Marine Corps Engineer School

Summer 2015

Volume 8, Issue 2

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Engineers,

It has been a busy three months since the last issue of the Operational Engineer Newsletter was published. I received quite a bit of feedback from Engineers across the MAGTF who were pleased to see the Newsletter --- as all of us know, sometimes we are placed in billets far removed from the Engineer Community and we can lose touch with current events/issues that affect our present and future activities.

One missing element from this issue of the Newsletter is the response and/or reaction to any of the articles from the last issue. We are looking to improve the publication and use it as a way for our community to engage with each other about significant issues. If you have a comment or editorial about any of the subjects presented, please submit a response to the POC listed on the last page. This will provide a running-dialogue to exchange ideas and provide recommendations that are beneficial to the community.

The summer season brings with it leadership changes, and within the Engineer Community we have seen command of 9th Engineer Support Battalion transfer from LtCol Gary Reidenbach to LtCol Ryan Scott. The Inspector and Instructor at 4th Combat Engineer Battalion in Baltimore changed from LtCol Frank McClintick to LtCol Walt Carr. Later this year we will see LtCol (Sel) Lauren "Eddie" Edwards assume command of 8th Engineer Support Battalion. On the Marine Wing Support Squadron front, LtCol Patricia Dienhart-Stabile will take command of MWSS-272 at Marine Corps Air Station New River, NC. Congratulations to all!

Semper Fidelis, Engineers Lead the Way.

Colonel S. A. Baldwin
Commanding Officer, Marine Corps Engineer School

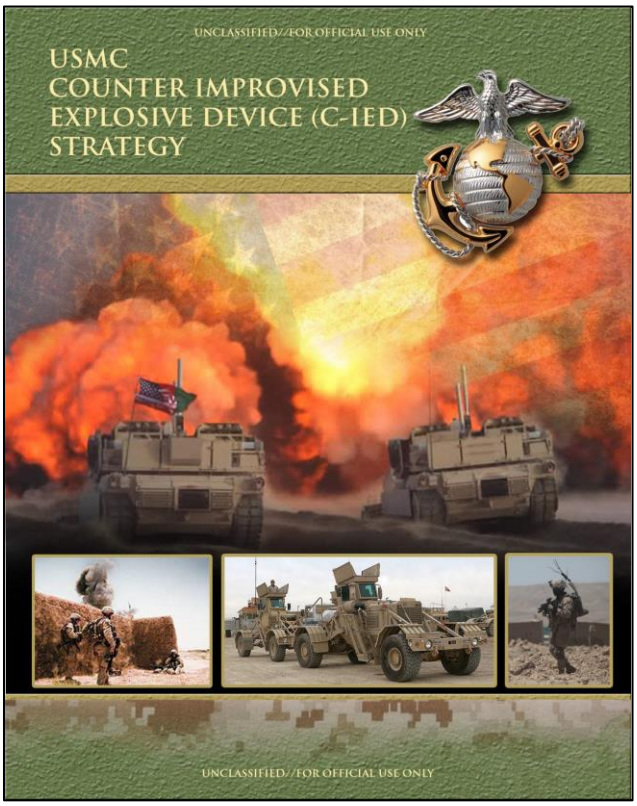
Marine Corps Counter-Improvised Explosive Device Update

Maj Rob McLellan – Force Protection Integration Division (FPID), Capabilities Development Directorate (CDD), Deputy Commandant Capability Development and Integration (DC CD&I)

The enduring and adaptive nature of the Improvised Explosive Device (IED) threat requires an enduring capability to counter it. The Marine Corps cannot afford to divest its Counter-IED (C-IED) capabilities against a backdrop of rising IED events worldwide. Therefore, preserving the Corps' C-IED institutional memory, investing in proven C-IED technologies, and providing innovative and relevant C-IED training to the operating forces (OpFor) are institutional imperatives if our Marines are to retain a high degree of IED situational awareness and operational, tactical, and technical proficiency. To this end, the Deputy Commandant, Combat Development and Integration (DC, CD&I), designated the Director, Capabilities Development Directorate (CDD) the Proponent for the C-IED Functional Area and Office of Primary Responsibility for C-IED capability development. This effectively moved C-IED development efforts out of the Marine Corps Warfighting Lab (MCWL) and into the Marine Corps' deliberate capabilities development process.

After more than a decade of continuous conflict and combat operations in Iraq and Afghanistan, the Marine Corps has made great strides in the development and delivery of a variety of effective C-IED capabilities. The Marine Corps' current inventory of C-IED capabilities was largely developed and delivered to the OpFor in response to Commanders' urgent operational needs during sustained combat operations in Iraq and Afghanistan. In response to those operational needs, the Corps delivered a broad array of *interim* C-IED capability solutions to address the unique challenges peculiar to those areas of operation. Going forward, the Marine Corps must expand its C-IED focus beyond the United States Central Command (CENTCOM) region, and foster a broader understanding of evolving IED threats around the globe. The end-state is to ensure all Geographic Combatant Commands (GCC) receive MAGTFs optimally organized, fully trained, and well equipped to operate in IED environments across the range of military operations.

Over the past two years, CDD established the required foundation for deliberate development of an enduring C-IED capability equipment portfolio. The *C-IED Capabilities Based Assessment* (C-IED CBA), conducted in the spring of 2013, identified six enduring C-IED capabilities and 18 associated operational tasks, and provided traceability to the operational environment in which the IED fight is waged. The *C-IED Initial Capabilities Document* (C-IED ICD) and the *C-IED Doctrine, Organization, Training and Education, Materiel, Leadership, Personnel, Facilities, and Policy (DOTMLPF-P) Change Recommendation* (C-IED DCR) provided specific guidance to the Corps' capability development and training and education communities designed to facilitate C-IED capability analysis and drive change inside the C-IED capability portfolio. In July 2014, the Deputy Commandant, Plans, Policy and Operations (DC PP&O) published Marine Corps Order (MCO) 3502.9, *Marine Corps Policy on Organizing, Training and Equipping for Operations in an IED Environment*. This Service-level policy directed establishment of an *enduring* Marine Corps C-IED capability to employ forces organized, trained, and equipped to operate in environments including threat of IEDs. The *C-IED Operational Advisory Group* (C-IED OAG), chartered in October 2014, provides the organizational construct by which stakeholders from across the Marine Corps will proactively participate in the C-IED capability development process – and contribute to the development of an enduring and institutionalized capability to counter the disruptive and destructive threat IEDs pose to the force. The *USMC C-IED Strategy*, published in January 2015, established the strategic framework and lines of operation to guide capability development activities across the Marine Corps enterprise. Collectively, these efforts will ensure the Corps' C-IED capability development initiatives and associated institutional support activities are fully synchronized and remain wholly responsive to the needs of the OpFor.



An Engineer and Utilities Training and Readiness Manual for the 21st Century

LtCol Anthony Mitchell - Engineer and EOD Advocacy Branch (LPE), LP, DC Installations and Logistics (I&L) and Mr. Gregory Simpson – MCES

On 11 May 2015, the Commanding General, Training and Education Command (TECOM) signed the "Charter for the Engineer and Utilities Training and Readiness Management Group". This charter promulgates the roles, responsibilities and processes necessary to establish a two-year Proof of Concept plan for the development, validation, revision, and maintenance of the Engineer and Utilities Training and Readiness (T&R) Manual (NAVMC 3500.12). This proposal represents the culmination of years of dialogue, debate and intellectual rigor within the Engineer and Utilities communities to determine the best approach for maintaining current, relevant, near real-time standards meeting the operational needs of the Total Force and Formal Learning Centers (FLC). The desired end-state of this Proof of Concept is a permanent plan to maintain a "living" Engineer and Utilities T&R manual resident in the Marine Corps Training Information Management System (MCTIMS). This end-state will be achieved through execution of a cost-effective, community-oriented approach to managing the T&R manual leveraging TECOM process expertise, Advocate and Occupational Field Sponsor content ownership, continuous Operating Force (OpFor) input and FLC participation to meet community needs while adhering existing TECOM orders and directives.

Our T&R manual supports 18 Military Occupational Specialties (MOS) from two occupational fields. The collective tasks in the manual support four separate engineer formations, each with a distinct and specific Mission Essential Task List (METL). The T&R manual is currently tied to a service-directed, three-year review cycle, while the content is directly tied to the engineer Advocacy process with its own distinct annual battle rhythm. The aim is to deliver a program tied to the Advocacy process and designed to be reflexive and responsive in order to maintain improved, contemporary standards of the highest fidelity which further enable and assess Mission Essential Task (MET) training and readiness. By providing OpFor commanders, the supporting establishment, and FLCs core standards required to plan and implement progressive training to ensure individual and collective training readiness within the current operational environment, we will realize provisions of the Engineer Master Plan (Engineer Roadmap and Advocate Campaign Plan) that directs us to, "develop a revised concept for the training and education of engineer Marines to ensure the force is properly trained and prepared for demands of the future security environment" and "assess and maintain the currency and relevancy of all formal school training; implement corrective action to address identified gaps; and support Operating Force sustainment training efforts by maintaining NAVMC 3500.12".

The backbone of this initiative is establishment of the Training and Readiness Management Group (TRMG). The TRMG, whose core members include supporting establishment key players (TECOM, Training Command, Advocates, FLCs), battalion commanders, and engineer staff officers at Major Subordinate Command and Major Subordinate Element levels, will participate fully during all Working Groups (WG), Integrated Process Teams (IPT), Operational Advisory Groups (OAG), Course Content Review Boards (CCRB), meetings, and workshops scheduled by the Engineer Task Analyst, the Engineer Advocate, or both. Working within the Engineer advocacy framework to develop the collective realm of the T&R manual, the TRMG can focus on a particular battalion-type, shaping development of collective events that are METL-driven, congruently linked and chained, and contain appropriate descriptions, standards, components, and required Class V necessary to support progressive training and operational effectiveness. Working within the existing CCRB framework to validate MOS task lists, the TRMG exerts unparalleled OpFor Subject Matter Expertise on a given MOS. Where Engineer and Utilities MOSs have suffered - either chronic underrepresentation or no representation at all during past T&R working groups - CCRBs afford the opportunity to shape current and relevant Individual Training Events supporting MOS performance requirements necessary to overcome the challenges of current and future operational environments. It should be clear that this initiative serves as a forcing function for continuous, deliberate participation to create the quality T&R manual our communities need to ensure engineer and utilities excellence.

The charter, which can be found at the following link (http://www.mces.marines.mil/StaffSections/S3Operations/TrainingEducationBranch.aspx) delineates the priority of effort for both collective and individual event reviews. To date, Marine Corps Engineer School has conducted CCRBs for the Basic Combat Engineer Course and the Small Craft Mechanic Course. The recommended task list revisions for MOS 1371 (1000-level) and MOS 1342 (1000-level) have been provided to the TRMG for review. On the collective side, the Combat Engineer Battalion 3000-7000 level events are currently being prepared for staffing. Please review the charter in its entirety. The success of this initiative requires complete support and participation from our community. Upon conclusion of this two-year proof of concept, TECOM will assess the results and, in coordination with our Engineer Advocate, determine if the TRMG charter should be adopted permanently. Much hard work has brought us to this point, but the real labor begins now. From a training and assessment standpoint, we control our own destiny.

Bulk Fuel Operations and Naval Surface Connectors

Capt Zack Pinkerton and CW03 Randy Banks –
7th Engineer Support Battalion (ESB)

A vital link exists between bulk fuel operations and naval surface connectors providing ship to shore movements in support of operations spanning the spectrum of military operations. The relationship between Bulk Fuel Companies and Naval Beach Groups (NBG) must be fostered and maintained to ensure proficient embarkation and deployment in the execution of amphibious operations. These two units are integral parts of large-scale amphibious operations and the rapid building of capabilities ashore, yet joint training between these two units is rare. Training events and exercises designed to integrate naval surface connectors with bulk fuel operations in an amphibious landing construct will enhance our amphibious capabilities, facilitate rapid introduction of bulk fuel storage and distribution on a beachhead, and generate tactics, techniques, and procedures (TTP) to guide tactical-level amphibious operations.

"Logistics establishes limits on what is operationally possible" (MCDP 4), yet the critical role bulk fuel provides in logistical operations has been all but overlooked. In my opinion, Bulk Fuel Company provides the "legs" for the MAGTF in the execution of long duration operations. These legs come in the form of the Amphibious Assault Fuel System (AAFS), the largest tactical fuel system in the Marine Corps inventory and the least employed in training. The AAFS spans a distance of five miles, from the beach unloading assembly on shore to the storage site inland, and stores 1.12 million gallons of fuel with a maximum capacity of 1.35 million gallons. When employed, AAFS is typically broken down into smaller capability sets defined by less storage and distribution capacity and task-organized to specific mission requirements, vice being employed as a complete system. Training with AAFS and building proficiency presents several significant challenges. First, the piece-meal training approach regularly applied to AAFS does not address the true logistical lift requirements the system presents to planners at all levels. Additionally, planning and deploying AAFS by ground assets alone ignores the likely case AAFS can be introduced into an operation from the sea. Slowly, through a one-dimensional approach to employing bulk fuel systems, the opportunity to build an amphibious mentality and proficiency is lost. Through developing a continuous and enduring training continuum with NBG units, Bulk Fuel Companies will establish TTP for embarking AAFS on surface connectors. These TTP will also inculcate Bulk Fuel considerations in the planning process for large-scale operations, which ultimately ensures AAFS reaches the fight in a timely manner.

Engaging Assault Craft Units (ACU) and Beach Master Units (BMU) in the employment and planning process establishes relationships and joint training between the prime movers and the landing units. It also builds a shared experience and knowledge across the Navy/Marine Corps Team that can be documented and maintained for future operations. NBG and Bulk Fuel Companies would then share common operating picture for the detailed planning required to execute an amphibious landing with fully integrated employment of an AAFS, whether executed via Landing Craft Air Cushioned (LCAC) or a Landing Craft Utility (LCU). Recent operations conducted between ACU-5, BMU-1, and Bulk Fuel Company, 7th ESB, identified deficiencies in basic amphibious planning. Standard planning tools such as the Landing Craft Assault Vehicle Assignment Table (LCAVAT) were seemingly foreign and adhering to the established LCAVAT proved to be difficult even after it was published and fully briefed. These standard planning tools must be used beyond the hallowed halls of Geiger Hall during Expeditionary Warfare School. Joint, live training is the best venue to teach, implement, and execute joint amphibious operations. By conducting training with NBGs, the executing unit will maintain proficiency in amphibious operations planning and understand the lift requirements needed to employ their capabilities.

In conclusion, bulk fuel is the common requirement that makes an amphibious operation and continuing actions that follow sustainable. Marine Corps Bulk Fuel Companies' capabilities play a vital and irreplaceable role in maintaining the momentum of an amphibious operation. Relationships with Naval Beach Groups operating surface connectors must be maintained and commanders at all levels must promote that training to ensure relationships are established and proficiency is maintained.

Engineer Equipment Accountability IPT

CW05 Al Mayfield – Engineer Advocacy Branch (LPE), LP, DC Installations and Logistics (I&L) and Mr. Sammy Hammonds, MCES

LPE hosted the inaugural Engineer Equipment Accountability Initial Planning Team (EEAIPT) 8-12 June 2015 aboard Marine Corps Base Quantico, VA. The purpose of the IPT was to provide a professional forum for the combined engineer equipment community to address various issues affecting engineer equipment accountability across the Marine Corps enterprise. The IPT was well attended with over 75 subject matter experts (SME) participating from across Headquarters Marine Corps (HQMC), the operating force (OpFor), U.S. Marine Corps Forces Reserve (MARFORRES), Logistics Command (LOGCOM), Blount Island Command, Marine Corps Systems Command (MCSC), Total Force Structure Division (TFSD), and MCES. This initial effort focused on issues regarding configuration management, armor cab accountability, SL-3 Listings versus Technical Manual components lists, and Maintenance Allocations Charts (MAC).

Configuration Management

There are several mandates at various levels calling for Total Asset Visibility (TAV) and configuration management within Global Combat Support System - Marine Corps (GCSS-MC), specifically directing the configuration of supply system responsibility items (SSRI) eight-digit Table of Authorized Material Control Numbers (TAMCN) (child) to their associated seven-digit TAMCN (parent). This endeavor has proven to be problematic for the OpFor as current configuration management SSRI/using unit responsibility items (UURI) data is not accurately reflected within Total Force Structure Management System (TFSMS) and Item Applications Item Apps, resulting in unit inability to associate equipment relationships accurately within GCSS-MC This negatively impacts readiness, accountability and visibility.

The configuration management working group conducted a line-by-line comparison of TAMCN relationship data within TFSMS, Item Apps and Total Life Cycle Management-Operational Support Tool (TLCM-OST) for 196 Bravo TAMCN items currently in service. The group discovered that all equipment with a respective TAMCN relationship had inconsistencies between the three systems (TFSMS, Item Apps, & TLCM-OST).

The working group requested the ability to associate UURI SL-3 items and other standalone TAMCNs in GCSS-MC via the "connected to" relationship to be established via official business rules and policy. The GCSS-MC program office demonstrated this capability as current functionality requiring no change to the system. This function provides equipment owners the ability to link/associate equipment in order to have a true picture of how their equipment is configured (For example, attaching a winch or ripper to an MCT Dozer). The next steps consist of: LPE requests MCSC Program Managers (PM) validate and update configuration requirements within TFSMS and Item Apps; recommend I&L (LPC) investigate missing Item Apps data within TFSMS; request I&L and GCSS-MC Program Office validate and verify the ability to associate UURI SL-3 items and other standalone TAMCNs in GCSS-MC via the "connected to" relationship; establish clear policy.

Armored Cab Accountability

The Marine Corps lacks TAV of armored cab configurations. The various automated information systems (AIS), e.g., OST and GCSS-MC, show different numbers regarding requirements and actual on-hand quantities resulting in no standardization across like engineer units. Some units with commercial cabs do not have cab containers intended to store uninstalled armored cabs. Based on current data, cab and cab storage container accountability and inventory control has not been validated. The working group reviewed Marine Corps Containerization Policy (MCO 4690.1) and determined cab storage/shipping containers require TAMCN assignment to obtain accountability.

Upon review of the Consolidated Storage Program (CSP, MCO 4400.196A), the working group recommended establishing a 24-month proof of concept armored cab training allowance (T/A) for each Marine Expeditionary Force (MEF) and that the cabs be stored according to the CSP.

Another issue affecting the OpFor concerning installation of armored cabs has been the loss of maintenance history within GCSS-MC after all required supply instruction transactions have been completed. The GCSS-MC program office briefed a potential solution requiring further validation.

The next steps in the Armor accountability initiative are a directed physical inventory of armored cabs and associated containers, MCSC assignment of TAMCNs to cab shipping containers, validation of cab AAO. The end state is attaining armor cab asset TAV by establishing well-defined accountability and management practices in order to manage engineer equipment armor capabilities.

SL-3 Extracts vs. TM Components Lists

Current Marine Corps business practices for publishing Stock Listings are not conducive to ensuring comprehension throughout the OpFor, and are insufficient to ensure accurate equipment accountability.

The SL-3 working group discussed MCO P5215.17 (Marine Corps Technical Publication Management), which defines the purpose of an SL-3 and directs that MCO 4400.150 (Consumer-Level Supply Manual) govern its content. These manuals direct that SSRI, UURI, Collateral Material, Ammunition, Small Arms, and Associated Expendables are listed within an SL-3 publication, as applicable. They also allow for integration of Components Lists into TMs, but do not direct how to integrate the data. This leads to inconsistent placement of SL-3 information resulting in difficult data mining. The working group recommended standalone SL-3 extracts; standardization of data used to account for additional items as required in MCO P5215.17; standardized USMC terms; one repository for the required data and updates to MCO 4400.150, MCO P5215.17 and TM 4700-15/1.

The next steps are developing an approved SL-3 template to incorporate into the TM 4700-15/1, revising MCO P5215.17, and gaining OpFor concurrence.

Continued on page 6.

EEAIPT (cont.)

Maintenance Allocation Charts (MAC)
The working group discussed the benefits of requiring all engineer equipment TMs to incorporate maintenance allocation charts, which would establish resource baselines to assist in planning maintenance functions. This topic requires a more in-depth discussion, and will be further addressed during the upcoming DoD Maintenance Symposium.

Way Ahead
The momentum of this long overdue effort will continue with the next IPT occurring within the DoD Maintenance Symposium scheduled for December 2015 in Phoenix, Arizona. Our responsibility to the enterprise is to take ownership of accurate accountability. We have been directed by our Commandant to account for our assets and we can achieve success by working together.

M870 Trailer Update

Maj William Dobbins – LPE, LP, DC I&L
CW05 Scott Gilliam – LPC Branch, DC I&L

The latest variant of the M870 trailer is the A2E1, a three-axle Medium / Heavy Equipment Transporter. This trailer is designed to haul everything from Assault Amphibian Vehicles (AAV) and large engineer equipment to break bulk cargo with the Logistics Vehicle System Replacement (LVSR) MK16 tractor serving as prime mover. The trailer is equipped with tie downs and folding outriggers supporting wide loads.

During combat operations in Afghanistan, Marine forces experienced consistent unreliability with the 870 series of trailers that were not designed for off road operation over semi-rugged terrain. The mission demanded operation over such terrain, regardless of 870 developmental design parameters.

According to the 2011 Urgent Universal Need Statement (**UUNS**) submitted by I Marine Expeditionary Force (Forward (I MEF (FWD)), the primary flaw of the 870 trailer involved failure of the tires, rims, axles, U-bolt assemblies, and suspension air bags. As failures occurred, operating characteristics of the trailer would change. These changing characteristics resulted in shifting loads, further exacerbating extant failures, leading to additional damage to the trailers.

LVS MK48/16/870A2 in Camp Fallujah, Iraq. Carrying an insurgent damaged semi-trailer.

In May 2013, with US Marine Corps Forces Central Command (MARCENT) concurrence, the Deputy Commandant for Combat Development and Integration (DC, CD&I) canceled the UUNS for an "On/Off road Heavy Equipment Trailer" intending to address the entire M870 trailer fleet. That process continues as the "Transportation of Heavy Equipment, Off Road" was identified as a gap on the Program Objective Memorandum (POM)-17 and 18 Marine Corps Gap list (MCGL). In POM-18, the Marine Corps added the "Transportation of Heavy Equipment, Off Road" to the Marine Corps Solution Strategy Document, and will likely add it to the POM-19 Solution Strategy.

Next step: HQMC will conduct a Capabilities Based Assessment (CBA). This CBA will determine if the all 870s in inventory require replacement. An alternative, short-term solution may be implemented by upgrading a limited number of 870s while a long-term solution is pursued via the acquisition process.

If you have any comments or questions please send them to Major William (Bay) Dobbins at HQMC (LPE) or CWO-5 Scott Gilman HQMC Logistics Policy and Capabilities Branch (LPC).

Q: What is a "CBA"?

A: CBA stands for: "Capabilities Based Assessment", which is an analytic process to identify capability ***requirements*** *and associated capability* ***gaps.***

Q: ***Why do a CBA?***

A: CBAs are conducted to determine future warfighting capability requirements, and to recommend potential approaches to resolving or mitigating gaps in the needed capabilities. Results of a CBA study provide the source material for one or more "Requirements Documents". These documents may call for a Materiel (equipment) solution or a Non-Materiel (Training, Policy, etc.) solution.

(Source: Defense Acquisition University)

Marine Corps Engineer Association (MCEA) Update

Mr. Ken Frantz, MCEA

Planning continues for our Jacksonville, NC annual reunion which will be fall of 2015. The awards banquet will be conducted during our gathering along with tours of the local attractions and a visit to the engineer units aboard Camp Lejeune.

The draft MARADMIN for the 2015 MCEA awards program will be provided to HQMC early January so it's not too early to start identifying your nominees.

The picture of our MCEA monument at the National Museum of OUR Marine Corps shows the recently installed bricks.

MCEA Engineer Monument

Dedicated 14 May 2014, as an enduring tribute to all Marine Corps Engineers, past, present and future in the Semper Fidelis Park at the National Museum of the Marine Corps. Personalized and unit bricks available for purchase to be located adjacent to our Engineer Monument. Make it a point to visit the monument if you are at the museum. Maps, brick order forms and all the details are on our website: http://www.marcorengasn.org/modules/Monument/brickprogram.htm

What is it? MCEA is a HQMC sanctioned, tax-exempt, nonprofit organization, incorporated in NC, in 1991. MCEA provides a unique opportunity to connect or reconnect and maintain communication with Marine Corps engineers, the Marine Corps family, recognize outstanding performance of individual Marines and engineer and Seabee organizations, and to leave a memorable legacy of our Marine Corps engineer brotherhood.

MCEA Purpose/Bylaw highlights:

- Promote Marine Corps engineering in combat engineer, engineer equipment, utilities, landing support (shore party), bulk fuel, topographic and construction engineering, drafting, and Explosive Ordnance Disposal (EOD); Promote an accurate historical record of Marine Corps engineer contributions
- Renew and perpetuate fellowship of retired, former and current US Marines who served with Marine Corps Engineer units and sister service members who served in support of Marine-Air-Ground Task Forces (MAGTFs); foster solidarity of Marine Corps engineers
- Keep members current with the Marine Corps engineer community
- Annually recognize superior achievement of active duty and reserve establishment Marine Corps EOD and engineer individuals & organizations, as well as Naval Construction Force Units
- Provide Financial Assistance to Marines, their next of kin or other deserving personnel

MCEA Eligibility. All former and current Armed Forces personnel who served with Marine Corps Air Ground Task Force (MAGTF) Units or in support of Marine Corps Engineer Units or US Marine Corps Base and Station billets.

Membership Benefits:

- Very affordable membership dues! 100% of dues and contributions tax deductible
- Contributions to MCEA, Assistance Fund and Engineer Monument Fund qualify for Fellows Program
- Access to members' roster and capability to locate and reconnect with Marines and Sailors
- Annual reunion with opportunity to interact with veterans as well as active/reserve duty personnel, corporate members and "Best of the Best" award recipients and their families
- Availability of the MCEA Financial Assistance Fund
- Subscription to MCEA newsletter; unlimited access to website and special "members only" section
- Notification of employment opportunities especially in the DOD and civilian engineering community
- Access to history, lineage and other information about USMC engineer units
- Availability of unique MCEA Ship's Store items; discounts on Military Historical Tours, Inc.
- Exclusive assistance from Ingenieur Executive Company for job and contract placement
- Special partner-association pricing on Marine Corps Association membership
- Discount prices on Society of American Military Engineers courses

MCEA: www.marcorengasn.org

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Purpose

The purpose of the *Operational Engineer* is to provide a useful forum for open discussion and free exchange of ideas relating to the U.S. Marine Corps Engineer community. Thoughts, suggestions and ideas from all are essential to achieving this purpose.

Submissions

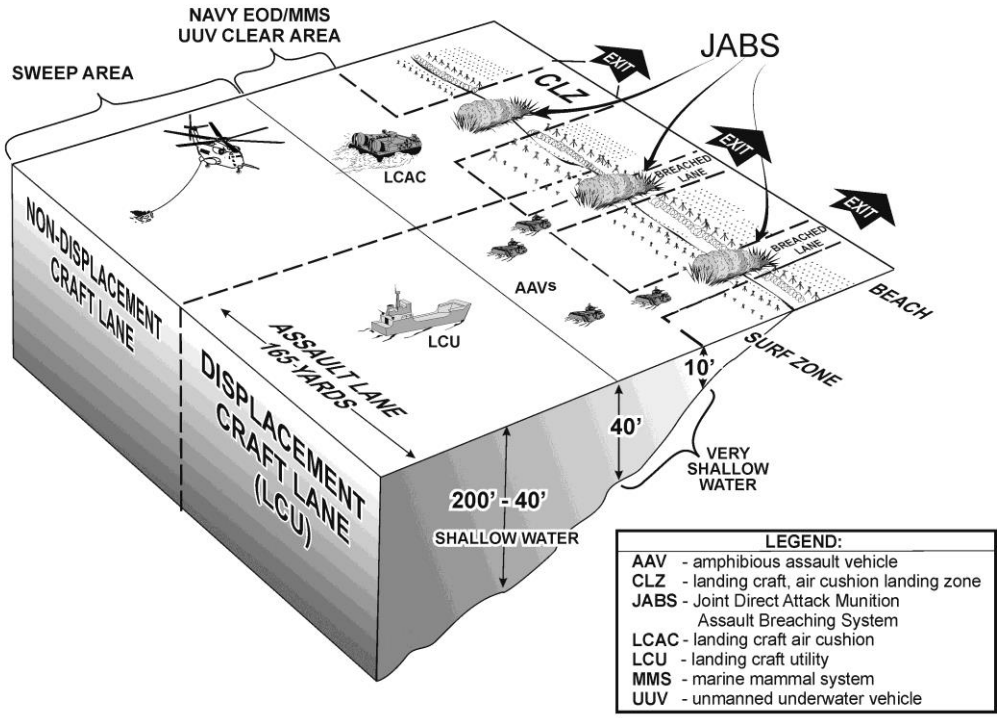
Provide submissions via email (preferred) or regular mail, please include contact information. Feel free to submit:

- Commentary on published material
- Articles dealing with topics of interest to the Engineer community
- Ideas and Issues that could affect or do affect the Engineer community
- Letters to the "editor"

Next Issue

The next issue of the Operational Engineer will be published during Fall 2015. To ensure timely publication of your offered content, provide submissions by 31 Oct 2015. Look for an article covering:

Amphibious Breaching



Marine Corps Engineer School

PSC Box 20069
Camp Lejeune, NC
28542-0069

PHONE:
(910) 440-7144

FAX:
(910) 440-7360

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