Explosives Safety Risk Assessments for Demilitarization Operations

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Definitions

- **DOD 4145.26-M defines Hazard Analysis as** **“**The logical, systematic examination of an item, process, condition, facility, or system to identify and analyze the probablility, causes, and consequences of potential or real hazards.
- **DA Pamphlet 385-64 defines Risk Assessment as “**The evaluation of the risk associated with an activity which may include one or more analysis methodologies.”

Introduction

- ✓ **DOD 6055.9-STD, DA Pamphlet 385-64, and DOD 4145.26-M all require that risk assessments and/or hazards analysis be performed on all new or modified ammunition/explosives operations.**
- ✓ **USATCES' experience shows:**
  - ➢ **That the level of rigor and attention to detail in risk assessments/hazards analysis varies widely in the ammunition community. This includes demilitarization operations.**
  - ➢ **That the assessment ends when a operation begins.**

Risk Assessment

- ✓ **DA Pamphlet 385-64, Chapter 2 requires a hazards analysis and risk assessment for all ammunition operations**
  - ➢ **The assessment will review such factors as—**
    - **Initiation sensitivity**
    - **Quantity of materials**
    - **Heat output**
    - **Rate of burning**
    - **Potential ignition and initiation sources**
    - **Protection capabilities of shields, various types of clothing, and fire protection systems**
    - **The acute and chronic health hazards of hot vapors and combustion products on exposed personnel.**

Army Risk Assessments

- ✓ **The official Army methodology for risk assessments is composite risk management as defined in Field Manual 5-19**
  - ➢ **Not a "soldier-only" application**
  - ➢ **Yes, it must be applied to demil operations**

Composite Risk Management (CRM)

- ✓ **Composite risk management (CRM) is the Army's primary decisionmaking process for identifying hazards and controlling risks across the full spectrum of Army missions, functions, operations, and activities.**

Definition of CRM

- ✓ **CRM is a decision-making process used to mitigate risks associated with all hazards that have the potential to injure or kill personnel, damage or destroy equipment, or otherwise impact mission effectiveness.**

Concept of CRM

- ✓ **In the past, the Army separated risk into two categories, tactical risk and accident risk. While these two areas of concern remain, the primary premise of CRM is that it does not matter where or how the loss occurs, the result is the same — decreased combat power or mission effectiveness.**

Guiding principles of CRM

- ✓ **The guiding principles of CRM are as follows:**
  - **Integrate CRM into *ALL* phases of missions and operations.**
  - **Make risk decisions at the appropriate level.**
  - **Accept no unnecessary risk.**
  - **Apply the process cyclically and continuously.**
  - **Do not be risk averse. Identify and control the hazards; complete the mission**

Operator Protection

- ✓ A question frequently asked of USATCES is “Does this operation need to be performed remotely?”
- ✓ DA Pamphlet 385-64, paragraph 18-3b does list some operations that must be performed remotely, otherwise personnel must be protected from overpressures above 2.3 psi, fragments with an energy above 58 ft/lbs, and thermal fluxes > .3 calories per cm2/sec.
- ✓ The Hazard Analysis and Risk Assessment will identify these operations.

New Technologies

- ✓ New technologies must be reviewed to determine the levels of process energies being imparted and the initiation sensitivities encountered.
  - ➢ Testing provides useful data for the risk analyst.
  - ➢ It is usually difficult to assess the risks of operations that have never been performed before.
- ✓ Thorough analysis and reliable data are vital to the Risk Assessment process.

Summary

- ✓ Risk assessments are required for all phases of lifecycle operations from R&D to Demilitarization.
- ✓ They are especially vital for R&D when the hazards and risks have not yet been fully identified, analyzed, and evaluated.
- ✓ The level of rigor and detail should fit the complexity of the operation
- ✓ Apply the risk assessment process cyclically and continuously especially as the operation (or proposed operation) changes.