DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
AND FORT SAM HOUSTON
Fort Sam Houston, Texas 78234-5014

Memorandum
Number 385-31

1 October 2000

Safety
RISK MANAGEMENT PROGRAM

1. **PURPOSE.** To prescribe policies, procedures and responsibilities for the integration and use of Risk Management (RM) within all operations and training at Fort Sam Houston (FSH) and U.S. Army Medical Department Center and School (AMEDDC&S).

2. **APPLICABILITY.** This memorandum applies to all military, civilians, and contractor personnel assigned, or attached to Fort Sam Houston (FSH) to include Camp Bullis and Canyon Lake (collectively referred to in this memorandum as FSH).

3. **REFERENCES.**

a. AR 5-1, Army Management Philosophy

b. AR 385-10, The Army Safety Program

c. FM 100-14, Risk Management

d. U.S. Army Safety Center, Risk Management for Brigades and Battalions.

e. U.S. Army Safety Center, Leaders Guide to Force Protection and Risk Management.

f. FSH Regulation 385-10, Occupational Safety and Health Program

g. FSH Memorandum 385-1, Contractor Safety Program.

4. **POLICY.**

a. RM is a disciplined and logical decision-making process to identify, evaluate and control hazards. As operations become more complex and manpower is reduced, it is important to apply RM principles in order to control accidental losses. For this reason, commanders and leaders at all levels are responsible for understanding RM principles, conducting risk assessments, and adjusting or compensating appropriately.

b. If nonconformity with mandated standards, workplace deficiencies, or physical hazards exist, the risk assessment codes (RAC) as described in FSH Memo 385-10, Para 9, will apply

5. RESPONSIBILITIES.

a. The Installation Occupational Safety and Health Manager will:

(1) Serve as the principal safety advisor to the Commander and staff for RM.

(2) Establish and publish command RM policy.

(3) Provide for a continuous and comprehensive accident prevention effort.

4 Conduct risk management training.

(5) Evaluate RM implementation

b. Commanders/Directors will:

(1) Incorporate and enforce the use of RM in planning and conduct of all training and operations.

(2) Ensure that subordinates receive formal RM training.

(3) Establish risk approval procedures within their organization. Ensure that risk assessments for high risk are forwarded to commander capable of high-risk determinations (see paragraph 11c for extremely high risk training/operations).

(4) Determine when risk assessments are required to be written except as otherwise required in this regulation. Maintain signed copies of Risk Management Worksheets for all extremely high or high-risk events for one calendar year after the event.

c. Supervisors will:

(1) Ensure personnel are provided and attend initial and refresher safety training as applicable to their areas.

(2) Consistently apply effective RM concepts and methods to operations and tasks.

(3) Elevate risk issues beyond their control or authority to superiors for resolution.

d. Individuals will:

(1 Understand, accept, and implement RM processes.

(2) Make supervisors immediately aware of any unrealistic risk reduction measures or high-risk procedures.

6. RISK MANAGEMENT PHILOSOPHY. RM is a powerful tool for minimizing losses, whether associated with money, equipment or personnel, while maximizing mission/task success. RM applies to all military and civilian operations. With training and practice, personnel can spot hazards, analyze risk and make risk decisions. Decisions must then be made at a level of responsibility that corresponds to the degree of risk and the ability to apply resources.

7. RISK MANAGEMENT PRINCIPLES. Risk is the potential severity of a loss combined with the probability of an occurrence. RM identifies risks associated with a particular operation and weighs those risks against the overall value to be gained. The following are basic decision-making principles that must be applied before any anticipated job, action, or mission is executed.

a. Accept No Unnecessary Risk. An unnecessary risk is one that, if eliminated, still allows mission accomplishment. The leader who has the authority to accept a risk has the responsibility to protect personnel from unnecessary risks. Unnecessary risk comes without an equal payback in terms of real benefits. It is inappropriate for routine maintenance operations or other routine tasks to accept unnecessary risks. Counter-measures must be developed to negate or eliminate the unnecessary risks associated with the task. RM provides tools to determine which risk or what level of risk is unnecessary.

b. Make Risk Decisions At The Appropriate Level. Those accountable for mission success or failure must be included in the risk decision process. Anyone can make a risk decision, however, the appropriate level for risk decisions is the one that can allocate the resources to reduce the risk or eliminate the hazard and implement controls. Commanders and leaders at all levels must ensure subordinates know how much risk they can accept and when they must elevate the decision to a higher level.

c. Accept Risks If Benefits Outweigh The Cost. The process of weighing risks against opportunities and benefits helps maximize unit capability. Even high-risk endeavors may be undertaken when there is clear knowledge that the sum of the benefits exceeds the sum of the costs. Balancing costs and benefits may be a subjective process and open to interpretation. In our routine operations and tasks, costs of lives in the terms

of injury or health are seldom outweighed by the benefits. Ultimately, the balance may have to be determined by the appropriate decision authority.

d. Integrate into planning. Risks are more easily assessed and managed/eliminated in the early planning stages. Acceptable plans are in proportion to risks and worth the anticipated cost. The mission can be accomplished without incurring excessive losses in personnel, equipment, time, or position.

8. FIVE-STEP RISK MANAGEMENT PROCESS. RM is a continuous closed-loop process designed to detect, assess and control risk while enhancing performance and maximizing capabilities. Figure 1 depicts the five-step process. The Risk Management Worksheet, CSFS 4297 E-R, 3 Jan 00 at Appendix A, will be used for conducting risk assessments. RM Worksheet CSFS 4297-1, Continued Form is available if more than one sheet is required. For routine maintenance operations and similar tasks, the Job Hazard Analysis -- as described in paragraph 9c(1), FSH Regulation 385-10, may be used. The form CSFS Form 97-E is used for conducting Job Hazard Analysis (Appendix B).

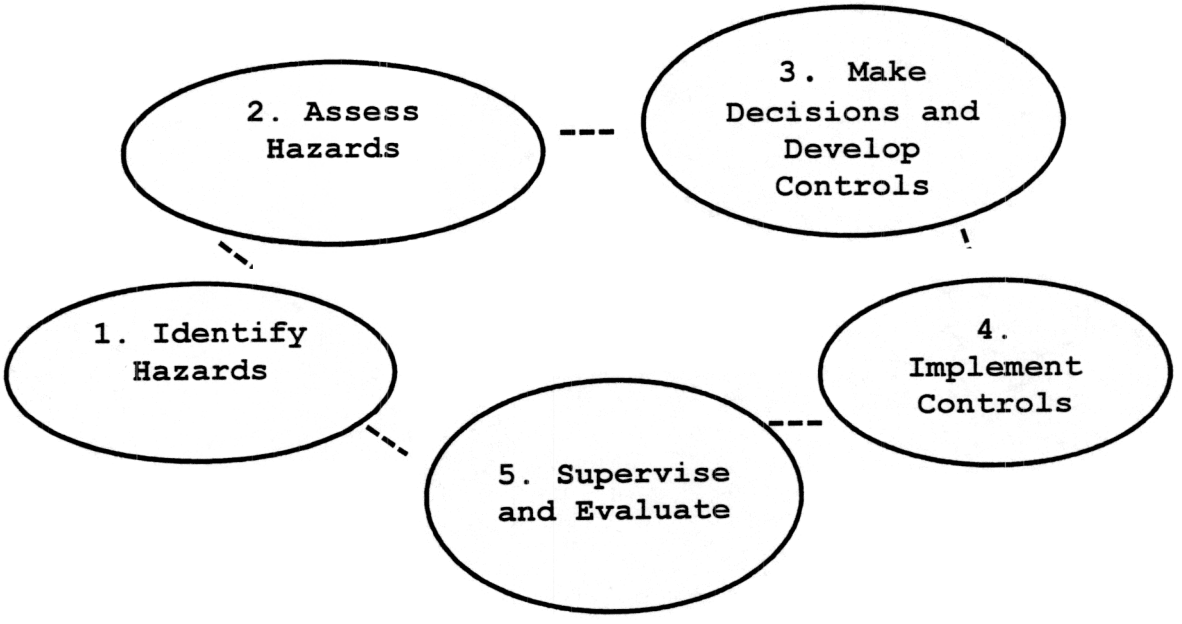

FIGURE 1. FIVE-STEP RISK MANAGEMENT PROCESS

a. Identify hazards. Hazards lead to risk, so the first step is to identify relevant hazards. Consider all aspects of current and future situations, environment, and known historical problems. A hazard is any real or potential condition that can cause mission degradation, injury, illness, death to personnel or damage to or loss of equipment or property. Experience, common sense, and specific RM tools help identify real or potential hazards. In identifying hazards, the importance of experience and training cannot be overemphasized. However, everyone is responsible for identifying potential hazards and informing their supervisor. Look for hazards in each phase of the training or operation. Figure 2 is a suggested model for creating a hazard list.

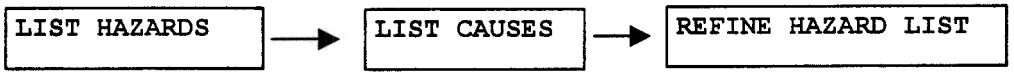

FIGURE 2. IDENTIFY HAZARD

b. Assess the Risk Exposure. For hazards identified in the previous step the next task is to analyze the associated risk—how likely and how big a loss is possible? Shown below are suggestions for accomplishing this step (Figure 3).

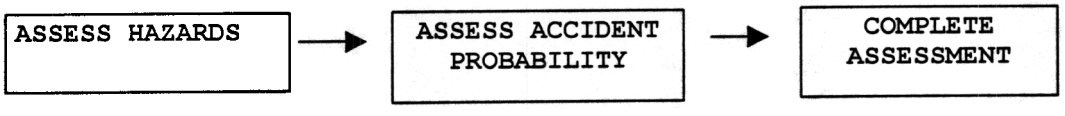

FIGURE 3. ASSESS RISK EXPOSURE

(1) **Probability is affected by exposure.** Repeated exposure to a hazard greatly increases the total likelihood of an accident. This can be expressed in terms of time, proximity, volume, or repetition. Does it happen often, or near personnel or equipment? Does the event happen to a lot of people or equipment? This level can aid in determining the severity or the probability and also serve as a guide for devising control measures. Additionally, one other important factor to consider is interaction. Interaction occurs when two (or more) hazards are present and their total risk is much greater than simply adding their separate risks. It's more like multiplying than adding. Often it is the combination of several factors that make a situation hazardous, rather than any single factor.

(2) **Assess Hazard Severity:** Determine the severity of the hazard in terms of its potential impact on the people, equipment, or mission. Cause and effect diagrams and "What-If" analysis are good tools for assessing the hazard severity. Severity assessment will be based upon the worst possible outcome that can reasonably be expected. Severity categories are defined to provide a qualitative measure of the worst credible accident resulting from personnel error, environmental conditions; design inadequacies; procedural deficiencies; or system, subsystem, or component failure or malfunction.

(3) **Assess Accident Probability:** Determine the probability that the hazard will cause an accident of the corresponding severity catagory. Accident probability is proportional to the cumulative probability of the identified causes for the hazard. Probability may be determined through estimates or actual numbers, if they are available. Assigning a quantitative accident probability to a new mission or system may not be possible early in the planning process. A qualitative accident probability may be derived from research and evaluation of historical safety data from similar missions and systems. Supporting rationale for assigning an accident probability will be documented for future reference.

(4) **Complete Risk Assessment:** Combine severity and probability estimates to form a risk assessment for each hazard. By combining the probability of occurrence with severity a matrix is created where intersecting rows and columns define the risk assessment. This risk assessment matrix (Figure 4) forms the basis for judging both the risk acceptability and the management level at which the decision of acceptance will be made. The matrix may also be used to prioritize resources to resolve risks due to hazards or to standardize hazard notification or response actions. Severity, probability, and risk assessment must be recorded to serve as a record of the analysis for future use.

SEVERITY	PROBABILITY				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Risk Level: E-Extremely High, H-High, M-Moderate, L-Low

PROBABILITY - The likelihood that an event will occur.
FREQUENT - Occurs often, continuously experienced.
LIKELY - Occurs several times.
OCCASIONAL - Occurs sporadically.
SELDOM - Unlikely, but could occur at some time.
UNLIKELY - Can assume it will not occur.

SEVERITY - The expected consequence of an event in terms of degree of injury, property damage, or other mission-impairing factors.
CATASTROPHIC - Death or permanent total disability, system loss, major property damage, not able to accomplish mission.
CRITICAL - Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage, significantly degrades mission capability.
MARGINAL - Minor injury, lost workday accident, minor system damage, minor property damage, some degradation of mission capability.
NEGLIGIBLE - First aid or minor medical treatment, minor system impairment, little/no impact on accomplishment of mission.

FIGURE 4. RISK ASSESSMENT MATRIX

c. Develop controls and make risk decisions. Develop control measures that eliminate the hazard or reduce its risk. As control measures are developed, re-evaluate risks until all risks are reduced to a level where benefits outweigh potential cost. An important factor to consider is the recommended order of precedence for implementing control measures. This proven order of precedence is as follows: (1) Plan or Design for Minimum Risk (2) Incorporate Safety Devices (3) Provide Warning Devices (4) Develop Procedures and Training. After making risk decisions the remaining risks will be assessed. This is "residual risk" and it is the risk level that must be approved or elevated to the next level for signature. Control method examples are:

- Protective equipment, clothing, or safety devices.
- Highlight hazards for extra care and handling.
- Warnings (signs, color coding, audio/visual alarms)
- Repair hazards or build new facilities.
- Limit exposure consistent with mission needs.
- Train and educate.
- Incorporate firm, fail-safe go/no-go criteria.
- Select experienced or specialized personnel.

- Arrange order of operations or tasks - to ensure highest risk activities are accomplished when most alert.
- Use buddy system.
- Use crawl, walk, run training orders; rehearse high risk activities.
- Develop new procedures.

d. Implement Controls. For each identified hazard, the decision-maker must allocate resources to reduce the risk to an acceptable level. Record implementation decisions for future reference. Should management determine that the controls require resources beyond their authority, they must elevate the risk decision to higher authority.

e. Supervise and Evaluate. At this final step, the key to success is that leaders know what controls are in place, what standards are expected, and then hold those in charge accountable for implementation. This is where accident prevention actually happens. RM is a process that continues throughout the life cycle of the system, mission, or activity. At this stage, action must be taken when necessary to correct ineffective risk controls and reinitiate the risk management steps in response to new hazards. This evaluation will be integrated into RM planning the next time the mission is accomplished.

9. RISK ASSESSMENT.

a. Written risk assessments are not required in all cases. The diversity of situations makes it necessary to maintain format flexibility. However, the commander or leader is responsible for determining the potential impact of a hazard on the mission. The Risk Management Worksheet, CSFS 4297 E-R, 3 Jan 00 at Appendix A, will be used for conducting risk assessments. RM Worksheet CSFS 4297-1, Continued Form is available if more than one sheet is required. As a minimum, written risk assessments will be maintained on the following:

All firing ranges.

The rappelling tower.

The leadership reaction course

The obstacle course.

The NBC chamber/NBC Defense Training.

Invasive medical training procedures

Academy of Health Sciences lesson plans

(8) All public demonstrations involving explosives, aviation, hazardous materials or other potential injury causing products or operations.

(9) POL dispensing and storage facilities

10) Hazardous material or explosives storage sites.

b. Risk assessments for lesson plans will be completed by the lesson plan preparer and attached to the back of each lesson plan. Lesson plan risk assessments will identify controls that must be in place to conduct safe training and will provide an overall risk level that is consistent with the highest residual risk of any training task in that lesson plan.

c. The Department of Instruction (DOI) will maintain an inventory of lesson plans by risk level.

d. In coordination with the subject matter expert, the Safety Office will review doctrinal publications and other branch products to ensure adequate RM integration.

10. JOB HAZARD ANALYSIS (JHA).

a. The same principals of RM apply to JHA; however, the JHA is primarily used for routine operations/tasks. Controls must be in place to mitigate the potential hazards. Supervisors will be required to conduct JHAs on all tasks involving construction, repair, maintenance, disposal and other industrial type of activities performed internally to all Directorates/Organizations. The primary steps in the JHA are similar to the steps in the formal RM as depicted in Figure 5 below.

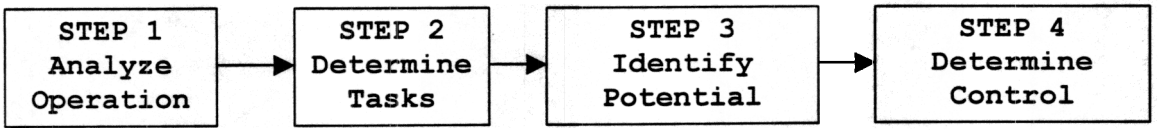

FIGURE 5. JHA STEPS

b. A written JHA will be completed on all major self help projects involving construction, repair, maintenance, disposal or other industrial type activities and the assessment will be maintained in the project file. The Public Works Business Center (PWBC) will ensure that the JHA is completed prior to project approval. PWBC will request the Installation Safety Office review of self-help projects when required.

c. A written JHA is required by all contractors involving major construction, repair, maintenance, disposal or other

industrial type activities. The JHA submitted will become part of the contract file.

d. The authorizing activity will ensure that appropriate JHA considerations are included in minor projects and maintenance undertaken by means of credit card purchases or similar means (See Appendix C - CSFS Form 102-E).

11. RISK APPROVAL

a. The risk for an operation or mission will be the remaining risk after controls and countermeasures are developed for the initial risk.

b. The greater the risk the more senior the final decision-maker will be. Each commander at the Brigade and Troop Command Level or higher will have a written policy of risk approval designating who may accept levels of risk.

c. The Commanding General, FSH, retains approval authority for high-risk training and operations within the command. This includes all tenant and user training and operations whether Army or non-Army. Extremely high-risk approval authority lies with the Commander, MEDCOM (see Para 5b (3)).

d. The Commanding General, FSH, may designate signature authority for high-risk events by letter. In those cases a copy of the RM Worksheet will be forwarded to the Installation Safety Office for review.

e. The Section or Branch Chief within the respective industrial divisions (or those that conduct industrial types of operations) will be the approving authority for the JHA.

RISK MANAGEMENT WORKSHEET

(See AMEDDC&S & FSH Memo 385-31, the proponent is MCCS-BPM-S)

PAGE 1 OF

1. MSN/TASK:	2. DTG BEGIN: END:	3. DATE PREPARED:

4. PREPARED BY: _____ *RANK/LAST NAME/DUTY POSITION*	4A. UNIT:	4B. PHONE #:

5. HAZARDS	6. INITIAL RISK LEVEL	7. CONTROLS	8. RESIDUAL RISK LEVEL	11. HOW TO IMPLEMENT	12. HOW TO SUPERVISE	13. CONTROLS EFFECTIVE

SAMPLE

9. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED (CIRCLE ONE):	10. RISK DECISION AUTHORITY:
LOW MODERATE HIGH EXTREMELY HIGH	_____ *RANK/LAST NAME/DUTY POSITION*

CSFS FORM 4297-E-R, 3 JAN 00

CSFS V1.0

RISK MANAGEMENT WORKSHEET - CONTINUED

(See AMEDDC&S & FSH Memo 385-31, the proponent is MCCS-BPM-S)

PAGE OF

5. HAZARDS	6. INITIAL RISK LEVEL	7. CONTROLS	8. RESIDUAL RISK LEVEL	11. HOW TO IMPLEMENT	12. HOW TO SUPERVISE	13. CONTROLS EFFECTIVE

SAMPLE

CSFS FORM 4297-1-E-R, 3 JAN 00

CSFS V1.0

JOB HAZARD ANALYSIS
(For use of this form, see AMEDDC&S & FSH Memo 385-31; the proponent is MCCS-BPM-S)

1. Date Prepared:	2. Prepared By:	3. Job:
4. Tasks	5. Potential Hazards	6. Remediation/Protection

SAMPLE

4. Tasks CONT	5. Potential Hazards CONT	6. Remediation/Protection CONT

SAMPLE

HEALTH AND SAFETY CHECKLIST FOR CONTRACTING PROJECTS

(For use of this form, see AMEDDC&S & FSH Memo 385-31; the proponent is MCCS-BPM-S)

1. Project Title/Number:	**2. Date:**
3. Location of Project:	**4. Bldg No(s).**
5. Prepared by:	**6. Phone No.**

7. Type of Activity:

Administrative: Clerical ☐ Professional ☐

Non-administrative: Construction ☐ Maintenance ☐ Service ☐ Other ☐

8. Description of Project:

9. Does the project involve any of the following (Please check all that apply):

Asbestos		Explosives		Painting/Chipping	
		Flammable Materials		Pressure Vessels	
Cleaning		Forklifts		Radioactive Materials	
Compressed Gases		Gases or Fumes		Remodeling	
Confined Spaces		Hazardous Waste		Scaffolding	
Construction		Heavy Equipment		Servicing Equip/Machines	
Cranes		Jackhammers		Stocking	
Delivery/Pick-up		Ladders		Transformers	
Dusts		Line Breaking		Transportation	
Electrical Work		Loading/Unloading		Utilities	
Elevated Work		Material Handling		Welding/Cutting/Hot Work	
Equipment Removal		Noise Production		Wiring	
Excavating/Trenching		Parts Replacement		Other	

10. Will the project disturb any existing walls, floors, ceilings, or insulation? YES ☐ NO ☐

11. What Personal Protective Equipment (PPE) will be used and type?

Installation Safety Office: Reviewed PPE ☐

Additional Requirements Recommended:

Reviewed by:

12. Required Permits (Determined by Installation Safety Office):

Permits and/or Checklists Required:

Hot Work Permit ☐
Confined Space Permit ☐
ILSM Required ☐

Line Breaking/Blanking Checklist ☐
Lockout/Tagout Checklist ☐

SAMPLE

AMEDDC&S & FSH Memo 385-31

(MCCS-BPM-S)

FOR THE COMMANDER:

LUCY S. PEREZ
Secretary of the General Staff

OFFICIAL:

MICHAEL J. REDWINE
MAJ, AG
Adjutant General

DISTRIBUTION:
A, B, Plus:
30 - MCCS-BHR-AS
Plus: All Garrison Activities