

Report Date: 24 Apr 2012

**Summary Report for Individual Task
031-505-4023
Provide Technical Advice on Battlefield Radiological Hazards
Status: Approved**

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

Condition: As the CBRN Officer/Noncommissioned Officer (NCO) directed to brief the commander on radiological hazards within your area of operations (AO). Given Field Manuals (FM) 3-11.4, Graphic Training Aid (GTA) 03-04-001A, and FM 3-11.3. The task may be conducted in mission-oriented protective posture (MOPP) 4.

Standard: Provide technical advice on battlefield radiological hazards to include sources, characteristics, biological effects, and protective measures for alpha, beta, and gamma radiation, Depleted Uranium (DU), and radiological dispersion devices (RDDs) IAW FM 3-11.3 and FM 3-11.4.

Special Condition: None

Special Standards: None

Special Equipment:

MOPP:

Task Statements

Cue: None

DANGER

None

WARNING

WARNING: INTERNALIZING LARGE AMOUNTS OF DU COULD AFFECT YOUR HEALTH, PRIMARILY THE KIDNEYS.

CAUTION

None

Remarks: None

Notes: No additional protective measures are required for unfired DU munitions beyond those required for all munitions or for intact DU armor.

Performance Steps

1. Advise on alpha, beta, and gamma/neutron radiation.

a. Provide hazards of each type of radiation.

- (1) Alpha – external, inhalation, and ingestion hazards.
- (2) Beta – external (1st, 2nd, 3rd degree burns) and internal hazards.
- (3) Gamma/Neutron – internal hazard.

b. Provide protective measures for each type of radiation hazard.

- (1) Alpha – cover exposed skin and conduct personal hygiene procedures.
- (2) Beta – time, distance, and shielding.
- (3) Gamma/Neutron - time, distance, shielding.
 - (a) Electromagnetic Pulse (EMP) - Provide equipment vulnerabilities
 - (b) Electromagnetic Pulse (EMP)- Provide equipment countermeasures.

1 Disconnect radio antennas.

2 Critical spare parts on hand.

3 Provide redundant, multiple-mode communication links between positions.

c. Provide known/potential sources of radiation within the battlefield. Delivery system such as:

- (1) Military commodities.
- (2) Civil nuclear facilities.
- (3) Nuclear weapon plant, industrial and research facilities, and medical materials.

d. Provide biological effects of nuclear radiation.

(1) Level of Effect.

- (a) Acute Exposure – high dose/short exposure.
- (b) Chronic Exposure – (low dose/long exposure) can result from inhalation or ingestion.
- (c) Cellular Exposure - varied degrees of damage per radiation source.

(2) Biological Effects- signs and symptoms.

(a) High dose/short time: burns, and radiation poisoning/sickness (vomiting, diarrhea, fever, loss of hair, temporary sterility, and death).

(b) Low dose/long time: cancer of skin, bone, tissue or blood cells, and death.

2. Advise on the implications of DU on the battlefield.

a. Provide situations of potential DU hazards, such as:

(1) Within 50 meters of actively burning fires involving DU munitions.

(2) When finding penetrators or parts of penetrators.

(3) When routinely entering vehicles with penetrated DU armor or that have been struck by DU.

(4) When decontaminating the crew or compartments of damaged armored vehicles.

(5) When in, on, or near (within 50 meters) an armored combat vehicle at the time it is struck by DU munitions.

b. Provide protective measures for DU.

(1) Leave penetrators or penetrator parts alone as with all battlefield debris.

(2) Use an AN/VDR-2 meter or AN/PDR-77 Radiacmeter with alpha and beta probe to determine if DU contamination is present.

(3) Remain at least 50 meters (upwind) from any armored vehicle or ammo transport vehicle that is actively burning.

(4) When in, on, or near an armored combat vehicle at the time of impact by DU munitions-

(a) Conduct combat lifesaving/buddy aide.

(b) Continue operations, if possible.

(5) Provide decontaminating requirements for the crew compartment of a damaged armored vehicle or an armored vehicle that has been penetrated by armor-piercing munitions:

(a) Wear respiratory protection.

(b) Cover exposed skin.

(c) Dust off uniform after leaving the vehicle and before removing protective mask.

(d) Always exercise standard field hygiene.

c. Report known or suspected DU contamination to the commander. Medical personnel will be notified when casualties are determined or suspected to have been exposed to DU.

3. Advise on RDD.

a. Provide the potential sources of radioactive material in the AO.

(1) Medical materials: Co-60, Cs-131.

(2) Industrial: Co-60, Ir-192, Cs-137, Sr-90, high level waste, spent fuel.

(3) Research: Sr-90, Ra-226, Ra-228.

(4) Military: Highly Enriched Uranium (HEU), Ra-226.

(5) Terrorist:

(a) Dirty bomb.

(b) Nuclear weapon.

b. Provide hazards for potential RDD based on sources in the AO.

(1) Determine activity.

(2) Type and energy of radiation emitted.

(3) Dose rate.

(4) Biological effects of acute and chronic radiation exposure.

(5) Routes of radiation exposure.

c. Provide protective measures for RDD.

(1) Prioritize rescue.

(2) Reduce exposure using time, distance, and shielding.

(3) Select an operational exposure guide (OEG) based on mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC), and previous exposures.

(4) Isolate area to 25-50m with no fire, 300m with fire.

(5) Notify higher and supporting medical unit.

(6) Plan radiological survey.

(7) Develop and implement site safety plan.

(8) Conduct radiological survey.

(9) Assess data.

(Asterisks indicates a leader performance step.)

Evaluation Preparation: Setup: Provide the Soldier with the items listed in the task condition statement. Brief Soldier: Tell the Soldier to advise the commander on the implications of potential radiation sources, characteristics of radiation, protective measures of radiation, Depleted Uranium protective measures, and radiological dispersion devices RDD's.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Advised on alpha, beta, and gamma/ neutron radiation.			
a. Provided characteristics.			
b. Provided protective measures.			
c. Provided sources.			
d. Provided biological effects.			
2. Advised on DU.			
a. Provided sources.			
b. Provided protective measures.			
c. Provided decontamination requirements.			
3. Advised on RDDs.			
a. Provided sources.			
b. Provided characteristics.			
c. Provided protective measures.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	ATTP 3-11.36	Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Aspects of Command and Control {MCRP 3-37B; NTTP 3-11.34; AFTTP 3-20.70}	No	No
	FM 3-11	Multiservice Doctrine for Chemical, Biological, Radiological, and Nuclear Operations	No	No
	FM 3-11.3	MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR CONTAMINATION AVOIDANCE	Yes	Yes
	FM 3-11.4	MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) PROTECTION	Yes	Yes
	FM 3-11.5	MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DECONTAMINATION	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 Environmental-Related Risk Assessment.

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination. In a training environment, leaders must perform a risk assessment IAW FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 Composite Risk Management Worksheet during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available, and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
ALC CTL 2011	Enlisted	MOS: 74D, Skill Level: SL3