

# Operationalizing Explosives Safety

## Incorporating Explosives Safety and Munitions Risk Management into the Joint Operation Planning Process

### Department of Defense Issues and Technology Impact

The Department of Defense Explosives Safety Board is charged under US Code Title 10 to prevent hazardous conditions to life and property on and off Department of Defense (DOD) installations from the explosives and environmental effects of DOD titled munitions. Efforts to incorporate cost-effective risk management processes, while sustaining operational capabilities and readiness, facilitate DOD Explosives Safety Management policy.

Operationalizing requires integrating explosives safety requirements throughout the munitions life cycle. Whether a process involves war planning, policy development, business practices, science and technology, risk management, detection and remediation of explosive threats, and munitions responses, early integration is essential to adding value and ultimately protecting DOD strategic assets, personnel and the environment and operational capabilities in support of the National Security Strategy.



The Oak Ridge National Laboratory (ORNL) conducted targeted research to identify information and process gaps in existing DOD doctrine, policy and practices relative to munitions risk management and joint operations planning. This research has produced operational and policy-based solutions to mitigate risk, to or from military munitions, during military operations.

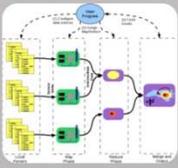
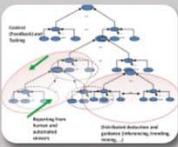
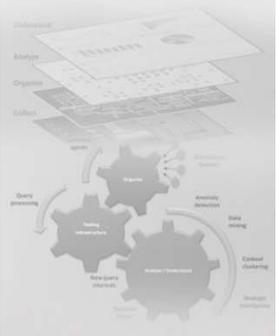
### Technical Concept

- Create a process to identify and reduce munitions-related risk by integrating MRM policies into the Joint Operations Planning Process.
- Create comprehensive assessment templates for collecting and analyzing logistic node data.
- Develop an Explosives Safety Planner (ESP) tool for assessing Net Explosives Weight effects at logistics nodes.
- Develop explosives safety risk management checklist to enable DOD personnel to correctly perform explosive safety consequence and risk identification assessments.

### Description

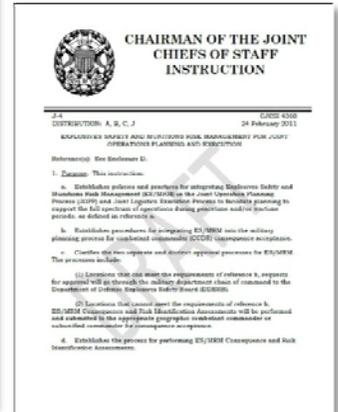
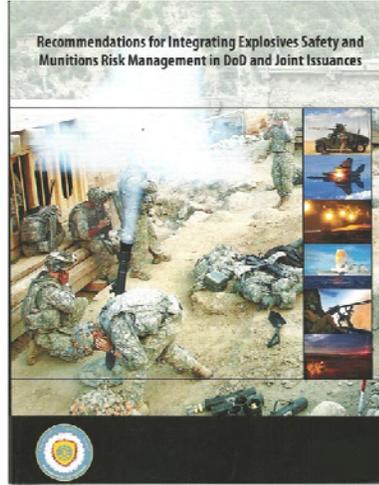
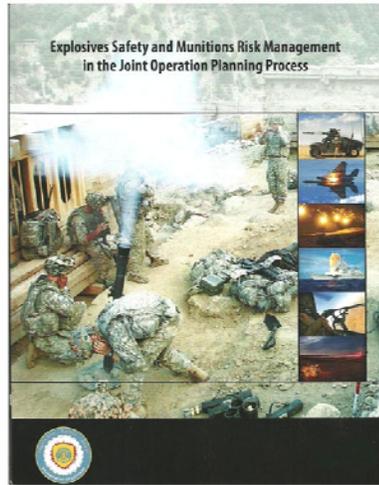
The research has resulted in publication of two studies that identify policy and information gaps for incorporating munitions risk management into DOD operational planning, which have been accepted for action by the Joint Chiefs of Staff. ORNL also drafted a Chairman of the Joint Chiefs of Staff Instruction for implementing these changes across the DOD enterprise.

Data System Sciences and Engineering Group



MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

**Data System Sciences and Engineering Group**



By assessing critical infrastructure and locations identified in operational and contingency plans, ORNL has also developed a template that can be used by DOD and combatant command planners in the adaptive planning process.

The Port Assessment Template is a tool for enabling military planners and logisticians to identify, record and catalog key operational infrastructure elements at strategic logistics nodes. The comprehensive template can be used to standardize the global port assessment process and generate standardized outputs to DOD compliant databases. The template provides the capability to include digital imagery and mapping products and integrate other supporting digital products, thereby significantly enhancing traditional DOD-produced port studies.

**Port Assessment & Template Development**

The interface displays several components:

- Port Assessment:** A table with columns for 'Port Name', 'Country', 'Capacity', 'Status', etc.
- Rail Network:** A map showing rail lines and stations.
- Pre-Assessment:** A section with various maps and data points, including 'Diego Garcia' and 'Weapons Storage'.
- Template Data Tables:** A large table with multiple columns for data entry, including 'Port Name', 'Country', 'Capacity', 'Status', etc.

The ORNL-developed Explosive Safety Planner (ESP) tool provides a visualization of Quantity - Distance arcs of destruction generated by a known Net Explosive Weight (NEW). The NEW is derived from calculations using the authoritative Hazardous Class material database. Combining the ESP tool with geo-registered imagery and maps enables the user to proactively consider, plan and respond to the effects of an explosive incident.

**ORNL Capabilities**

ORNL has considerable experience in developing automated interfaces for legacy military systems and a proven track record of creating innovative and practical solutions for real world challenges.

*Point of Contact:*

Rick Lusk  
 Computation Sciences & Engineering Division  
 Oak Ridge National Laboratory  
 P.O. Box 2008, MS 6085  
 Oak Ridge, TN 37831-6085  
 Phone: 865-574-8864  
 E-mail: luskrm@ornl.gov

