn individuals and units that a hazard exists. Additionally, special controller or oversight personnel responsible for locating specific hazards fall into this category.
 - *Avoidance.* These controls are applied when leaders take positive action to prevent contact with an identified hazard.
- **Criteria for Controls.** To be effective, each control developed must meet the following criteria:
 - *Suitability.* It must remove the hazard or mitigate (reduce) the residual risk to an acceptable level.
 - *Feasibility.* The unit must have the capability to implement the control.
 - *Acceptability.* The benefit gained by implementing the control must justify the cost in resources and time. The assessment of acceptability is largely subjective.

ORM 5-Step Process/ BAMCIS/METT-T (Continued)

- **Residual Risk.** Once the responsible leader develops and accepts controls, he determines the residual risk associated with each hazard and the overall residual risk for the mission.
 - *Residual risk* is the risk remaining after controls have been selected for the hazard. Residual risk is valid (true) only if the controls for it are implemented.
 - *Overall residual risk* of a mission must be determined when more than one hazard is identified. The residual risk for each of these hazards may have a different level, depending on the assessed probability and severity of the hazardous incident. Overall residual mission risk should be determined based on the incident having the greatest residual risk. Determining overall mission risk by averaging the risks of all hazards is not valid. If one hazard has high risk, the overall residual risk of the mission is high, no matter how many moderate or low risk hazards are present.

STEP 4. IMPLEMENT CONTROLS

Leaders and staffs ensure that controls are integrated into SOPs, written and verbal orders, mission briefings, and staff estimates. The critical check for this step, with oversight, is to ensure that controls are converted into clear, simple execution orders understood at all levels. Implementing controls includes coordination and communication with:

- Appropriate superior, adjacent, and subordinate units and those executing the mission.
- Civilian agencies that are part of the force. The media, NGOs, and PVOs must be included in coordination when their presence impacts or is impacted by the force.

STEP 5. SUPERVISE AND EVALUATE

Leaders supervise mission rehearsal and execution to ensure standards and controls are enforced. Techniques may include spot-checks, inspections, situation reports and brief-backs, buddy checks, and close supervision. During the mission, leaders continuously monitor controls to ensure they remain effective, and modify them as necessary. Leaders and individuals anticipate, identify, and assess new hazards to implement controls. They continually assess variable hazards such as fatigue, equipment serviceability, and the environment. Leaders modify controls to keep risks at an acceptable level.

ORM Levels

- **Time Critical.** An “on the run” mental or oral review of the situation using the five-step process without recording the information on paper is often all that time will allow. The time-critical level of ORM is employed by experienced personnel to consider risk while making decisions in a time-compressed situation. It is the normal level of ORM used during the execution phase of training or operations, as well as in planning during crisis response scenarios. It is particularly helpful in choosing the appropriate course of action when an unplanned event occurs during the execution of a planned operation or daily routine.
 - **Deliberate.** Application of the complete five-step process will aid in planning an operation or evaluating procedures. This level uses primarily experience and brainstorming to identify hazards and develop controls; and is therefore, most effective when done in a group. Examples of deliberate applications include planning of upcoming operations, review of standard operating, maintenance or training procedures, damage control, and disaster response planning.
 - **In-depth.** A process involving a very thorough risk assessment (first two of the five steps). Research of available data, use of diagram and analysis tools, formal testing, or long term tracking of the hazards associated with the operation (sometimes with assistance from technical experts) are used to identify and assess the hazards. The in-depth level of ORM is used to more thoroughly study the hazards and associated risk in a complex operation or system, or one in which the hazards are not well understood. Examples of in-depth applications include long-term planning of complex operations, introduction of new equipment, materials and missions, development of tactics and training curricula, and major system overhaul or repair.
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Summary/CMC Guidance

As per MCO 3500.27B, the primary objective of ORM is to avoid unnecessary risk. Successful implementation of the ORM process will increase mission effectiveness while minimizing unnecessary loss of assets, both personnel and materiel. All Marine Corps activities shall apply the ORM process in planning, operations, training, and non-operational activities to optimize operational capability and readiness. Individuals shall apply ORM concepts in operational and non-operational activities. The ORM process provides an additional tool for commanders to use in reducing risks inherent in military operations. It is not a complete change in the way we approach the operational risk management problem, but rather provides a specific methodology for personnel to anticipate hazards and evaluate risk. Just as we have trained our personnel to focus on the mission, we can train our personnel to evaluate risk as part of the decision making process. As personnel are trained in and use the process, ORM will become intuitive, and applied automatically as a means to aid in quickly developing an effective course of action to accomplish the mission. Remember, it is your responsibility and duty to apply the ORM fundamentals in order to optimize our operational capabilities and readiness.

References

Reference Number or Author	Reference Title
MCO 3500.27B	Operational Risk Management (ORM)
ORM 1-0	Operational Risk Management (ORM)

Glossary of Terms and Acronyms

Term or Acronym	Definition or Identification
BAMCIS	Begin planning, Arrange for reconnaissance, Make reconnaissance, Complete the plan, Issue the Order, Supervise.
CMC	Commandant of the Marine Corps
Hazard	Any issue, real or potential that can cause personal injury, death, property damage, mission degradation or damage to environment.
Hazard Severity	An assessment of the expected consequence, defined by degree of injury, occupational illness, property damage, or equipment loss that could occur from exposure to a hazard.
Mishap Probability	An assessment of the likelihood that, given exposure to a hazard, a mishap will result.
ORM	Operational Risk Management. The process of dealing with risk associated with military operations, including risk assessment, risk decision making and implementation of effective risk controls.
ORA	Operational Risk Assessment
METT-T	Mission, Enemy, Terrain and Weather, Troops – Time available
RAC	Risk Assessment Code. An expression of risk associated with a hazard that combines the hazard severity and mishap probability into a single Arabic numeral.
Residual Risk	Risk remaining after controls have been identified and selected.
Risk	Chance of adverse outcome or bad consequences; such as injury, illness, or loss. Risk level is expressed in terms of hazard probability or severity.
Risk Assessment	A structured process to identify and assess hazards. An expression of potential harm, described in terms of hazard severity, mishap probability, and exposure to hazards.
Severity	The worst <i>credible</i> consequence which can occur as a result of a hazard.
