BY THE ORDER OF
THE COMMANDER

MCCONNELL AIR FORCE BASE
INSTRUCTION 91-211

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Safety

OPERATIONAL RISK MANAGEMENT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction will assist personnel with Operational Risk Management procedures on McConnell Air Force base. The purpose of this instruction is to outline some basic concepts, then provide practical tools **FOR USE BY ALL 22 ARW PERSONNEL**.

1. References.

1.1. AFI 90-901, *Operational Risk Management*

1.2. AFPD 90-9, *Operational Risk Management*

2. Definition, Purpose, and Scope. Operational Risk Management (ORM) is a logic-based, common sense approach to making calculated decisions on human, material, and environmental factors. It enables commanders, functional managers, supervisors, and members to maximize operational capabilities while minimizing risks by applying a simple, systematic process. It will enhance safe mission accomplishment, while preserving assets and safeguarding health and welfare. The goal is to create a leadership environment in which every member of the total force is equipped and motivated to personally manage risk in all they do, on and off-duty.

2.1. Applicability. This Instruction applies to all 22 ARW personnel. All personnel will be required to understand and integrate ORM into all tasks.

2.2. Objectives. The objectives of ORM are to accept no unnecessary risk, to make risk decisions at the appropriate level, to establish clear accountability, and to accept risk only when the benefits outweigh the costs. The overall goal of the program is safe mission accomplishment. This is attained by examining all decisions using risk management principles. Some risk may be necessary based on mission importance. Risk is accepted when it is value added to the mission. Risk decisions made at appropriate levels establish and validate span of control and authority, while also denoting accompanying levels of accountability for risk decisions.

2.3. Appointment of ORM Advisors. Each unit commander will designate an ORM representative who works as an advisor to ensure that ORM is implemented within the unit, that training is accomplished, and that ORM processes are conducted when deemed necessary.

2.3.1. Each ORM Advisor will establish an ORM binder (continuity book) containing a copy of this OI, AFI 90-901, AFPD 90-9, and AFPAM 90-902.

2.3.2. A detailed record of ORM training accomplished within the unit and all processes conducted will be kept using the format provided by 22 ARW/SE.

3. The Process. ORM is a cyclical methodology consisting of a basic number of steps that define a process. The number of steps may vary relative to mission requirements. Prior to initiating this process, a group must identify what it is they want to analyze. This task or operation must be identified in as much detail as practical. The ORM process can be broken down into some basic principles. This does not preclude the continuing process of amending existing procedures to make them more accurate, safer, and more productive. This process must supplement existing procedures and guidance. The following is a description of a six-step ORM process that is to be used.

3.1. Identify the Hazard. A hazard is an event causing risk in an activity. It can also be viewed as the absence or lack of predictability in an operation. These definitions of a hazard have one thing in common; they reduce the chances of successful and safe mission accomplishment. There are many sources from which a hazard can be identified. One of the best is through an ORM Review. In an ORM Review, functional experts identify hazards. Often, one of the best groups of experts are the operators themselves. For example, if the task is to identify risks associated with weapons, the experts may include the Security Forces Combat Arms specialists. Other sources of information may include mishap reports, Operational Readiness Inspection (ORI) reports, Standardization/Evaluation reports, and after-action reports from operations and exercises.

3.2. Assess the Risk. Risk is the probability and severity of loss linked to a hazard. Assessment is the detection of hazards and the application of measurement tools to the risk they represent. Risk assessment is weighing the hazards and their cumulative effect on potential for mission success in a common sense way to minimize exposing forces to unnecessary risks. This step must be driven by data whenever possible. Once hazards are identified, they need to be given value so that their potential can be correctly assessed. A hazard has no meaningful risk potential if it is not graded and/or prioritized. Use the Risk Assessment Code (RAC) matrix below in **Figure 1.**

Figure 1. Risk Assessment Code (RAC) matrix.

		HAZARD PROBABILITY				
		FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
SEVERITY	CATASTROPHIC	EXTREMELY HIGH	HIGH			
	CRITICAL			HIGH		
	MODERATE			MEDIUM		
	NEGLIGIBLE				LOW	

RISK ASSESSMENT MATRIX

SEVERITY

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

CRITICAL – Permanent partial disability, temporary total disability in excess of 3 months.

MODERATE – Minor injury or illness, lost workday accident, , minor system or property damage

NEGLIGIBLE – First aid or minor medical treatment, minor system impairment.

PROBABILITY

FREQUENT – Occurs often in an individual's career or equipment service life.

LIKELY – Occurs several times in an individual's career or equipment service life

OCCASIONAL – Occurs sometimes in an individual's career or equipment service life.

SELDOM – Can possible occur in an individual's career or equipment service life.

UNLIKELY – Probably will not occur in an individual's career or equipment service life.

RISK LEVELS

EXTREMELY HIGH – 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.

LOW RISK – Little or no impact on mission accomplishment.

3.3. Countermeasure Cost. Countermeasure cost is the total sum of resources required to eliminate or control the risk. Cost can be defined in dollars, manpower, equipment, time, materials, policy, procedures, etc. It should be expressed in some form of measurement that is within the supervisor's capability to expend.

3.4. Analyze Control Measures. This is the step that initiates the management process. Before a risk can be controlled, alternatives to risk must be understood. There are several ways to do this; risk may be accepted, reduced, avoided, distributed, or transferred.

3.4.1. Acceptance. There is always some degree of acceptance of risk in any military operation. The challenge to supervisors is knowing how much is being accepted. Until the process is exercised, risk has no dimension. If it has no dimension, it is impossible to control.

3.4.2. Reduction. When risk is fully understood, its component parts can be manipulated to affect a reduction in risk.

3.4.3. Avoidance. Risk may be avoided by manipulating the components of risk.

3.4.4. Distribution. Risk is commonly distributed by either increasing the exposure distance or by lengthening the time dimension.

3.4.5. Transference. Risk transference is commonly used in industry by underwriting risk through insurance policies.

3.5. Make Control Decisions. This step is done after the supervisor is briefed on control options. Decisions are made with full awareness of all risks/benefits and how they relate to the mission/task. Options that produce the best possible outcome, considering safety, mission, and resources should be made. The supervisor weighs risks against potential benefits, and a decision is made to continue the operation, change it, or cancel it. Good control decisions must be reached regardless of current policies.

3.6. Implement Control Measures. Establish controls to minimize hazards developed as a result of the first four steps. Weigh potential effectiveness of controls against the risks involved. This step should be done in the team environment with full concurrence from subordinate squadron members. Examples of possible controls include limiting exposure consistent with mission needs, proper selection of personnel (to include supervision), additional training (to include more realistic training for potential hazards), increased warning signals, protective equipment, new policies, and incorporating fail-safe go/no-go criteria.

3.7. Supervise the Process. This last step is repeated until the mission/task goes away. Commanders, supervisors, and individuals must revisit the process and determine if the controls are working. Process problems may occur if the hazard was incorrectly identified or, in fact, had less impact than originally assessed. Perhaps risk controls failed to work. All of the issues can be resolved by a good process review. Periodic "how goes it" meetings will answer the questions of: Did the real hazard get identified? Were there risks related to hazards which were more prominent than originally assessed? Did the control measures work? Key for supervision is to determine if controls are effective. Continuous improvement efforts as a result of this step sustain control effectiveness and increase ORM credibility.

4. Process Flow. The ORM process correlates to the flow chart in **Attachment 1**. Each component of the process flows through decision points. When a tasking is received, or a job assigned, the tasked unit

makes an initial risk decision to ascertain whether or not the task fits within a previously evaluated ORM process. If this task has already been through an ORM process, then it is a risk analyzed task, and the remaining question is to see if the previous process is still viable. In other words, do the controls still work? If not, then a review process must be started. At first, conduct an intuitive analysis to identify hazards that are obvious. Secondly, review mission objectives and requirements. After the functional team of experts is assembled, break the operation down into component parts. Once this initial work is done, the process is started.

5. Practical Tools For Supervisors And Members. The attachments at the end of this instruction contain practical tools that can be used to assess the risk in a given operation or mission segment.

5.1. Operational Risk Factors. Operational risk factors are dependent on the situation. Any operation or task can be broken into five (5) areas: Mission, Man, Media, Machine, and Management. This breakdown analysis is called the 5-M Concept. Use the ORM 5-M Concept risk factors in **Attachment 2** as a tool to breakdown a mission, task, or operation to help with risk analysis. These assessment tools will help identify hazards/risks and how to best apply risk control measures.

5.1.1. Mission. The mission is the desired outcome. We want to effectively and safely use our resources to accomplish our goal.

5.1.2. Man. The human operating the machine within a media under management criteria. Some human elements are:

5.1.2.1. Selection: Right person emotionally/physically trained in event proficiency, procedural guidance, habit pattern.

5.1.2.2. Performance: Awareness, perceptions, saturation, distraction, channeled attention, stress, peer pressure, confidence, insight, adaptive skills, pressure/workload, fatigue (physical, motivational, sleep deprivation, circadian rhythm).

5.1.2.3. Personal Factors: Expectancies, job satisfaction, values, families/friends, command/control, discipline (internal/external), modeling, pressure (over tasking), and communication skills.

5.1.3. Media. The media is the environment in which the mission will be conducted. These external, largely environmental forces are:

5.1.3.1. Climate: Temperature, seasons, precipitation, aridity, wind, cloud cover

5.1.3.2. Operational: Routes, surfaces, terrain, vegetation, obstructions, constrictions

5.1.3.3. Hygienic: Ventilation, noise, toxicity, corrosives, dust, contaminants

5.1.4. Machine. The machine is the mechanical tool used by the operator. It can be as simple as a two-bladed ax or as complicated as a multi-million dollar aircraft, consisting of the following factors:

5.1.4.1. Design: Engineering reliability and performance, user friendliness (ergonomics)

5.1.4.2. Maintenance: Availability of time, tools, parts, ease of access

5.1.4.3. Logistics: Supply, upkeep, repair

5.1.4.4. Tech data: Clear, adequate, useable, available, up-to-date

5.1.5. Management. Management directs the process by defining standards, procedures, and controls. Management is the controlling factor in defining the process of either production success or failure. Here are some management factors:

5.1.5.1. Standards: Design operating capability statements, various criteria, policy

5.1.5.2. Procedures: Checklists, T.O.'s, pamphlets, AFI's

5.1.5.3. Controls: Speed limits, restrictions, laws

5.2. Practical Use of Operational Risk Factors. If a matrix indicates an evaluated degree of risk, then risk accountability is passed up the chain of command. At each upward level of review, supervisors have an opportunity to manage the identified hazards by making decisions to mitigate or accept risk. It also allows leaders to easily focus in on the factors that have an adverse effect on the mission.

6. Conclusion. The Operational Risk Management (ORM) process is a proactive tool that can help all personnel make sound decisions in carrying out our Global Reach mission around the world. It is meant to enhance current directives and policies. It is also a powerful tool for reducing/eliminating risks involved in off duty activities. Commanders and supervisors will do their best to educate all personnel and their units and lead the charge in emphasizing the application of all principles to all activities.

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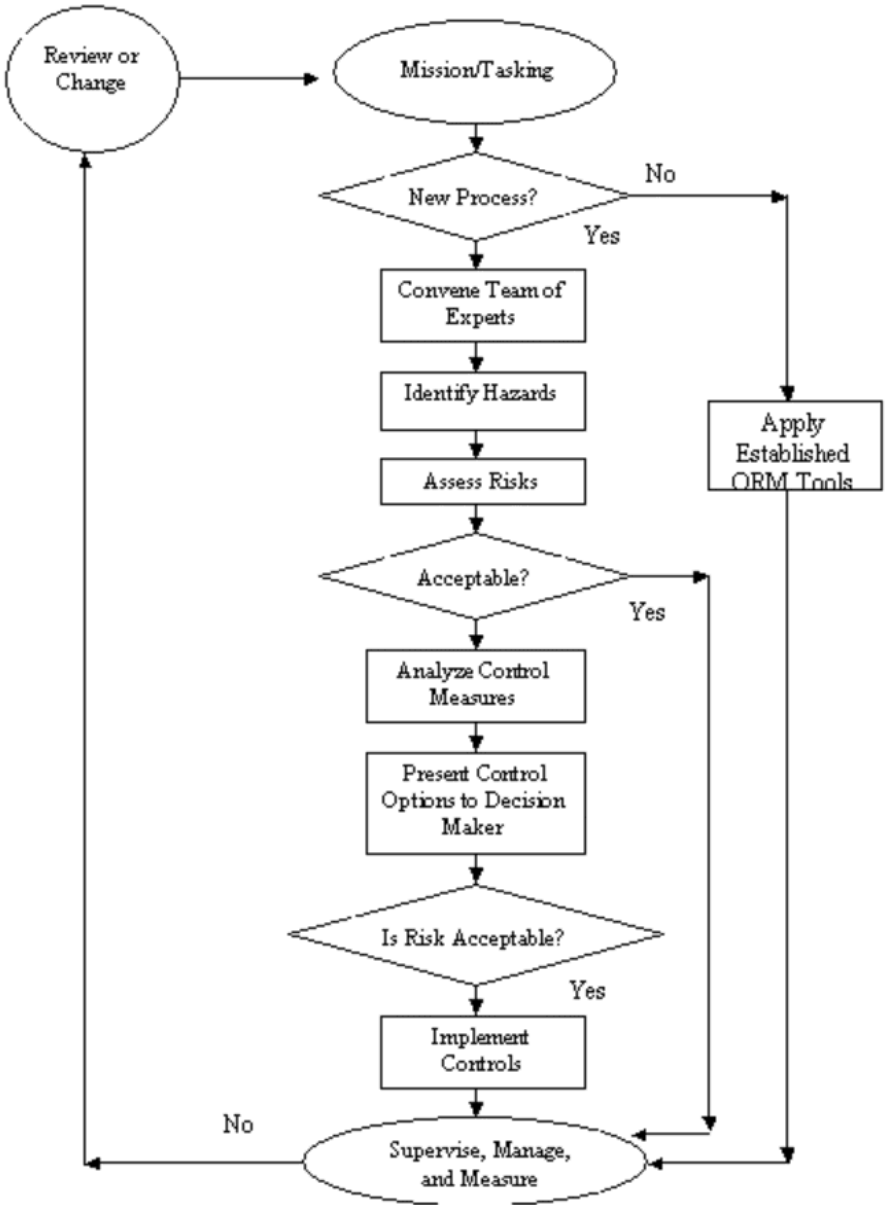
Commander

Attachment 1

ORM PROCESS FLOWCHART



Attachment 2

POSSIBLE MISHAP FACTORS BY 5-M CONCEPT

A2.1. The following is a list of mishap factors under the 5-M Concept. It is not all inclusive, but will help you analyze an operation, mission and/or task. Some factors could be included in multiple categories.

Mission: ***Possible Factors Include:***

Briefing
Mission Demands
Mission Urgency
Mission Planning
Preparation

Man: ***Possible Factors Include:***

Additional Duties
Awareness
Balance
Behavior
Characteristics
Communications
Coordination
Diet
Discipline
Documentation
Emotional State
Ergonomics
Fitness
Flight Discipline
Flight Leadership
History
Inspections
Judgement and Decision Making
Kinesthetic
Mental Fatigue
Miscellaneous Human Factors
Motivation
Off-duty Activities
Over commitment
Perceptual
Personal and Community Involvement
Personality
Personal Qualifications
Psychological
Relationships
Situational Awareness
Stress (on and off-duty)
Visibility
Workmanship Quality

Media: ***Possible Factors Include:***

Facilities
Lighting
Terrain
Weather
Working hours

Machine: ***Possible Factors Include:***

Automation
Computers
Chairs
Desk
Equipment
Heating and Air conditioning
Tools
Vehicles
Weapons

Management: ***Possible Factors Include:***

Communications
Evaluation Issues
Local Procedures
Maintenance Practice
Manning
Mission Pressure
Operational Stress and Tempo
Peer Influences
Policies
Procedural Guidance
Promotion Issues
Publications
Supervision
Training Programs
Upgrade Issues
Waivers
Working Conditions
Workload