

# Sustaining the Force in the 21st Century Lines of Effort

Enable global logistics awareness and diversify distribution

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In 2018, the unclassified summary of the *National Defense Strategy (NDS)* listed “[c]ontinuously delivering performance with affordability and speed as we change Departmental mindset, culture, and management systems”<sup>1</sup> as one of our primary defense objectives. This statement addresses emergent threats in an ever-changing global landscape. Our near-peer adversaries have made warfighter sustainment far more difficult than in previous years. Massive bases and supply convoys that supported Operation IRAQI FREEDOM and Operation ENDURING FREEDOM are outdated concepts. This blunt assessment exposes the reality that we must continue to evolve in order to change the future of distribution. Failure to do so will severely limit our ability to support the warfighter in future engagements.

The 2018 *NDS*, the *38th Commandant’s Planning Guidance (CPG)* and the Deputy Commandant for Installations and Logistics’ *Sustaining the Force in the 21st Century (StF)* logistics concept document highlight the challenges of the future-operating environment in support of expeditionary advanced base operations (EABO), distributed maritime operations (DMO), and littoral operations in a contested environment. These maritime concepts support sustainment of logistics by achieving several attributes and capabilities: task-organized, strategically mobile, secure, sustainable, and integrated with Navy,

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**FLC Bahrain successfully delivered cargo to combat logistics force ships that fulfilled replenishments at sea for the USS Bataan (LHD 5) Amphibious Ready. (Photo by Kambra Blackmon.)**

Marine, and joint forces. These concepts expose sustainment challenges that require our logistics and distribution pipelines to evolve and adapt to the changing global threats and environments.

The *StF* states, “Marine Corps logistics is not postured to sustain the future fight as defined by the *NDS*.”<sup>2</sup> To meet the requirements of the *NDS* and other overarching guidance, the Marine

# IN SUBTERRANEAN WARFARE, PREPARATION AND BREATHING PROTECTION IS ESSENTIAL

In the early days of the Afghan War, US Forces discovered a cave system they thought might take a day to clear. Nine days later, they had searched 70 reinforced tunnels – housing 60 structures including a mosque, repair shops, a medical facility, and a communications center.<sup>1</sup>

Operating in subterranean environments – be they natural caves, urban tunnel systems, or full-scale military bases large enough to launch aircraft – are hardly new in warfare. They've been known to exist in North Korea, Vietnam, Russia and Syria. During the American Civil War, Union forces dug sabotage tunnels beneath Confederate lines and detonated large amounts of gunpowder.<sup>2</sup> Subterranean landscapes vary in complexity and capability. These variables can alter the nature of the threat to US troops.

In a 2019 article for Military Times, Todd South describes these underground battlefields this way:

**"It is darkness like you've never seen. The air you breathe could kill you in moments. All of your fire support – air, armor, artillery – is useless. The walls and ceiling could collapse. Communications will fail. A wrong turn leaves you utterly alone."**

The US Army SUB-T manual ( ATP 3-21.51) identifies atmospheric hazards as the number one risk to Sub-T operations. Likewise, the USMC version of the MOUT manual (MCWP 3-35.3, Appendix E, pg 298) includes some limited details about the atmospheric threats.

As the probability of subterranean warfare grows, it becomes increasingly critical that our troops are prepared to handle the physical and psychological challenges of underground battlefields – some of which could encompass the entire underbelly of a large metropolitan city.

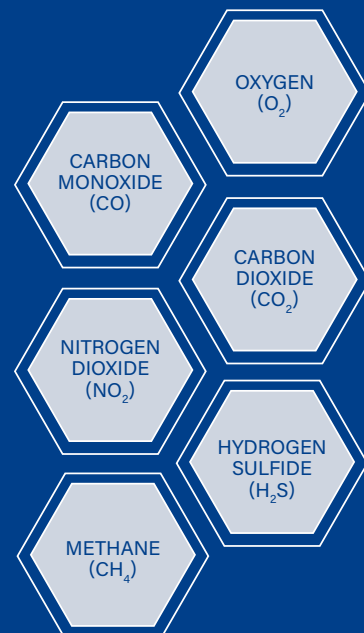
Physical obstacles can include a confusing maze of tunnels, dangerous debris, extreme temperature shifts, and disorienting darkness. But perhaps the most fundamental issue – both physical and psychological – is the potential for naturally occurring threats to air quality that can impact a Sub-T tactical force's survivability.

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## TOXIC THREATS TO TROOPS AROUND UNDERGROUND

The most common toxic gases encountered underground are carbon monoxide, carbon dioxide, nitrogen dioxide, hydrogen sulfide, and methane. Some of these gases displace oxygen, making it difficult to breathe. Others are lethal in high concentrations and still others become combustible under certain conditions.



Dräger

# OUR TROOPS CAN'T FIGHT IF THEY CAN'T BREATHE

Today, subterranean training is essential. Necessary training includes instructing force's on how to maintain a clean air supply and how to detect potentially deadly toxic threats underground. The U.S. military is now drawing on over a hundred years of Draeger's advancements in underground mining operations and rescue equipment for training. Training includes becoming accustomed to wearing advanced personal protective equipment (PPE) and learning how to use portable gas detection monitors.

Units operating underground should also be equipped with portable gas detection monitors. Real-time monitoring of air quality helps troops identify and address atmospheric threats and determine when protective breathing equipment might be needed. Portable gas detection monitors, such as the Dräger X-am® 8000, can detect the most commonly occurring toxic and explosive gases and vapors, so they can help Sub-T tactical force's detect, avoid, and mitigate risks posed by underground hazards.

*Dräger X-am® 8000 pictured here, which can simultaneously detect seven gases, including toxic and flammable gases/vapors and oxygen levels.*



Being equipped with the proper protective breathing apparatus and monitoring devices can provide increased physical protection and confidence as troops traverse increasingly precarious subterranean settings.

*A Sub-T tactical force's PPE should include breathing protection equipment, like the Dräger PSS® BG 4 Plus, to ensure a clean, safe air supply.*



In addition to head protection, gloves and goggles, subterranean PPE should include breathing protection equipment, such as closed circuit rebreathers. Dräger, a leading manufacturer of breathing and safety technology and the inventor of the world's first SCBA in 1912, outfits military units with its Dräger PSS® BG 4 Plus. The slight positive pressure breathing circuit protects the wearer by preventing hazardous substances from entering the sealed breathing system. Moreover, a CO<sub>2</sub> absorber removes carbon dioxide from the exhaled air, while at the same time an oxygen supply enriches the breathing air.

1. [www.militarytimes.com](http://www.militarytimes.com); Subterranean Battlefield: Warfare is Going Underground, into Dark, Tight Spaces; Todd South, February 26, 2019

2. <https://armypubs.army.mil>; Subterranean Operations; Headquarters, Department of the Army; November 2019

Corps must be capable of sustaining combat power in contested environments.

In response to this goal, the Navy and Marine Corps Logistics Communities of Interest created the Naval Logistics Integration (NLI) Billet Exchange Program. The NLI Billet Exchange Program addresses the challenges outlined in the *NDS* by seeking to deliver greater performance and strengthen alliances while serving in contested environments. The program also supports the goals and intent of the EABO, DMO, and Littoral Operations in a Contested Environment naval concept.

**Background**

The NLI Billet Exchange Program is an agreement between the Navy and Marine Corps logistics Communities of Interests to exchange logistics personnel across key logistics nodes and billets. The program is a direct result of findings from the 2013 Deputy Commandant for Installations and Logis-

curity Teams, Marine Special Operations Forces, Marine Aviation Logistics Squadrons, the Black Sea Rotational Force, Carrier Groups, exercises, and other operations. These highly trained distribution management Marines significantly reduce port-hold-times, helping to mitigate customs issues, facilitating lift access and coordination, providing vastly improved direct access to naval logistics support, and offering transportation and logistics advocacy for local and transiting Marine Corps units where none previously existed.

**Operating Forward ... Always Ready: FLC Bahrain**

The mission of FLC Bahrain is to provide full-spectrum operational logistics support and quality of life programs to Navy, joint, and Coalition warfighters, DOD civilians, and their families in the U.S. Central Command AOR. The MOS 3112 Marine gunnery sergeant is responsible for logistical and distribution support for several unit's: Carrier

and the Integrated Data Environment/Global Transportation Network Convergence (IGC), to maintain accurate and up to date information.

- Ensure all air shipments have the required documentation for classified, sensitive, serialized, high value, and hazardous materials.

The Distribution Marines of FLC Bahrain have earned overwhelmingly positive feedback since the NLI Billet Exchange Program's inception in 2014. The FLC Bahrain Marines provide an array of extremely valuable distribution services and capabilities to the transiting and deployed warfighters within their geographic areas.

**Distribution Hub of the Med: FLC Sigonella**

The mission of FLC Sigonella is to provide logistics, business, and support services to Navy, joint, and allied forces through partnerships and sound business practices in order to set theater readiness and accountability.<sup>4</sup>

The MOS 3112 Marine gunnery sergeant has three primary roles at FLC Sigonella. The first role is FLC forward Marine logistics coordinator to Marine forces operating in, or transiting through, the 6th Fleet AOR. The second role is a fully integrated member of the Code 430 Logistics Operations Department within the FLC Headquarters. The third role is senior enlisted advisor for all Marines assigned to NAVSUP FLC, responsible to the commanding officer for the development and discipline of the Marines assigned to the various sites throughout the AOR. Additional responsibilities include:

- Serve as overall Marine logistics coordinator in direct support of the MEUs, SPMAGTF-Crisis Response-Africa, and other deployed forces.
- Develop and maintain collaboration with United States Transportation Command Component Commands, Defense Logistics Agency, Marine Corps Forces Central Command, and all base/station Distribution Management Offices to provide operational movement of sustainment cargo and passengers.
- Enter Advance Transportation Control and Movement Document data

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tics-sponsored Transportation and Distribution Operational Advisory Group (T&D OAG) and other NLI forums. The requirement was born from a desire to improve throughput velocity by placing distribution subject matter experts (SME) at key logistics nodes. In support of the program, the Marine Corps placed distribution management (MOS 3112) SMEs with the Navy under Naval Supply Systems Command (NAVSUP) Fleet Logistics Centers (FLCs) in the 5th Fleet (FLC Bahrain), 6th Fleet (FLC Sigonella), and 7th Fleet (FLC Yokosuka) area of responsibility (AOR).

Since 2014, the NLI Billet Exchange Program has successfully supported Navy-Marine Corps units, transiting MEUs, Special Purpose MAGTFs (SPMAGTFs), Fleet Antiterrorism Se-

Strike Groups, Amphibious Readiness Groups, MEUs, SPMAGTFs, Fast Company Central-Bahrain, Task Force 51/5, and tenant commands operating in the 5th Fleet AOR.<sup>3</sup> Additional Marine Corps responsibilities include:

- Serve as Navy Air Clearance Authority for the 5th Fleet AOR (all Services) to process and clear cargo in an expeditious manner for military airlift.
- Coordinate with the NAVSUP Transportation Officer to establish an alternative shipping method to ship cargo via Total Delivery Services (expedited commercial airlift).
- Provide visibility, status, and accountability of cargo while utilizing the Global Air Transportation Execution System (GATES), Financial and Air Clearance Transportation Systems,

into GATES and perform tracer action on transiting cargo.

- Provide In-transit Visibility (ITV) support when required (Radio Frequency Identification [RFID] tags, IGC, etc.).
- Manage the movement of sustainment cargo via the Defense Transportation System and the Worldwide Express/International Heavyweight Express contracts.

### **WESTPAC Titan: FLC Yokosuka (FLCY)**

As the largest Navy logistics command in the western Pacific, FLCY serves the region's forward deployed maritime warfighter with 24/7 operational logistics support. FLC personnel provide an extensive logistics network to deliver fuel, materiel, mail, and supply chain services across the Navy's largest geographic AOR.<sup>5</sup>

The MOS 3112 Marine gunnery sergeant serves in the roles of a general logistician, Marine liaison, transportation and distribution coordinator, and shipping and receiving chief. Additional responsibilities include working in NAVSUP Operations, and working with Navy beach detachment personnel, providing the following functions:

- Conduct forward deployed logistics coordination between NAVSUP FLCY and partners throughout the United States Indo-Pacific (USINDOPACOM) AOR.
- Provide a FLCY point of contact for Marine units and other deployed forces in support of cargo transiting the region via multi-modal conveyances and ensure immediate onward movement of cargo.
- Serve as overall Marine logistics coordinator in direct support of the MEUs and other deployed forces.
- Ensure the execution of DMO core functions and maintain communication among FLCY's logistics providers.
- Implement core DMO functions and ensure effective communication between fourteen FLCY sites across eight nations and forward deployed customers.

### **Welcome Aboard: FLC Singapore**

Because of emerging future threats



**Marines assigned to Marine Medium Tilt-Rotor Squadron 764 and personnel assigned to FLC Sigonella's site in Rota, Spain, transport MV-22B Osprey aircraft in preparation to load them on ship. (Photo by Tia McMillen.)**

and concepts described in the *NDS* and *CPG*, the expansion of the NLI Billet Exchange Program will soon include the USINDOPACOM logistical port of FLC Singapore. USINDOPACOM is the oldest and largest of the unified Combatant Commands and FLC Singapore remains a large and active port (import and export) responsible for much of the world's trade in Asia. During West Coast and Okinawa-based MEU deployments, DLCs and expeditors placed in Singapore provide support as the MEUs transition through that AOR. The NLI Billet Exchange Program will play an integral role in the future of materiel distribution and the FLC Singapore billet will become another positive step toward the greater naval integration goal.

### **Civilian Expeditors: Distribution Process Advocates (DPA)**

DPAs are logistics/distribution enablers who support the NLI Billet Exchange Program. In support of the CPG, DPAs also allow Marine Corps Logistics Command (MARCORLOGCOM) to support NLI in order to "ensure effective and efficient support to Marine Forces (MARFORs) operational-level logistics requirements."<sup>6</sup> DPAs are primarily a contracted capability

managed at MARCORLOGCOM. The capability was originally born out of necessity in 2004 at the height of the Global War on Terrorism to serve as part of the Marine Corps' plan to mitigate global distribution gaps. DPAs have significantly affected the force's ability to sustain its lethality. The DPA network consists of seasoned experts with at least ten years of resident knowledge in various areas of logistics. DPAs provide the expertise to integrate strategic-level logistics capabilities to satisfy tactical-level logistics requirements beyond organizational capabilities. They serve as effective augments to enhance the integration and synchronization of mission requirements and achieve the commander's strategic intent. Currently, DPAs provide support on five continents throughout the globe and several CONUS aerial and seaports. They augment the MEFs and MARFORs to support distribution planning for Marine Corps Special Operations Command, Marine Corps Central Command, Marine Forces Europe and Africa, Marine Forces Pacific, and Marine Forces South. Given the current operational environment and the unknown national defense challenges ahead of our Nation, MARCORLOGCOM "continues to make strategic investments in focused

logistics support as they fill DPA positions across the enterprise.”<sup>7</sup>

The DPA network has been a critical enabler to the throughput and success of the CONUS aerial and seaports and greater global Defense Transportation System. The expansion and utilization of the DPA network will be of even greater importance in the future operating environment.

### Sustaining Marines: Distribution Liaison Cells (DLC)

Billet integration to support enhanced distribution at the tactical level has been an ongoing problem for many years. One productive initiative is the creation of DLCs, which are distribution elements normally comprised of Distribution Marines from the MAGTF Materiel Distribution Center (MMDC), within the MLG. The mission of the MMDC is to provide general shipping and receiving services, consolidated distribution services and to maintain ITV/TAV to enhance throughput velocity and sustain operational tempo.<sup>8</sup>

DLCs are task-organized and structured to perform various tasks at ports of embarkation and/or debarkation or forward-operating areas, including but not limited to providing support for deploying MAGTFs. Roles and responsibilities of the DLC include establish and manage freight operations; synchronize operational, tactical, and sustainment distribution; maintain asset visibility for sustainment cargo; and coordinating the shipping, receiving, and delivery of materiel to and from supported units. Ultimately, DLCs are responsible for the inland onward movement, throughput, ITV, distribution of cargo and passengers to/from point of delivery to point of employment.<sup>9</sup>

DLCs began prior to Operation IRAQI FREEDOM, when MMDCs first stood up within the MLG Supply Battalions. When the MMDC deployed, it would often send out fire team-sized support elements (DLCs) and individuals (cargo expeditors) across the battlefield. Prior to Operation IRAQI FREEDOM, various logistics modernization initiatives convened to address combat operational logistics deficiencies identified during previous deployments.

Improving MAGTF distribution capability was one of these deficiencies and the creation of the MMDC helped close this gap.

Since their inception, the MMDCs have continued to evolve from company-sized elements to individual sections within the supply battalion. Regardless of size, the MMDC has always provided a significant amount of benefit and value (return on investment) despite their relatively small footprint and staffing. An important part of the DLCs success has been their ability to task organize and deploy rapidly.

### Deployed Sustainment: MEU DLCs

During 2013, the Deputy Commandant for Installations and Logistics directed a MEU DLC Proof of Principle to provide an “*enhanced distribution capability*” for each MEU to address historic challenges with expeditionary cargo throughput, sustainment, velocity, ITV, passenger movements, transportation finance accounting, customs mitigation, and limited distribution capability as identified in multiple MEU after-action reports and post-deployment logistics analysis.

MEU DLCs are combined teams of six to eight distribution management (MOS 31XX), supply (MOS 30XX), logistics (MOS 04XX), and aviation logistics (MOS 66XX) Marines who provide optimal integration of critical skill sets and capabilities for the MEU. The skills of the DLC Marines directly affect increased aircraft mission capable rates and ground equipment readiness during operational deployments. DLCs are organic to the MLG (Supply Battalion) table of organization; however, each MEF and MEU (in coordination with the MLG) determines the size, MOS-mix, shape, and operational control of their DLCs prior to deployments.

MEU DLCs are optimally designed, flexible and scalable in order to meet the velocity demands of logistics in support of distributed operations. MEU DLCs provide support from the landbase and at sea, while integrating air/ground logistics support for the MAGTF. The MEU DLCs flexibility provides a significant boost to the MEUs ability to integrate logistics teams and personnel

from task organization through redeployment back to home station.

The MEU DLC Proof of Principle concluded in 2016. Senior leadership from HQMC (LPD) briefed the Deputy Commandant for Installations and Logistics on the results and received his concurrence on the proposed size and concept of operation for the DLC team. Upon validating the logistics benefits of the added capability, he recommended that each MEU continue to receive the capability. The MEU DLCs, noteworthy contributions result in reduced average customer wait time for both ground and aviation MEU DLC deployments, decreased instances of frustrated cargo, as compared to past MEU deployments without DLC capability (before 2013), and substantial increases in readiness. Operational integration of DLCs on MEU deployments have become standard for every MEU since 2013. DLCs expanding requirements continue to impact logistics planning considerations for the future operating environment.

### The Red Patchers: Landing Support Battalions (LSB)

Recently, the Marine Corps re-established their LSBs in preparation for distributed operations and conducting throughput in the littorals. Known for the distinctive red patches on their trousers and cover, LSB Marines have a long and storied history that dates back to World War II. The LSB, Beach & Terminal Operations Company, includes a shipping and receiving platoon comprised of MOS 3112s who provides beach operations group, port-operations group, railhead operations group, and ship-to-shore movement distribution support for deployments, operations, and exercises. The LSB Marines provide throughput support to deliver and transport gear, personnel, and equipment on beaches and in landing zones, ports, and terminals in support of operations and deployments. The re-establishment of LSB supports the CPG and stands as a significant event in the Marine Corps “shift to the sea” in support of future naval expeditionary operations. Landing support elements with a reduced footprint will become critical enablers in our efforts to support the throughput

and sustainment of distributed forces. While the Marine Corps focuses on rejuvenating our amphibious philosophy, LSBs will provide the subject matter expertise to support EABO and DMO in contested and dispersed environments.

### Evolution of Distribution

The FLCs, DLCs, DPAs, and LSBs deliver tremendous impact on the Marine Corps ability to provide effective nodal management. Our distribution enablers provide commanders the enhanced capability to monitor capacity, impact velocity, maintain ITV, and provide information to assist with realtime decisions. This results in more effective and efficient delivery across the globe. Additional benefits include reduced customer wait times, decreased loss or damages, and minimized instances of frustrated cargo. The NLI Billet Exchange Program serves as a force multiplier by providing the “right person, at the right place, at the right time.” The program increased our ability to accurately answer the age-old question, “Where is my stuff?” before it is asked. Our distribution enablers’ presence has increased reliability resulting in improvements in customer satisfaction and operational support.

Marine Corps distribution enablers have revolutionized warfighter sustainment. The days of using antiquated tracking systems, pencil and paper, to track the movement of supplies and equipment have long since passed. The effective and efficient use of Automated Information Systems (AIS) is crucial in their role of providing sustainment distribution. Distribution enablers throughout the global distribution network utilize AIS for various reasons to support sustainment distribution. At the Base DMO, Marines use the Cargo Movement Operations System to assign shipments to a commercial carrier and print RFID tags to allow shipment tracking. At the MLG, MMDC Marines use the Automated-Manifest System-Tactical to perform freight receipt functions and passive RFID to track the movement of cargo. Marines at the MEF, MAGTF Deployment and Distribution Operations Center, use IGC for near realtime ITV of equipment and

personnel. FLC Marines use GATES for the receipt, movement, and billing of cargo and passengers. Meanwhile, MARCORLOGCOM DPAs monitor the entire distribution network by using the RFID-ITV Server, which receives data from multiple Global Positioning System-enabled satellite tracking transponders.

These uses of AIS are just some examples of how Marines have evolved from using “pen and paper” to conduct required actions, to using the latest in modern technology. This evolution has reduced the time, cost, and effort to track, trace, and inventory supplies and

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## **The NLI Billet Exchange Program is a “win-win” proposition ...**

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equipment required to sustain the force. Ultimately, the distribution enabler’s diverse use of multiple AIS platforms enhances the commanders’ ability to support sustainment distribution across the full range of military operations.

With the present danger of our near-peer adversaries, the Marine Corps must continue to expand our logistics capabilities in support of our warfighters. The NLI Billet Exchange Program has provided the perfect venue to evolve the Marine Corps distribution management community into global distribution enablers. Placing Distribution Marines into previously unsupported AORs has proven extremely beneficial to the supported commands and the Marines selected for these high-visibility assignments.

### Benefits: Current and Future

The benefits of the NLI Billet Exchange Program are many but two stand out as exemplary. First, the program offers a platform to place knowledgeable distribution SMEs to support deployed warfighters, regardless of Service branch. This ensures that our Navy-Marine Corps logistics team will always be present in any geographic region. Second, the program offers excel-

lent opportunities for our distribution enablers to evolve their training and education by using the latest AIS and other modern logistics technology tools. Overall, the Marine Corps participation in the NLI Billet Exchange Program is that rare occurrence when everyone wins. The warfighters benefit from enhanced support from distribution enablers stationed throughout the global distribution network. The combatant commanders gain knowledgeable distribution SMEs to support the delivery of sustainment cargo within their assigned AOR. The Navy reinforces the desired partnership outlined in the CPG, and the Marine Corps gains an enhanced opportunity to serve the warfighter. The NLI Billet Exchange Program is a “win-win” proposition that provides the perfect setting to refine Marine Corps distribution enabler capabilities for future distribution operations.

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### Notes

1. Department of Defense, *2018 National Defense Strategy*, (Washington, DC: January 2018).
2. Deputy Commandant for Installations and Logistics, *Sustaining the Force in the 21st Century*, (Quantico, VA: May 2019).
3. FLC Bahrain website, available at <https://www.navsup.navy.mil/public/navsup/flcb>.
4. FLC Sigonella website, available at <https://www.navsup.navy.mil/public/navsup/flcsi>.
5. FLC Yokosuka website, available at <https://www.navsup.navy.mil/public/navsup/flcy>.
6. Gen David H. Berger, *38th Commandant’s Planning Guidance*, (Washington, DC: July 2019).
7. Ibid.
8. Headquarters Marine Corps, *MCO 4470.1B, MAGTF Deployment and Distribution Policy*, (Washington, DC: January 2020).
9. Ibid.

