

TC9-21-01(093-89D-01)

SOLDIERS

Improvised Explosive Device (IED) Awareness Guide

IRAQ & AFGHANISTAN Theaters of Operation

Chief of Ordnance
US Army Ordnance Corps



EOD Training Department
Redstone Arsenal, AL



MAY 2004

DISTRIBUTION RESTRICTION: Distribution authorized to U.S. Government agencies only to protect technical or operational information from automatic dissemination (09 February 2004). Other requests for distribution of this document shall be referred to: Commander, OMEMS ATTN: ATSK-TE, EODTD Redstone Arsenal, AL 35897-6790.

DESTRUCTION NOTICE: Destroy this document by any method that will prevent disclosure of its content or reconstruction of the document.

**This publication is available at
Army Knowledge Online
www.us.army.mil**

TC 9-21-01(093-89D-01)

Training Circular
No. 093-89D-01

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 28 MAY 2004

SOLDIERS

Improvised Explosive Device (IED) Awareness Guide

IRAQ & AFGHANISTAN Theaters of Operation

Contents

		Page
	PREFACE	iii
Chapter 1	Background	1-1 thru 1-6
Chapter 2	IRAQ Theater of Operation (IEDs)	2-1 thru 2-13
Chapter 3	AFGHANISTAN Theater of Operation (IEDs)	3-1 thru 3-7
Appendix A	React to a Possible Improvised Explosive Device Common Task 093-401-5050	A-1 thru A-6
	Glossary	Glossary-1

i

UNCLASSIFIED // FOR OFFICIAL USE ONLY

DISTRIBUTION RESTRICTION: Distribution authorized to U.S. Government agencies only to protect technical or operational information from automatic dissemination (09 February 2004). Other requests for distribution of this document shall be referred to: Commander, OMEMS ATTN: ATSK-TE, EODTD Redstone Arsenal, AL 35897-6790.

DESTRUCTION NOTICE: Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

WARNING

This Soldiers reference guide provides general Improvised Explosive Device (IED) awareness, possible characteristics and safety information. It will:

Provide a visual depiction of some Improvised Explosive Devices (IED) encountered in support of the Iraq (OIF) and Afghanistan (OEF) theaters.

Provide Soldiers with the basic know how in relation to: "Reacting to a Possible Improvised Explosive Device (IED).

This reference guide does NOT supercede any Standing Operating Procedures (SOPs), Orders, or Military Directives.

Preface

The purpose of this guide is to give Commanders, Leaders and Soldiers a training tool representing some of the Improvised Explosive Devices (IED) used in both the Iraq and Afghanistan theaters of operation.

The intent of this guide is to support readiness, unit training, operational planning, and awareness as well as provide information in relation to Reacting to a Possible Improvised Explosive Device (IED) common task 093-401-5050. Both training and awareness are a proven and effective force protection tool as well as a combat multiplier.

This guide is not all inclusive and should not be used as a sole source of information. Commanders and leaders must remain abreast of current intelligence, tactics, techniques and procedures (TTPs) and local command standing operating procedures (SOPs) available in particular areas of operation in relation to the Improvised Explosive Device threat.

This guide does not cover IED firing / fuzing systems (internal design) or Explosive Ordnance Disposal (EOD) tactics, techniques and procedures.

This guide is derived from multiple unclassified source documentation and materials.

The proponent of this Soldiers reference guide is: The Chief of Ordnance, US Army Ordnance Corps, Aberdeen Proving Ground, MD. The custodian of information is the US Army Ordnance Munitions and Electronics Maintenance School (OMEMS), 59TH Ordnance Brigade, Explosive Ordnance Disposal Training Department (EODTD). Submit recommendations for changes, updates, deletions, and / or additions to this publication on DA Form 2028 to:

Commander
OMEMS
ATTN: ATSK-TE (Training Division)
Redstone Arsenal, AL 35897-6790

Unless otherwise stated, masculine nouns and pronouns do not refer exclusively to men.

Chapter 1

Background

Improvised Explosive Devices (IEDs) may be constructed out of any available material and contain various fillers to include; explosive, chemical, biological, or hazardous materials. Improvised Explosive Devices may range in size from a cigarette pack or carton to a large vehicle.

The only limitations an enemy bomber faces are: availability of resources, personal ingenuity, and the degree or extent of “know how” required to facilitate construction and in some cases application of an Improvised Explosive Device.

Improvised Explosive Devices are non-standard, and usually fabricated from common materials. The mass quantities of cached, captured enemy ammunition (CEA) and stockpiled munitions within the Iraq and Afghanistan theaters of operation provide the explosive materials to “would be” enemy bombers.

General mitigation measures in relation to the IED threat:

1. Trust your instincts. If something does not seem right it probably isn't. Be aware of your surroundings (situational awareness).
2. Watch the locals in your area of operation; Are the familiar locals in the area? Are people moving away from you or your element acting or appearing nervous? Most bombers don't blow up their own neighborhoods.
3. Be aware of news crews in the area for no apparent reason. Most bombers like their work filmed, but do not like pictures of themselves.
4. Before each and every convoy or patrol, brief your personnel on the latest IED threat intelligence. ***Brief your personnel each and every time.***
 - a. Ascertain what types of items are currently in use?
 - b. Known techniques, patterns and likely locations of emplacement?
 - c. Where in the area have items previously been placed?
 - d. Intelligence on your current route of march (primary and alternates)?
5. Rehearse actions (battle drill) for reacting to a possible Improvised Explosive Device.

Background 1-1

6. Wear personal protective equipment (vests, helmets and eye protection). They save lives!

7. Maintain speed and movement whenever possible.

8. Maintain dispersion while conducting either mounted or dismounted operations.

9. Be cautious of choke points, vehicle breakdowns, bridges, one way roads, traffic jams, sharp turns etc...

10. If something stops movement, either mounted or dismounted, survey your immediate area for possible Improvised Explosive Devices.

Reaction upon encountering an item that is deemed a possible Improvised Explosive Device:

Note: This reference guide does *NOT* supercede any Standing Operating Procedures (SOPs), Orders, or Military Directives.

1. STOP all movement toward the "Possible Improvised Explosive Device (IED)" and immediately evaluate your surrounding area for possible secondary Improvised Explosive Devices.

a. Do not approach the "Possible Improvised Explosive Device"

b. Do not attempt to move the "Possible Improvised Explosive Device"

c. If possible, avoid using any communication / electronic equipment within the previously established and SECURE exclusion area.

2. Establish security:

a. Establish an area around the "Possible Improvised Explosive Device". Adjust the exclusion area based on METT-TC, local command policy / guidance, tactics, techniques and procedures and standing operating procedures (SOPs).

b. Search initial secure area for possible secondary explosive device(s) / hazards, while maintaining security.

Background 1-2

UNCLASSIFIED // FOR OFFICIAL USE ONLY

- c. Identify potential enemy force observation/vantage points.
- d. Seek all available manmade or natural frontal and overhead cover.
- e. Avoid establishing a "reaction" pattern.
- f. Forward information to Higher HQ using standard 9-line UXO Report.
- g. Continue mission IAW Higher HQ guidance

Background 1-3

UNCLASSIFIED // FOR OFFICIAL USE ONLY

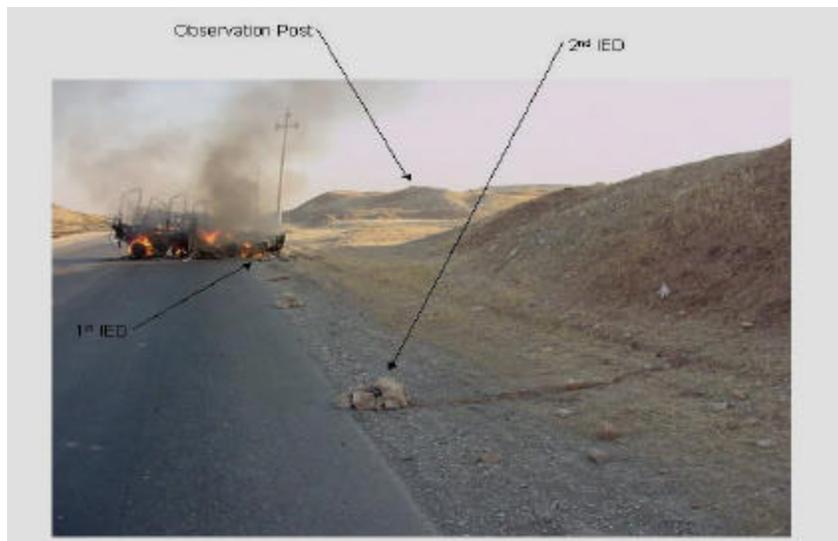
UNCLASSIFIED // FOR OFFICIAL USE ONLY

WARNING:

Recognition features for IEDs are ever changing based on the enemy's capabilities and available resources.

THESE PHOTOS ARE MEANT ONLY TO SERVE AS A GUIDE!

The following photos and diagrams depict possible techniques and methods of employment for Improvised Explosive Devices.

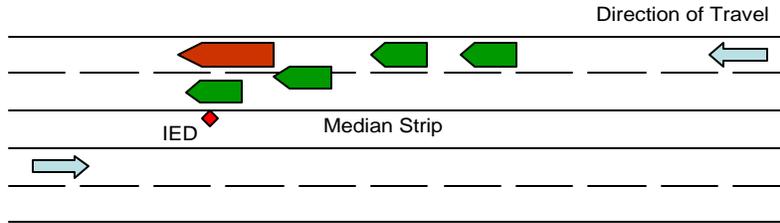


Background 1-4

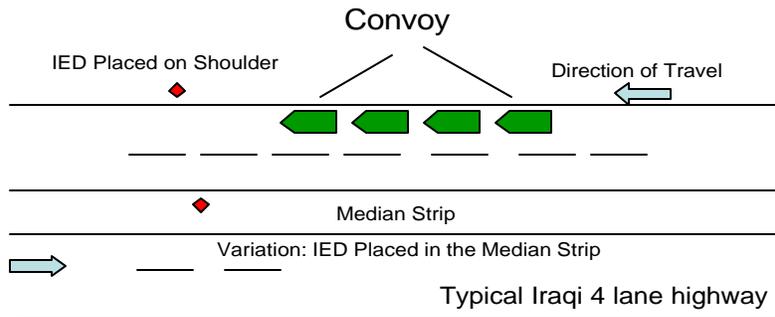
UNCLASSIFIED // FOR OFFICIAL USE ONLY

The "Broken Down Vehicle" IED Attack

"Broken Down / Disabled" vehicle channels / forces
convoy toward IED

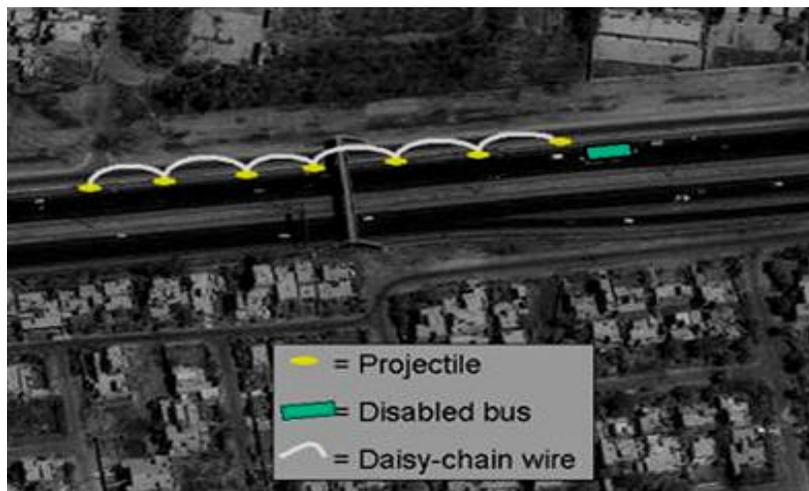
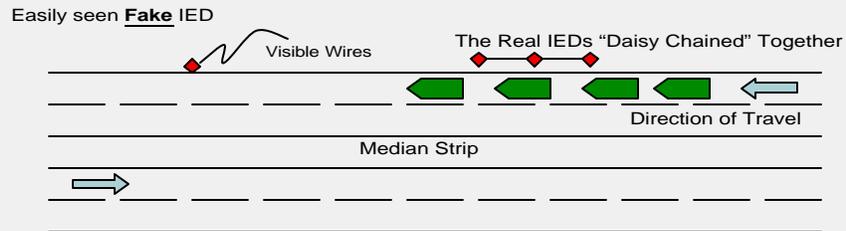


The Basic "No Frills" IED Attack



The "Fiendishly Clever" IED Attack

Lead vehicle sees fake IED and stops. The convoy stops behind it. Real IEDs are on the flanks of the stopped convoy and command detonated



Chapter 2
IRAQ Theater of Operation

The following photos were taken from multiple unclassified source documentation and materials from the Iraq theater of operation.



130 mm Projectile concealed in burlap style sack (sand bag)



130 mm Projectile concealed in a plastic bag

IRAQ Theater of Operation 2-1



Grenade found behind poster of Saddam Hussein



Modified aluminum can made into a hand grenade with hand grenade fuze



Projectile with electric blasting cap in the fuze well



Projectile embedded in plaster of paris (POP) housing to simulate concrete covered with grass



Projectile embedded in plaster of paris (POP) housing to simulate concrete

IRAQ Theater of Operation 2-3



105 mm Projectile concealed by rocks on the road side



Improvised directional explosive device in clear plastic trash bag

IRAQ Theater of Operation 2-4



Improvised directional explosive device



Improvised directional (shape charge) explosive device

IRAQ Theater of Operation 2-5



Projectiles inside of a roadside culvert pipe



Modified Mortar with tripwire attached to grenade fuze

IRAQ Theater of Operation 2-6



Modified Mortar with tripwire attached to grenade fuze



Former Soviet Union 122mm Projectiles

IRAQ Theater of Operation 2-7



Top view of former Soviet Union 122mm Projectiles modified to accept a blasting cap in the cast high explosive (HE)



Plastic shipping caps for former Soviet Union 122mm Projectiles modified to accept a blasting cap

IRAQ Theater of Operation 2-8



Former Soviet Union 122mm Projectile with modified plastic shipping plug and hand grenade, both items modified to accept electric blasting caps.



Former Soviet Union 122mm projectile with plastic explosive in the fuze well modified to accept electric blasting cap.

IRAQ Theater of Operation 2-9



Former Soviet Union 130mm projectile with plastic explosive in the fuze well modified to accept electric blasting cap, concealed in plastic bag.



Cigarette carton filled with plastic explosives



Steel container with "home made" explosives



Steel container with "home made" explosives

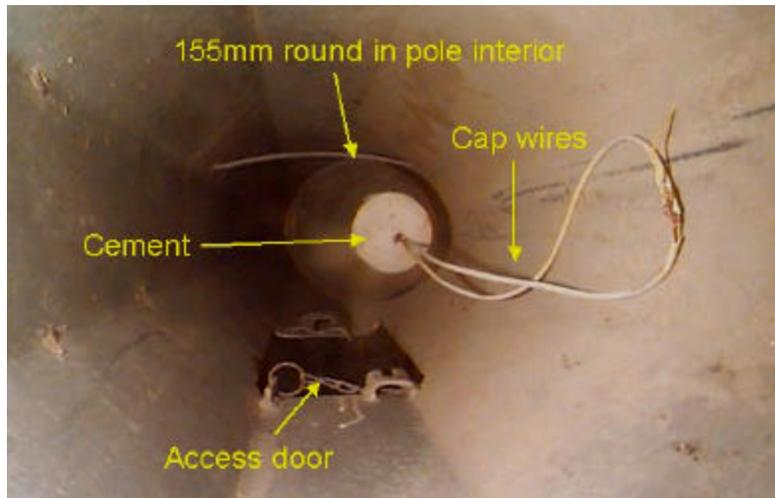
IRAQ Theater of Operation 2-11



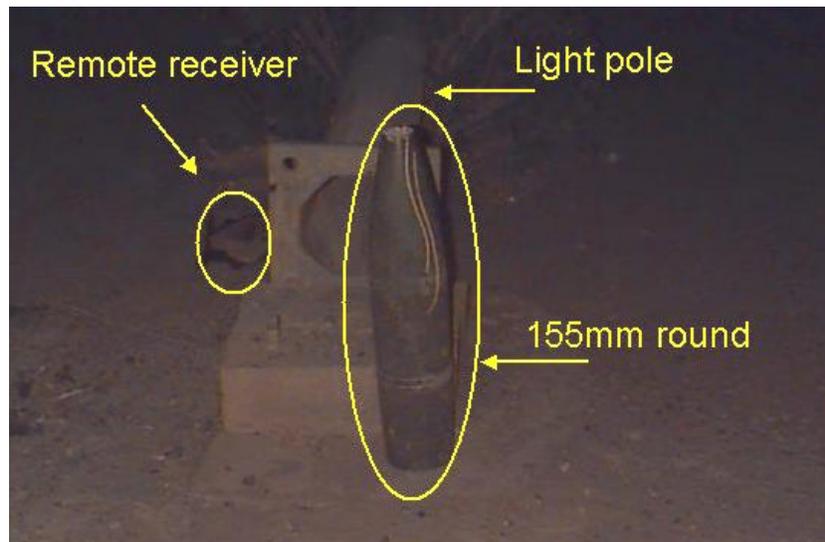
Modified Pepsi cola aluminum can with pyrotechnic fuse



IRAQ Theater of Operation 2-12



155mm Projectile inside of downed street light pole along road side



155mm Projectile outside of downed street light pole along road side

Chapter 3
AFGHANISTAN Theater of Operation

The following photos were taken from multiple unclassified source documentation and materials from the Afghanistan theater of operation.



TC-6 anti-tank (AT) Landmine attached to former Soviet Union FAB-250 high explosive (HE) bomb

AFGHANISTAN Theater of Operation 3-1



Propane tanks used as main charges for Improvised Explosive Devices (IEDs)



Modified TC-6 Anti - Tank (AT) Landmine

AFGHANISTAN Theater of Operation 3-2



Improvised Explosive Device buried in soft pack roadway

AFGHANISTAN Theater of Operation 3-3



Motorcycle with two Anti-Tank (AT) Landmines concealed under the seat



Vehicle bomb strewn with approximately 300 lbs of explosive

AFGHANISTAN Theater of Operation 3-4



Paint cans and similar items are filled with explosive and used as Improvised Explosive Devices (IEDs)



107mm rockets modified to fire on friendly forces

AFGHANISTAN Theater of Operation 3-5



Improvised Explosive Device plastic boxes with detonating cord and stereo speaker magnets, to affix on metal target.



Former Soviet Union 60mm Mortar with hand grenade fuze

AFGHANISTAN Theater of Operation 3-6



Hand grenade wedged between a rock and a TC-6 anti-tank (AT) landmine



Propane tank with detonating cord attached to two
TC-6 anti-tank (AT) landmines

AFGHANISTAN Theater of Operation 3-7

APPENDIX A

React to a "Possible Improvised Explosive Device (IED)"
093-401-5050

Warning:

All soldiers must receive a theater specific IED threat brief to successfully accomplish this task.

Specific identification features for IEDs are ever changing based on the enemy's capabilities and available resources.

Task: React to a Possible Improvised Explosive Device (IED)

Condition: During military operations you encounter a "Possible Improvised Explosive Device (IED)".

Standard: Properly establish initial exclusion area, security, and report "Possible Improvised Explosive Device (IED)" to Higher HQ with 100% accuracy.

Danger:

Do not attempt to move the "Possible Improvised Explosive Device (IED)"

Danger:

Do not approach the "Possible Improvised Explosive Device (IED)"

Danger:

If possible, avoid using any communication/electronic equipment within established exclusion area

Appendix A React to a Possible Improvised Explosive Device (IED)....A-1
Common Task 093-401-5050

Warning:

Any of the above “Dangers” may cause a “Possible Improvised Explosive Device (IED)” to explode

Performance Steps

1. Establish minimum initial exclusion area of 300 meters around “Possible Improvised Explosive Device (IED)”.

Warning:

**Adjust exclusion areas based on METT-TC
(See Figure 1 & 2 as a Basic Guide)**

2. Establish security:
 - a. Search secure area for possible secondary explosive device(s)/hazards, while maintaining security.
 - b. Identify potential enemy force observation/vantage points.
 - c. Seek all available manmade or natural frontal and overhead cover.
 - d. Avoid establishing a “reaction” pattern.
3. Forward information to Higher HQ using standard 9-line UXO Report (See Figure 1-6).
4. Continue mission IAW Higher HQ guidance.

Evaluation Preparation: Grade the soldiers as a “go” or “no-go” in each area. Explain the incorrect action for any “no-go”.

Performance Measures (Go – No Go)

1. Upon encountering a “Possible Improvised Explosive Device (IED)”:

Appendix A React to a Possible Improvised Explosive Device (IED)....A-2
Common Task 093-401-5050

- a. Ensured all movement towards “Possible Improvised Explosive Device (IED)” stopped.
 - b. Established initial minimum 300 meter exclusion area.
 - c. Established security.
2. Submitted standard 9-line UXO Report to Higher HQ.
 3. Did not move “Possible Improvised Explosive Device (IED)”.
 4. Did not approach “Possible Improvised Explosive Device (IED)”.
 5. Did not use any communication or electronic devices within initial exclusion area.
 6. Continued mission IAW Higher HQ guidance.

Evaluation Guidance: Tell the soldier that; “Possible Improvised Explosive Device (IED)” are in use in the AOR. Place the Soldier in a scenario that will require them to encounter a “Possible Improvised Explosive Device (IED)”.

	Threat Description		Explosives Mass (TNT equivalent)	Building Evacuation Distance	Outdoor Evacuation Distance
High Explosives (TNT Equivalent)		Pipe Bomb	5 lbs 2.3 kg	70 ft 21 m	850 ft 259 m
		Suicide Belt	10 lbs 4.5 kg	90 ft 27 m	1,080 ft 330 m
		Suicide Vest	20 lbs 9 kg	110 ft 34 m	1,360 ft 415 m
		Briefcase/Suitcase Bomb	50 lbs 23 kg	150 ft 46 m	1,850 ft 564 m
		Compact Sedan	500 lbs 227 kg	320 ft 98 m	1,500 ft 457 m
		Sedan	1,000 lbs 454 kg	400 ft 122 m	1,750 ft 534 m
		Passenger/Cargo Van	4,000 lbs 1,814 kg	640 ft 195 m	2,750 ft 838 m
		Small Moving Van/ Delivery Truck	10,000 lbs 4,536 kg	860 ft 263 m	3,750 ft 1,143 m
		Moving Van/Water Truck	30,000 lbs 13,608 kg	1,240 ft 375 m	6,500 ft 1,982 m
		Semi trailer	60,000 lbs 27,216 kg	1,570 ft 475 m	7,000 ft 2,134 m

Figure 1

	Threat Description		LPG Mass/Volume	Fireball Diameter	Safe Distance
Liquefied Petroleum Gas (LPG - Butane or Propane)		Small LPG Tank	20 lbs/5 gal 9 kg/19 lb	40 ft 12 m	160 ft 48 m
		Large LPG Tank	100 lbs/25 gal 45 kg/95 lb	69 ft 21 m	276 ft 84 m
		Commercial/Residential LPG Tank	2,000 lbs/500 gal 907 kg/1,893 lb	184 ft 56 m	736 ft 224 m
		Small LPG Truck	8,000 lbs/2,000 gal 3,630 kg/7,570 lb	292 ft 89 m	1,168 ft 356 m
		Semi tanker LPG	40,000 lbs/10,000 gal 18,144 kg/37,850 lb	499 ft 152 m	1,996 ft 608 m

Figure 2

Standard 9-line UXO Report

Line 1: Date time group discovered: (Command policy will dictate *Local* or *Zulu* time).

Line 2: Reporting Activity (UIC / Unit designation). Location (8-digit grid): (*include: landmarks, reference points, or street addresses*).

Line 3: Contact Method: Radio Freq / Call Sign or Telephone Number. (If using phone number, provide name).

Line 4: Type of Munition: (Dropped, Projected, Placed, or Thrown).

Line 5: NBC Contamination: Yes or No, known or suspected NBC Contamination. If yes, report type of agent if known / identified.

Line 6: Resources Threatened: (What resource is threatened - is it a critical asset?).

Line 7: Impact on Mission: (How the UXO is affecting the mission).

Line 8: Protective Measures Taken: (Unit emplaced protective measures).

Line 9: Recommended Priority: (Immediate, Indirect, Minor, or No Threat).

Appendix A React to a Possible Improvised Explosive Device (IED)....A-5
Common Task 093-401-5050

Sample Report:

Line 1: 121300LMAR98

Line 2: 1-75th Infantry Bn, C-Co, EP2134567891, 150 meters South of the grid referenced road junction.

Line 3: 49.7000, Tripwire 60 or 1-800-435-6789, SFC Snuffy

Line 4: Placed, Possible Improvised Explosive Device (IED)

Line 5: None

Line 6: MSR Speedway

Line 7: Unit cannot conduct re-supply operations, MSR is in passable

Line 8: Constructed sandbag barricade and evacuated non-essential personnel 300 meters. Mission essential personnel are in protective gear, all are utilizing frontal and overhead cover

Line 9: Immediate

Minimum Required Reporting Information: At a minimum the report must contain:

Proper format is not as important as getting the information to the higher HQ.

- (a) "Who" discovered the item (Point of Contact)
- (b) "What" item is (type / Sub-group)
- (c) "Where" the UXO is (Location / 8-digit Grid)
- (d) "When" the item was discovered
- (e) Recommended priority (Immediate, Indirect, Minor, or No Threat)

Appendix A React to a Possible Improvised Explosive Device (IED)....A-6
Common Task 093-401-5050

Glossary

AT	anti-tank
CEA	captured enemy ammunition
EOD	explosive ordnance disposal
HE	high explosive
HQ	head quarters
IAW	in accordance with
IED	improvised explosive device
LBS	pounds
METT-TC	mission, enemy, terrain and weather, troops and support available, and civil considerations.
MM	millimeters
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
POP	Plaster of Paris
SOP	Standing Operating Procedures
TO	Theater of Operation
TTP	Tactics Techniques and Procedures
UXO	Unexploded Ordnance

TC 9-21-01(093-89D-01)
28 MAY 2004

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0414201

DISTRIBUTION:

Active Army, Army National Guard, and U.S. Army Reserve: Not to be distributed. Electronic means only.

PIN: 081531-000