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## Executive Summary

### 1. Problem Statement

- a. **Objective.** Assess the capabilities and limitations with regard to combined United States Marine Corps (USMC)/Australian Defence Force (ADF) command and control of fires ashore during amphibious operations. Key issues that the wargame examined as agreed to with the sponsor
- b. **Wargame issues to be examined:**
  - i. How effectively can an Australian Amphibious Force (AAF) operate in a USMC Marine Expeditionary Brigade (MEB) construct?
  - ii. Determine communications and information systems (CIS) shortfalls and gaps in regard to command and control of maneuver forces and fires to shape future acquisitions.
  - iii. What level of interoperability of fires ashore is required for successful maneuver?

### 2. Scenario

- a. **Geographic region.** Specified CJOA within INDO-PACOM AOR
- b. **Time.** 2032
- c. **Road to war.** A combined US and Australian amphibious taskforce (ATF) has been assigned to retake disputed territory, after the adversary invasion force captured it in 2030. This task is designed to assist coalition forces in recapturing key seaports and airports within the specified CJOA. United States Indo-Pacific Command (USINDOPACOM) has assigned the First MEB as the ATF headquarters. 1st MEB consists of the 13<sup>th</sup> Marine Expeditionary Unit (MEU) and an Australian Amphibious Ready Unit (ARU). The MEB was embarked aboard the USS Bohomme Richard (LHD-6), USS Green Bay (LPD-20), USS Rushmore (LSD-47), HMAS Canberra (L02), and the HMAS Choules (L100). Supported by coalition airstrikes and naval surface and subsurface fires the 1st MEB conducted a successful amphibious assault, code named Operation DROP BEAR, on the southeastern coast of the primary island within the disputed territory. Currently the MEB is expanding its foothold on the island and echeloning additional forces and supplies ashore. MEB objective 1 is the main Airfield on the central eastern coast. MEB objective 2 is the National Coast Guard Station. Both the 13th MEU and ARU are tasked with moving up the coast and securing the airfield. The majority of adversary forces are arrayed around the airfield and nearby port facilities.

### 3. Player Role List

- a. **Player Roles / Player Experience:**
  - i. AAF Commander: Commander, Australian Navy, serving as Assistant Naval Attaché to the US
  - ii. ARU Air OPSO: Lieutenant Colonel, Australian Army Aviation Corps, serving as the Australian Army Liaison Officer (AALO) to the US Army Aviation Center of Excellence
  - iii. ARU S6: Lieutenant Colonel, Australian Army Signals Corps, serving as the AALO to the US Army Combat Capabilities Development Command
  - iv. ARU Fires Planner: Major, Australian Army Artillery Corps, serving as Staff Officer Grade 2 Fires
  - v. ARU Air Planner: Wing Commander, Royal Australian Air Force, serving as the Headquarters Air Command A5/7
  - vi. MEB CG: Colonel, USMC Artillery Officer / Foreign Area Officer, serving as Naval Postgraduate School (NPS) Senior Marine
  - vii. MEB OPSO: Major, USMC Infantry Officer, NPS student
  - viii. MEU OPSO: Major, USMC Infantry Officer, NPS student

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- ix. MEB Fires: Major, USMC Artillery Officer, NPS student
  - x. MEB G6: Major, USMC Communications Officer, NPS student
  - xi. MEB Planner: Major, Australian Army, Royal Australian Infantry, serving as the Australian exchange office to the Marine Corps Warfighting Lab (MCWL)
  - xii. Australian Army Observer: Lieutenant Colonel, Australian Army, Royal Australian Infantry, serving as the Staff Officer Grade 1, Land Warfare Laboratory, Future Land Warfare, Army Headquarters
  - xiii. MCWL Observers: Major, USMC Logistics Officer, serving in MCWL Wargaming Division
  - xiv. Enemy was played by the white cell.
- b. **Available Resources.** Task organized MEB with one MEU and one ARU.
  - c. **Relationships.** ARU is under tactical control (TACON) of the MEB and MEU is attached. Every commander has decision authority at their level.
4. **Wargame Description**
- a. **Wargame Design.** This was a hybrid of a seminar and table-top wargame. Players were given a skeleton operations order and tasked with developing a fire support plan to support the maneuver element. All planning was done in an open seminar format. The joint task force analyzed a total of 13 different inject scenarios in which they worked thorough the Sensor, Shooter, Approval kill chain.
  - b. **Wargame Execution.** Day 1: Capability in-briefs, player familiarization with MEB and AAF capabilities, tactics, techniques, and procedures (TTPs). Day 2: Basic scheme of maneuver and fire-plan, discussions on interoperability based on event injects. Day 3: Completion of interoperability discussion, summary discussions.
5. **Methods, Models, and Tools (MMTs)**
- a. **Adjudication.** Seminar facilitator ensured all questions were answered satisfactorily. MEB commander provided guidance regarding fire support plan and interoperability goals. For each inject scenario, both USMC and AAF commanders agreed to the TTPs, equipment, and flow of information required. Data Collection Management Plan (DCMP) was used to capture all relevant decision-making processes and conclusions.
  - b. **Player Feedback/updates.** Players enhanced the scenario throughout the week as new interoperability gaps were identified and addressed.
6. **Key Constraints, Limitations, and Assumptions**
- a. **Constraints.** This study was conducted and analyzed over a five-day period and all discussions were conducted in an UNCLASSIFIED environment.
  - b. **Limitations.** Game developers could only recruit USMC players from staff and students at NPS due to travel budget restrictions. However, all required subject matter areas were represented.
  - c. **Assumptions.** With exception of future systems that are already in development, the scenario utilized existing equipment.
7. **Findings**
- a. **Key Issue 1.** How effectively can an AAF operate in a USMC MEB construct?  
Throughout game play it was determined that AAF can operate in a MEB construct if common language, TTPs and Rules of Engagement (ROEs) are used. This will increase interoperability if planned for and trained to. Currently, Australian Regular Army (ARA) and USMC fire control procedures are nearly identical. We encounter a risk trade-off between capability and interoperability when certain capabilities are not releasable to allies. In order to better facilitate

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joint operations, Communication and Information Systems (CIS) interoperability must improve, with particular attention paid to the Mission Partner Environment (MPE) as the center of gravity. During game play, a continual concern was how to populate the Common Operating Picture (COP) and ensure the efficient dissemination of targeting data.

- b. **Key Issue 2.** Determine CIS shortfalls and gaps IRT C2 of maneuver forces and fires to shape future acquisitions.

Current training and TTPs emphasize use of voice communications, we found a need for more training to increase confidence in digital fire control systems. When conducting cross boundary fire coordination, system-to-system information exchange through common message format is essential to prevent human error and fratricide. Additionally, common messaging format will also assist in the use of other automated information systems (AIS). For digital systems to communicate between the coalition forces, MPE must be SECRET//RELEASABLE and in place and running prior to execution. To leverage the common Advanced Field Artillery Tactical Data System (AFATDS), the ARA must be included in all future upgrades/patches for AFATDS to keep it interoperable with US versions. Waveform usage must be controlled, and a common version used, this applies to SINCGARS, ANW2, and variable message format (VMF). Any future common tactical data link (CTDL) information needs to be pushed down to the ground forces, and ground forces data to CTDL to provide increased awareness and targeting data.

- c. **Key Issue 3.** What level of interoperability of fires ashore is required for successful maneuver? For successful maneuver, call for fire missions between allies should be seamless to the small unit leader sending the request. For this to occur, weapons employment and release authorities must be well known by all forces. It is recommended but not required that the joint force establishes a common tactical ROE. Common standard operating procedures (SOPs) for sensors, shooters, and decision authorities need to be used to facilitate fire support. Exchange of position/location/information (PLI) data is recommended to occur through the MPE at MEB level. To accomplish this PLI data must be unrestricted between coalition forces to remove latency issues. In an effort to reduce logistics burdens, future fire systems should utilize common ammunition.

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