IMPROVISED EXPLOSIVE DEVICE (IED) W3H0005XQ STUDENT HANDOUT

Improvised Explosive Device

Introduction   The purpose of this period of instruction is to learn the skills necessary to prepare for operating in an IED environment. We are going to discuss the IED threat, the components of an IED, indicators of a possible IED, common locations and employment techniques the enemy uses, some enablers available to assist you in countering the IED threat and how to contend with the IED threat.

Importance   This class covers a very specific and effective enemy threat weapon. Understanding this weapon is critical to keeping Marines alive and effective in the theatres of war the world over.

In This Lesson

This lesson covers the following topics:

Learning Objectives

Terminal Learning Objectives

TBS-IED-2101 Given a tactical scenario, an operations order, and a current IED threat brief, plan for movement in an IED environment to support the concept of operations and the commander's intent.

TBS-IED-1004 Given a mission, commander's guidance and intent, rules of engagement (ROE), escalation of force criteria, and a simulated exploded improvised explosive device (IED), determine how to react to an exploded improvised explosive device (IED) to prevent further casualties and resume the mission.

TBS-IED-1003 Given a scenario with a mission, commander's guidance and intent, rules of engagement (ROE), escalation of force criteria, non-lethal deterrents, and a suicide improvised explosive device (IED), determine how to react to a suicide improvised explosive device (IED) to prevent friendly casualties and damage to property.

TBS-IED-1002 Given a mission, commander's guidance and intent, rules of engagement, escalation of force criteria, and an emplaced improvised explosive device (IED), while serving as an individual in a small unit, react to an improvised explosive device to limit the effects of the IED on the mission.

Learning Objectives (Continued)

TBS-IED-1001 Given an operating environment with an IED threat, observation aiding devices, during daylight and limited visibility, identify indicators of improvised explosive devices to detect an IED threat.

Enabling Learning Objectives

TBS-IED-1001a Given an evaluation, identify the characteristics of an IED, in accordance with the references.
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TBS-IED-1001b Given an evaluation, describe the IED network, in accordance with the references.

TBS-IED-1001c Given an evaluation, describe the components of an IED, in accordance with the references.

TBS-IED-1001d Given a scenario, identify indicators of an IED location or employment, in accordance with the references.

TBS-IED-1001e Given a scenario, identify the best enabler to employ for a specified task, in accordance with the references.

TBS-IED-1002a Given a mission, describe the mitigating tactics that can be employed in an IED environment, in accordance with the references.

TBS-IED-1002b Given an operational environment containing IEDs, react to an IED event, in accordance with the references.

TBS-IED-1002c Given a simulated IED threat, as an individual in a small unit, conduct 5 Cs (confirm, clear, cordon, check, control) to process and reduce the IED threat.

TBS-IED-1002d Given a simulated IED threat, send an IED 9-line report to inform higher headquarters and allocate resources.

TBS-IED-1003a Given an evaluation, identify the 3 types of IEDs without error.

TBS-IED-1003b Given an evaluation, identify the 3 types of IED initiators without error.

TBS-IED-1004a Given a simulated IED threat, send an IED 10-line report to inform higher headquarters and allocate resources.

TBS-IED-1004b Given an evaluation, identify differences between reacting to an exploded IED and an emplaced or suicide IED without error.

TBS-IED-1004c Given a scenario, execute IED immediate actions to prevent further casualties and resume the mission.

Learning Objectives (Continued)

TBS-IED-2101a Given a mission and previous enemy IED activity, determine patterns of enemy IED activity to formulate an enemy IED most likely course of action.

TBS-IED-2101b Given an evaluation, identify foot mobile considerations in IED environment without omission.

TBS-IED-2101c Given a scenario evaluation, identify vehicle mobile considerations in an IED environment without omission.

Learning Objectives (Continued)

Definitions and Characteristics

- **Definitions**.

  - Explosive Hazard. Any hazard containing an explosive component to include unexploded explosive ordnance (including land mines), booby traps (some booby traps are non-explosive), improvised explosive devices (which are an improvised type of booby trap), captured enemy ammunition, and bulk explosives.

  - Improvised Explosive Device (IED). A weapon that is fabricated or emplaced in an unconventional manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals designed to kill, destroy, incapacitate, harass, deny mobility, or distract.

- **Characteristics**.

  - Have become the number one threat to coalition forces.

  - Cause death or injury by using explosive charges.

  - Can vary in size and sophistication.

  - Have unlimited employment possibilities.

  - Can be made from common household components.

  - Are inexpensive and highly effective.

  - Have no standardized construction method.

  - Provide information about the network that emplaced them.

IED Network

- **IED Intended Outcomes**. IEDs are intended to affect long term strategic policy, our operational goals as well as immediate tactical situations.

  - Strategic. Intended to make a political statement in order to erode the political will of combatant countries.

  - Operational. Intended to isolate population from host nation control, disrupt freedom of movement and create a perception of insecurity among the populace.

  - Tactical. Intended to disrupt normal activities, destroy/disable material, cause personnel casualties, identify coalition TTPs and create obstacles.

IED Network (Continued)

- **IED Network**. Regardless of the structure or type of group that employs IEDs, key functions must be performed. In an IED network critical personnel, actions, and resources determine the enemy IED system. Successful IED defeat requires that the commander influence these functions in order to reduce or eliminate the IED threat. Interconnections between different nodes in the network mean that any disruption of one group or function may affect the actions of the entire network. The overall effect on the network depends upon where the disruption occurs (i.e. removing an Emplacer may stop IEDs for a short period until a new Emplacer can be hired; however, removing a Tactical Leader may disrupt the entire network for a significantly longer period of time).

  - Tactical Leaders/Planners. Regional and local leadership that provides the leadership and guidance required to carry out the operations.

  - Intel/Surveillance/Propaganda.

    - Target selection and Planning. Through observation, the enemy collects valuable information on troop movement, times of vulnerability, target vulnerability, and areas of approach and escape.

    - Surveillance. Observation of potential targets to collect information in support of IED operations. Also observes/records IED attacks for use in the manufacturing of propaganda and recruiting.

  - Recruiting/Funding.

    - Recruiting. Recruitment includes the activities related to the act of building a force of emplacers, trainers, financers, and IED makers. They utilize propaganda for recruiting and as a means of determining the success of an attack to provide monetary incentive to makers, emplacers, and triggermen.

    - Funding. The means and methods used to underwrite the cost of IED operations. Construction of devices and providing incentive for bombers costs money.

  - Supply/Facilitators. Acquire, move, and store the range of explosive materials, initiators, and triggers.

  - IED Makers. Individual who specializes in designing and building IEDs with components acquired and provided by the supply/facilitators.

  - Emplacers. The personnel who emplace, monitor, and detonate the IED. Typically the low-man in the network (however, this is based on the level of maturity and length of time the enemy forces have been operating) and is working for the financial incentive provided by the network. Usually has to provide proof of the attack to receive payment; which is then utilized for propaganda and intelligence purposes.

IED Network (Continued)

- **IED Attack Timeline**. An IED attack follows a general sequence for developing, manufacturing, transporting, emplacing, and detonating an IED. The objective is to establish an operational environment that makes it possible to prevent IED attacks and stay left of the Boom.

    o Interdicting any portion of this sequence will disrupt the enemy's ability to carry out an IED attack.

    o The IED Network is closely tied to the IED timeline. Each section of the timeline is controlled by a portion of the IED Network. If the IED Network is disrupted, the timeline is extended and fewer IEDs can be emplaced.

- **Secure Electronic Enrollment Device (SEEK II)**. One means of combatting the enemy IED network is by identity dominance through biometric collection.

    o The SEEK II is a biometric identification and enrollment platform which captures and formats flat and rolled fingerprints, iris scans and facial images.

    o It is capable of interfacing with DoD and government biometric databases, such as the DoD's Automated Biometric Identification System (ABIS) and the FBI's Integrated Automated Fingerprint Identification System (IAFIS).

IED Components

- Although IEDs can vary widely in shape and size, there are five components common to all IEDs which consist of the switch, the initiator, the main charge, the power source and the container.

- **Switch**. A device for making, breaking, or changing a connection in an IED. There are two purposes for switches and three main types of switches.

    o <u>Purposes</u>.

        - <u>Arming Switch</u>. Used to arm the IED to ensure that the emplacer can safely employ or emplace the IED.

        - <u>Firing Switch</u>. Initiates the firing sequence.

    o <u>Types</u>. There are three types of switches: command, time, and victim operated.

        - <u>Command Switch</u>. A type of switch that is activated by the attacker in which the attacker controls the device.

        - <u>Time Switch</u>. A type of switch that functions after a set time.

        - <u>Victim Operated Switch (VOIED)</u>. A type of switch that is initiated by the actions of the victim or target.

IED Components

- **Initiator**. Any component that may be used to start a detonation.

    o Electric. An initiator that is activated by an electrical signal that creates heat or a spark.

    o Non-electric. An initiator that functions by other than electric means such as friction, chemical or impact.

- **Main Charge**. The explosive component of an IED.

    o Military Explosives. Explosives manufactured for military use such as ammunition, ordnance or demolition charges which contain explosives, propellants, pyrotechnics or nuclear, biological, or chemical material for use in military operations.

    o Commercial Explosives. Explosives produced and used for commercial or industrial applications.

    o Homemade Explosives (HME). Non-standard explosive compounds which have been created from available ingredients.

- **Power Source**. A device that stores or releases electrical or mechanical energy.

    o Any type of battery such as a 9-volt, AA, or a vehicle battery may be used.

    o IEDs have also been found wired into the local power supply of a home or office.

- **Container**. A vessel commonly used to house or conceal the principal components of an IED.

    o Concealment. Prevents the discovery of an IED by visual inspection.

    o Confinement. Holds the main charge together. Increases the explosive power.

IED Indicators, Locations, and Employment

- **Indicators**.

  - <u>Ground Sign Awareness</u> Identifying ground signs left behind by the enemy will enhance your ability to detect IEDs.

    - <u>Disturbance</u>. When an IED has been emplaced by digging in the area, it causes a disturbance to the natural pattern of the earth. When the disturbance occurs there are usually noticeable signs existing in the texture of the ground and soil near the IED emplacement; the site will not match with its surrounding area. The soil over the IED may reveal a small mound over the location, or the area may have footprints surrounding freshly turned earth.

    - <u>Discardables</u>. Items the enemy may intentionally or unintentionally leave behind at the emplacement site of an IED. Common articles left behind at IED emplacement sites are cigarette butts, wire ends, and bits of tape. The enemy may also leave behind metal fragments or expended brass in order to confuse sweepers and give false hits with the metal detector. The enemy has been known to leave "souvenir" type items that may be connected to an anti-tamper device. Items left behind include helmets, rifle magazines, weapons, and ammunition cans.

    - <u>Color Change</u>. When the enemy emplaces an IED in the ground, the soil from the hole may differ in color from the surrounding area due to the difference in moisture content below the surface. Enemy forces have been known to pour water or urinate on the top of IED holes in order to pack soil back into the hole. Certain chemicals contained in Homemade Explosives (HME) can leak from their containers causing a discoloration in the surrounding soil and vegetation. This is evident when enemy forces reuse cooking oil containers for HME charges. Since oil is buoyant in water, the oil that leaks from the container will rise to the surface causing discoloration to the soil.

    - <u>Regularity</u>. Straight lines rarely exist in nature. When the enemy tries to conceal an IED some things appear out of place compared to nature's emplacement of soil, rocks, and vegetation. When the enemy buries or tries to conceal command wire, pull lines, or trip lines there is often a distinct line that would not naturally occur on the surface of the ground. Distinct lines are not limited to a linear shape. Also look for unnatural lines that may be in circular, rectangular, or square shapes which may reveal the outlines of mines or pressure plates.

    - <u>Flattening</u>. Flattening is the general leveling or depression caused by pressure on an area, such as boot prints on grass, where someone has sat down, etc., and is identified through a comparison with the immediate surroundings. Flattening occurs after a hole is filled back in. Air trapped between particles of dirt escapes over time and the top of the filled area collapses to an area lower than that of the surrounding area.

IED Indicators, Locations, and Employment (Continued)

- Transference. Transference occurs when the IED emplacer takes soil, or any other material, from one area to conceal the IED at a separate location. Often times the transferred material will not naturally blend with the surrounding area. Examples of transference can be large rocks where only small rocks have been observed, dead brush in an area with green vegetation, or large dirt clods in an area where there is only moon dust.

- Markers. The enemy frequently uses markers for multiple purposes. Some may be used as aiming stakes, while other may be used to warn locals about the presence of IEDs along a certain path or route. Examples of aiming stakes may be discarded engineer stakes, telephone poles, corners of compound walls, or stacked rocks. The enemy has also been known to mark safe or unsafe routes, depending on the area, with a line of rocks across the road. Other examples of indicators may include painted rocks, discarded chemical lights, or out of place branches.

  o Detection. There are numerous means of detection that can assist in locating IEDs; increasing situational awareness through developing observation skills is one technique that will aid in the detection of IEDs and IED indicators. The goal is to derive as much detailed information from the natural environment (baseline) as possible and be able to detect individual disturbances. This involves knowing the natural setting (baseline), interpreting the unusual, and identifying the unknown. Before any procedures can be performed in response to an IED it must first be detected. As the enemy improves construction and camouflaging techniques finding IEDs becomes more difficult. This is an important task requiring advanced techniques. Note that you are looking for target indicators, not the IED as a whole. Such indicators are the clues you use to construct the entire picture, and the actual device.

    - Patience. To successfully find a device, be patient and do not rush; rushing may cause you to miss visual cues.

    - Combination. Look for a combination of; movement, outline (shape), contrast in color, texture, and shine. Concentrate on what you know to be likely emplacement areas.

    - Components. Look for the smaller parts of an object instead of the whole object. Generally the whole object is not visible. By concentrating on detecting components the chances of finding the object are increased. If you program your mind to look for the IED as a whole it will automatically filter out the numerous smaller clues, indicators, and components that could lead to the discovery of a device. You must become familiar with components and indicators and consciously search for those items since you will not be able to recognize an object unless you can visualize what you are searching for.

IED Indicators, Locations, and Employment (Continued)

- Look Beyond. Use optics to burn through vegetation/windows to see beyond what is obscuring your field of view.

- Angles. If it is possible, attempt to view the suspected object from multiple angles utilizing alternate positions that offer cover and concealment.

- Shadows. Use optics to look deep into shadows to identify objects. Also use shadows to conceal your position and to shade your eyes and optics while performing searches.

- Recognize. Conscious recognition of positive and negative spaces helps the observer rapidly determine where the enemy, or IED components, may be hiding. This allows the observer to concentrate on the most likely areas of emplacement.

    1. Positive Space. Consist of the solid objects that dominate an area, such as individual trees, buildings, vehicles, bushes, street signs, people, and dominant colors. The eye will naturally move to positive spaces first and during observation the eyes will jump from positive space to positive space.

    2. Negative Space. The area between positive spaces and is typically in shadow. Shadows and colors in negative space blend well with the surrounding environment. It takes a concerted effort to effectively observe the negative spaces and these areas will generally contain items that the eyes overlooked during the initial observation.

- **Locations**. IEDs may be emplaced anywhere that enough space exists or can be created to hide or disguise the IED.

    o Exploit Friendly Patterns. Typically located to exploit known friendly patterns, such as main/alternate supply routes.

    o Exploit Friendly Vulnerabilities. May be employed to take advantage of vulnerabilities such as attacking gunners in turrets, or soft sides/underbellies of unprotected vehicles.

    o Exploit Danger Areas. May be employed in danger areas such as choke points and previous IED sites.

IED Indicators, Locations, and Employment (Continued)

- **Common Locations**

    o Elevated Positions.

        - Elevated positions such as trees, light posts, signs, overpasses, and bridges.

        - Designed to exploit friendly TTPs or to target specific individuals or vehicle weaknesses such as open-backed vehicles or vehicle gunners

        - Exploits a human psychological weakness of not looking up

    o Previous IED Sites.

        - Attempt to repeat past successes.

        - Exploit known patterns.

        - Ease of emplacement; hole is already there.

    o Frequently Traveled and Predictable Routes.

        - Roads leading to forward operating bases (FOBs), exploit predictable traffic pattern and chokepoints.

        - Common patrol routes (patterns).

        - High probability of success due to large amount of traffic and multiple targets

    o Boundary Turnaround Points. The boundary area between adjacent units where patrols typically turn around.

        - A pattern of stopping a patrol and turning around has been established.

        - Exploit confusion over unit responsibility.

        - Coordination between adjacent units must be performed to ensure the security of boundary areas.

    o Choke Points/Sharp Turns/Blind Spots.

        - Natural obstacles canalize friendly forces.

        - Reduced forward visibility on approach.

        - Prime ambush locations and should be identified prior to movement.

        - Restrictive terrain limits speed and ability to maneuver.

IED Indicators, Locations, and Employment (Continued)

- o <u>Culverts and Bridges</u>.

  - Used for ease of concealment (little to no digging required).

  - Ability to emplace large amounts of explosives directly beneath the targeted vehicle.

  - Metal detectors are not as effective due to shielding from the culvert itself.

- o <u>Streambeds</u>.

  - Forces have to slow down to negotiate the terrain.

  - Natural obstacles canalize the unit when crossing the area.

  - Limited visibility on approach.

- o <u>Unattended Vehicles</u>.

  - Employed the same as other IEDs however uses the vehicle as a concealment container.

  - Has the capability of containing a much larger main charge.

  - May be incorporated into any type of vehicle including trucks, cars, carts, motorcycles, etc and may be attached in, under or outside the vehicle.

- o <u>Abandoned Buildings or Structures</u>.

  - Exploit friendly patterns, using same abandoned structure as harbor site/hide/patrol base. Not typically targeting abandoned structures at random.

  - Some buildings in theater may have charges that have been rigged for years (possible past assassination attempts among various parties).

  - High Value Individual (HVI) homes, safe houses, HME and drug labs are often booby-trapped with IEDs to inflict coalition force casualties if discovered as well as to prevent tampering.
  - Likely positions of cover and concealment are also being seeded with IEDs to inflict casualties during the conduct of an ambush and may include adjacent buildings as well as partially demolished buildings.

IED Indicators, Locations, and Employment (Continued)

- o Encasements.

    - One or more components of the IED are molded into an encasement of some kind such as concrete or foam.

    - Camouflages the device.

    - Typical encasements include cinder blocks (either behind within), piles of rock or sand (providing a directional blast) and carcasses (animal and human).

- **Employment Characteristics**.

    o Constantly changing and adapting to coalition counter-measures and TTPs.

    o Limited by the enemy's imagination

    o Multiple cells conducting independent attacks means less possibility for coalition forces to exploit an enemy pattern.

    o Enemy TTPs vary by AO based on knowledge, experience, material availability, etc.

    o Enemy TTPs will adjust in an attempt to exploit friendly weaknesses.

- **Employment TTPs**.

    o Vehicle Borne IED (VBIED) An IED delivered by any ground-based vehicle (e.g., passenger vehicle, motorcycle, moped, bicycle, donkey cart, etc.) and/or serves as the concealment means for explosives with an initiating device.

    o Suicide Vehicle Borne IED (SVBIED) A Vehicle-Borne IED (VBIED) initiated by enemy forces at a time of their choosing in which the operator intentionally kills their self as part of the attack, or to deny their capture.

    o Person Borne IED (PBIED) An IED worn or carried by a person either willing or unwillingly, such as a vest, belt, backpack, box, briefcase, etc., in which the person houses the whole IED or principal IED components and/or serves as the delivery or concealment means for explosives with an initiating device.

    o Hoax. An IED incident that involves a device fabricated to look like an IED and is intended to purposely simulate one in order to elicit a response.

        - Used to observe coalition TTPs, delay or harass convoys, or to place the convoy in a kill zone and can be incorporated into a coordinated or complex attack.
        - Enemy forces may also use/force local nationals to initiate a false report of a found IED in order to draw coalition forces into an ambush or to evaluate response times and TTPs.

IED Indicators, Locations, and Employment (Continued)

- o <u>Trojan Horse</u>. An IED designed to look like a benign object the victim believes is safe to handle. Devices may include discarded coalition or local/indigenous military equipment, radios, or digging equipment. Detonations have occurred inside armored vehicles and FOBs.

- o <u>Anti-Tamper</u>. An IED designed to initiate the device upon manipulation. Devices may include souvenirs or flags, and may incorporate light dependent switches. Detonations occur immediately when the device is manipulated. Do not over-confirm.

- o <u>Secondary Devices/Multiple Devices</u>. An additional IED used to attack individuals or vehicles after the initial event. May consist of multiple independent devices in the same area, multiple switches (same or different type i.e. two pressure plates one on either side of the main charge or a RC) on the same main charge, or multiple main charges connected to the same switch. The enemy will emplace additional devices to target positions friendly forces are likely to occupy during an attack such as cover, micro-terrain, high ground, etc.

Enablers

- There are many enablers that will assist you in predicting and preventing IED attacks, detecting and avoiding or neutralizing emplaced IEDs, and protecting your Marines from the effects of IEDs.

- **Company Level Intelligence Cell (CLIC)**. The CLIC has the ability to plug into theater-level assets. CLIC provides advanced analysis of the battlefield for the company commander by debriefing all patrols, developing/answering Priority Intelligence Requirements (PIRs) and submitting Requests for Information (RFIs) to higher. The CLIC has access to and can produce intelligence products for the company that once resided primarily at the Bn level in order to brief patrols as well as assist in development of the Common Operational Picture (COP) through the exchange of information with the Counter IED Operations Integration Cell (COIC). Initial CLIC training is available through the local MAGTF Integrated Systems Training Center (MISTC). Although the CLIC is staffed by company personnel and works at the company level, it is considered a battalion level asset as an extension of the battalion S2.

- **Local Forces/Local National (LN) Interpreters.** Local forces and Local National (LN) Interpreters are typically sensitive to the environment and have a better developed sense for interpreting environmental atmospherics and detecting subtle changes in the baseline. They can be integrated into your patrols and can assist with Key Leader Engagements (KLEs).

Enablers (Continued)

- **Civil Affairs Group (CAG)**. A team trained to engage the local population and identify their needs. They report back to their HHQ and the unit supporting, on what an area is lacking and make recommendations on how to assist. By providing needs for the local population, they develop a rapport with the locals and secure their trust. They are a good source of information on the local environmental atmospherics and can assist with getting the local population to trust you and support your mission.

- **Human Intelligence Exploitation Team (HET)**. The Human Intelligence Exploitation Team (HET) is comprised of intelligence field Marines specifically trained to engage the human terrain. They have extensive information on the IED Network in your AO and have completed comprehensive link analysis on the IED Network. As the leader, you can request their assistance in planning and also to accompany your patrol. They can assist you in your mission planning by providing information on the local nationals and may conduct interviews with locals to develop sources. Information gathered by HET is used to develop targeting data and can be used to identify HVIs and weapons caches.

  Female Engagement Team (FET). The Female Engagement Teams conduct outreach primarily through interaction with women and children to learn about and report information on the local population. Information is used to implement community development programs that will serve the needs of that specific local area. FETs can communicate information to women without violating cultural standards of the local population. They are a good source of information on the local community and can develop information that is not otherwise available.

- **Explosive Ordnance Disposal (EOD).** EOD Technicians are trained to identify and render safe IEDs, UXO and explosive hazards. They also identify, collect, and exploit IED forensic evidence as well as conduct post blast and crater analysis. EOD are the subject matter experts on explosives and provide training to units as they arrive in the AO as well as upon request.

- **Combat Engineer Battalion (CEB)**. Combat Engineers are trained in route clearance, breaching, and clearing and proofing minefields. CEB can provide assets to a company for specific missions such as conducting cache sweeps or in support of a clearing operation. Combat Engineers are trained Explosive Ordnance Clearance Agents (EOCA) and may be authorized to conduct blow-in-place operations however they are not trained to interrogate or exploit IEDs or caches. Combat Engineers have specialized vehicle systems such as the Mine-Protected Clearance Vehicle (Buffalo) and Vehicle Mounted Mine Detector (VMMD) Husky, as well as Specialized Detection systems such as the Husky Mounted Detection System (HMDS) and the Minehound System (VMR 2) organic to their units.

- **Route Clearance**. Route clearance units are Combat Engineers trained to clear obstacles, primarily IEDs, from roads to allow freedom of movement for friendly forces and the local population. May have Unmanned Aerial Systems (UAS) and EOD support.

Enablers (Continued)

- o <u>Mine Protected Clearance Vehicle (Buffalo)</u>. The Buffalo is used to investigate possible IEDs. It is equipped with a hydraulic arm and camera for IED search and investigation. Most Buffalos in theater have a cage to mitigate the effects Rocket Propelled Grenade attacks.

- o <u>Vehicle Mounted Mine Detector System (VMMD) Husky</u>. The VMMD can detect metallic anti-tank mines, explosive obstacles, unexploded ordnance and IEDs.

  <u>Husky Mounted Detection System (HMDS)</u>. The Husky Mounted Detection System uses advanced, high performance Ground Penetrating Radar (GPR) technology to detect and mark underbelly surface laid and buried Anti-Tank (AT) landmines and IEDs on primary and secondary roads. The GPR array scans for metallic, low-metallic content (LMC), and no-metallic content (NMC) threats in a track 10 feet 6 inches wide.

- o <u>Vallon VMR-2 Minehound</u>. The Minehound is a dual sensor handheld mine detector. It contains a metal detector sensor and incorporates Ground Penetrating Radar to detect low/no metal content IEDs. The metal detector and GPR can be used individually or simultaneously.

- **Robots**. Robots are typically small, tactical and mobile vehicles that enable the operator to confirm IEDs from a safe standoff distance. Most have some type of optics and some are equipped with manipulator arms. Will operate in a variety of weather conditions. Capable of providing surveillance, reconnaissance, inspections and searches at vehicle checkpoints and aids in confirmation of IEDs.

- **Surveillance Systems**. Elevated sensor systems with networked remote operational capability delivering increased situational awareness. May be static (GBOSS), vehicle mounted (VOSS) or aerial (UAS – Puma, Wasp, Raven, etc.). Provide persistent surveillance through multi-spectral sensor suites. Typically include high resolution day, night, and infrared cameras. Used to observe, collect, detect, identify, classify, track and assess threats around military facilities and other key locations.

- **Counter Radio Controlled IED Electronic Warfare (CREW)**. The Counter Radio Controlled IED Electronic Warfare systems are radio frequency (RF) receiver/transmitters that effectively disrupt (jam) radio receivers that the enemy employs to use Radio Controlled IEDs (RCIED). CREW Systems vary in complexity and capability, work on a wide range of frequencies and are available in both mounted and dismounted versions. CREW systems only protect against the RCIED threat.

  - o Proper training on CREW systems is essential for proper employment.

  - o The enemy may use almost any Radio Frequency (RF) device (such as wireless doorbells, remote controlled car alarms, garage door openers, cordless telephones, push-to-talk radios, and cell phones) to build an RCIED.

Enablers (Continued)

- o CREW Planning Considerations. Some items to consider during the planning process when CREW systems are incorporated are:

    - Proper training on CREW systems.

    - Number and type of CREW systems available to the patrol leader.

    - How CREW systems should be spread throughout the patrol to optimize coverage.

    - Ensure all personnel are trained on how coverage is affected by line-of-sight, masking, terrain and atmospheric conditions.

    - If the patrol leader has any questions about proper CREW system employment contact the unit CREW-Officer.

Operations

- **Actions at the Halt**

    - o If a patrol or convoy must stop during movement; avoid clustering vehicles, vary the vehicle interval between elements, establish your own local security, and employ techniques to create standoff.

    - o If stopping for any length of time; improve your position constantly, make detailed searches, and consider contingencies (hasty and deliberate defense) for the site you are occupying. Maintain an aggressive security posture and have a plan for dealing with civilian traffic. Make sure you do not present a soft target for a SVBIED/PBIED.

    - o Rolling Stop.

        - Communicate that you are stopping the vehicle

        - All Marines look for suspicious objects prior to stopping, use optics where available.

        - Once a safe spot is identified the vehicle is brought to a halt.

    - o 5&25 Meter Checks

        - Mounted. At every halt, no matter how short the duration, the vehicle crew must conduct visual 5&25 meter checks. This begins during the rolling stop to avoid stopping on top of an IED using hasty searches then progressing to more deliberate and detailed searches once the vehicle is stopped
        - Dismounted. 5&25 meter checks should be conducted whenever the movement has to be stopped for significant periods of time and the tactical situation requires security outside the vehicles. Sweep visually/mechanically from near to far in order to emplace security.

Operations (Continued)

- 5 Meter Check Procedure.

    o   All crew members visually check the area 5 meters around vehicles, from inside the vehicle.

    - Look for disturbed earth, suspicious objects, loose bricks in walls, or anything out of the ordinary (Markers and Indicators).

    - Search everything you can from inside the vehicle before opening the door to take advantage of the protection offered by the vehicle's armor.

    - Driver and Gunner should remain inside as it may be required to employ the vehicle.

    - Dismounts exit the vehicle one at a time by looking where they will place their feet and, if possible/practical, sweeping the area with a metal detector before stepping out of the vehicle in order to avoid stepping on a pressure plate device.

    - After exiting the vehicle, close the door; this reduces the chance of the vehicle occupants being subject to an IED blast or sniper fire.

    - Check under the vehicle to ensure that it is not stopped on top of an IED. Once the underside of the vehicle has been cleared, the dismount communicates with the gunner to deploy the second dismount.

    - Once both dismounts have checked under the vehicle, confirmation is passed through the gunner and they visually clear a path out to 5 meters then tactically move to a position 5 meters away from the vehicle.

    - Dismounts should maintain communication with the gunner to coordinate security and take advantage of his elevated observation position.

    - Do not become so focused on the 5 meter check that 360° security is neglected.

    - Dismounts will then move tactically around the vehicle, staying on opposite sides of the vehicle, searching towards the vehicle in an attempt to see a device from the back – generally exposed – side.

    - Start searching at ground level and continue up above head height. The threat isn't always on the ground.

    - Check quickly and be systematic. Use a white or infrared (IR) light at night if the tactical situation permits.

    - Dismounts will continue sweeping around the vehicle until they reach their own start-point allowing both dismounts to search completely around the vehicle thereby ensuring the entire area is searched by two personnel.

Operations (Continued)

- 25 Meter Check Procedure.

    o Visually clear a path out to 25 meters then move tactically to 25 meters away from the vehicle.

    o Dismounts will again move tactically around the vehicle, searching towards the vehicle, in an attempt to see a device from the back – generally exposed – side.

    o Dismounts will continue sweeping around the vehicle until they reach their own start-point.

    o Once the 25 meter check is performed there are a number of options available to the dismounts based on the unit SOP, the mission, the environment and the threat situation.

        - Perform a more detailed search of the same area.

        - Expand the search radius.

        - Find a covered and concealed over-watch position to provide security for the vehicle. Ensure 5&25 meter checks are performed at the selected position--IEDs are sometimes emplaced at likely positions of over-watch.

        - Re-mount the vehicle.

- **V-Sweep**.

    o Description.

        - The V-Sweep is a highly effective technique for dismounted investigation of danger areas.

        - Used at potential danger areas or likely IED emplacement locations in order to flush out triggermen or identify indicators before the main body of the patrol enters the effective casualty radius of an IED.

        - May also be used to search for secondary/tertiary IEDs after an IED detonation.

    o Technique.

        - V formation assembled in front of the lead vehicle.

        - Personnel furthest from the main body should push out as far as is tactically feasible (recommend 200-300 meters) and still have good line of sight/line of communication to other members of the patrol.

        - These individuals will be looking for IED indicators off the road as well as looking for the enemy.

Operations (Continued)

- They should also look toward the body of the patrol from time to time to see the terrain from the enemy's vantage point and possibly see indicators or markers left by the enemy.

- The exact distance from the lead vehicle/road will vary depending on terrain and visibility. The enemy will try to maximize stand-off from the device and indicators may be present 200 meters or more away from the road.

- Consider checking the opposite side of any terrain features encountered as well.

- Personnel in the middle are looking for IED indicators along the shoulder of the road as well as looking on the road itself.

- Personnel closest to/in the road should use a mine/metal detector to sweep for buried components and should be dispersed and staggered forward of the lead vehicle (approximately 50m dispersion).

- Vehicles are lined up and follow in the lead vehicle's tire tracks.

- Personnel conducting the sweep should have (and employ) optics.

o Advantages.

- Since IED indicators can be very subtle, an observer may, unintentionally, be within the effective casualty radius of an IED before detecting its presence. The "V" formation denies the enemy a target while providing maximum stand-off and protection while sweeping danger areas.

- Dismounts can now be covered at all times by vehicle mounted weapons.

- The majority of dismounted personnel stay inside the protective coverage of the vehicle mounted CREW system. Personnel further away from vehicle mounted systems should employ dismounted CREW systems to ensure proper coverage.

- Even if the trigger-man is not identified, he might abandon his position if he does not think he can detonate the IED and still escape.

Operations (Continued)

      o <u>Disadvantages</u>.

        - May be difficult to command and control depending upon the depth.

        - Dismounts may be outside of vehicle CREW coverage depending on the depth of the danger area.

        - Limited firepower to the flanks.

- **Actions on Contact**. If an IED is found, or detonated, conduct the 5-Cs (Confirm, Clear, Cordon, Check, Control) and submit the IED/UXO report.

      o <u>Confirm</u>. The presence of the suspected IED must be confirmed.

        - Confirmation is complete if an IED threat is probable based on the information available.

        - Confirmation does NOT entail uncovering, exposing or excavating a suspected threat.

        - Confirmation should be done from a safe distance using hard cover and optics (binoculars and scopes), whenever possible, or other applicable C-IED enablers such as metal detectors, Holley Sticks, IED Detection Dogs (IDDs), robots, etc.

        - Do not over-confirm as the enemy studies our TTPs and will use anti-tamper switches in order to turn a found IED into a detonation.

Operations (Continued)

- <u>Confirmation Standards</u>.

<u>1</u>   Any visible component.

<u>2</u>   Any visible wire, string, det cord.

<u>3</u>   1 + 1 = IED.

Visual Indicators:	**Danger Areas**:	**C-IED Enablers**:
Disturbed Earth	Previous IED Sites	IED tip from Local
Depressions in Ground	Choke Point	Holley Stick
Signs of a Component	Sharp Turn/Blind Spot	Metal Detector
Signs of Wire/String	Culverts & Bridges	Optics
(ant trails, etc)	Wadis & Streambed	Other C-IED Tool

*These charts are not all inclusive

Figure 1 (1 + 1 = IED)

- Upon confirmation, notify higher headquarters and request EOD support by submitting the IED/UXO Report.

o <u>Clear</u>. All personnel should be cleared from the area to a tactically safe position. All leaders should use the factors of METT-TC to determine safe positions and distances. The minimum safe distance for exposed personnel should be 300 meters from the IED site. Conduct 5 and 25 meter checks at all occupied areas. Sweep the area for any secondary devices or triggermen.

o <u>Cordon</u>. Cordon the area to prevent unauthorized personnel and vehicles from entering the site in order to preserve the scene for further exploitation and to provide outward protection and security against command-initiated IEDs.

o <u>Check</u>. Check the immediate area around the site and cordoned positions for secondary devices using 5 and 25 meter checks.

o <u>Control</u>. Control the area inside the cordon to ensure only authorized personnel have access. Only emergency services (medical, firefighting or EOD) should be allowed to enter the cordon. All personnel and vehicles should enter and exit the cordoned area through the ICP/ECP. All civilian and non-essential military traffic should be diverted away from the cordon. If possible, maintain observation of the IED.

Operations (Continued)

- **IED/EOD 9 Line Report**. This is the report format used whenever an IED is discovered or detonated.

LINE 1	Date-time group (DTG): When the item was discovered
LINE 2	Unit and Call-Sign. Location: Grid with description of surroundings.
LINE 3	Contact Method: Call-Sign, Frequency, Point of Contact.
LINE 4	Type of Ammunition: Dropped, projected, placed, or thrown; give the number of items if more than one. Be as accurate as possible in the description (length, width, height, color, markings, wires, etc.).
LINE 5	CBRN Contamination: Yes or no (if yes, report type of agent, if known).
LINE 6	Resources threatened: What the resource is and whether it is a critical asset.
LINE 7	Impact on mission: How the IED/UXO is affecting the assigned mission.
LINE 8	Protective Measures: Actions taken to protect Marines and equipment.
LINE 9	Recommended Priority.

- o Immediate. Stops the maneuver and mission capability of the unit or threatens critical assets vital to the mission.

- o Indirect. Slows the maneuver and mission capability of the unit or threatens critical assets important to the mission.

- o Minor. Reduces the maneuver and mission capability of the unit or threatens non-critical assets of value.

- o No threat. Has little or no effect on the capabilities or assets of the unit.

Summary

This class provides an introduction to the basic ideas of IEDs and how to counteract them. It is crucial to realize that IEDs are a significant global threat to coalition forces and they will not be going away any time soon. Using creative thinking and integrating IEDs into other training events will help to keep your Marines' CIED skills sharp. If you are planning C-IED training then do not be afraid to reach out to the Marine Corps Engineer School, Defeat the Device Branch, CIED Mobile Training Cadres. They assisted in putting together this class and are the subject matter experts on training your Marines up for the fight.

References

Reference Number or Author	Reference Title
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JIEDDTF 05-23	Joint IED Defeat Task Force Counter IED Tactics, Techniques, and Procedures
JP 1-02	Department of Defense Dictionary of Military and Associated Terms
JP 3-13.1	Electronic Warfare
JP 3-15.1	Counter-Improvised Explosive Device Operations
MCIP 3-17.01	USMC IED Defeat
MCIP 3-17.02	MAGTF Improvised Explosive Device Defeat
MCWP 3-11.2	Marine Rifle Squad
MCWP 3-40.5	Electronic Warfare
MCWP 3-15.3	Scout Sniping
MEF Smartbook	MEF C-IED Enabler Smartbook of 20 Feb 2013
NAVEODTECHDIV	Explosives: Military, Commercial, Homemade, and Precursors Identification Guide
TSWG	Indicators and Warnings for Homemade Explosives

Glossary of Terms and Acronyms

Term or Acronym	Definition or Identification
AO	Area of Operations
CAG	Civil Affairs Group
CEB	Combat Engineer Battalion
CLIC	Company Level Intelligence Cell
CREW	Counter Radio Controlled IED Electronic Warfare
DTG	Date Time Group
EOD	Explosive Ordnance Disposal
FET	Female Engagement Team
HET	Human Intelligence Exploitation Team
IDD	IED Detection Dogs
IED	Improvised Explosive Device
LN	Local Forces/Local National Interpreters
PBIED	Person Borne IED
RC	Radio Controlled
RCIED	Radio Controlled IED
SVBIED	Suicide Vehicle Borne IED
TTPs	Tactics, Techniques, and Procedures
UAS	Unmanned Aerial Surveillance
UXO	Unexploded Ordnance
VBIED	Vehicle Borne IED

Notes