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U.S. MARINE CORPS **MCWP 3-31.6**

SUPPORTING ARMS COORDINATION IN AMPHIBIOUS OPERATIONS

EDITION MAY 2004

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SURFACE WARFARE
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3. NTTP 3-02.2/MCWP 3-31.6 (MAY 2004) consolidates all supporting arms tactics, techniques, and procedures in support of amphibious operations into a single dual-Service publication.

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Approved

J. J. NATALE

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1. NTTP 3-02.2/MCWP 3-31.6 (MAY 2004), Supporting Arms Coordination in Amphibious Operations, was reviewed for format and approved Joint and Navy Service Terminology. The contents of NTTP 3-02.2/MCWP 3-31.6 (MAY 2004) support Navy Strategic and Operational Level doctrine.

JOHN M. KELLY
Commander
Navy Warfare Development Command

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Supporting Arms Coordination in Amphibious Operations

CONTENTS

LIST OF ILLUSTRATIONS

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PREFACE

The purpose of NTTP 3-02.2/MCWP 3-31.6 (MAY 2004), Supporting Arms Coordination in Amphibious Operations, is to update and consolidate all amphibious supporting arms tactics, techniques, and procedures into a single publication.

Throughout this publication, references to other publications imply the effective edition.

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WARNINGS, CAUTIONS, AND NOTES

The following definitions apply to "WARNINGs," "CAUTIONs," and "Notes" found throughout this publication.

WARNING

An operating procedure, practice, or condition that may result in injury or death if not carefully observed or followed.

CAUTION

An operating procedure, practice, or condition that may result in damage to equipment if not carefully observed or followed.

Note

An operating procedure, practice, or condition that is essential to emphasize.

WORDING

The concept of word usage and intended meaning which has been adhered to in preparing this publication is as follows:

"Shall" has been used only when application of a procedure is mandatory.

"Should" has been used only when application of a procedure is recommended.

"May" and "need not" have been used only when application of a procedure is optional.

"Will" has been used only to indicate futurity, never to indicate any degree of requirement for application of a procedure.

Executive Summary

EX.1 OVERVIEW

As defined in JP 1-02, DOD Dictionary of Military and Associated Terms, fire support is fires that directly support land, maritime, amphibious, and special operations forces (SOF) to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. Fire support coordination, used interchangeably with supporting arms coordination in this publication, is the planning and executing of fires so targets are adequately covered by a suitable weapon or group of weapons. Moreover, it is a continuous process of evaluating fire support requirements or missions, analyzing the situation, and maintaining the flexibility to plan and implement the fire support plan while operating in a continually changing environment. The basic objective of fire support coordination is the production and execution of a fully integrated fire support plan that employs each asset with maximum effectiveness in support of the projected scheme of maneuver.

Amphibious task force (ATF) and Marine air-ground task force (MAGTF) commanders (commander, amphibious task force (CATF) and commander, landing force (CLF)) and staff planners must be knowledgeable in the capabilities, limitations, and requirements of all amphibious force (AF) assets, including techniques of employment. Effective plan development and the coordination of fire support in amphibious operations require timely exchange of information and continuous interaction between higher and lower echelons throughout the AF. The fire support coordination plan is developed and executed through a disciplined, systematic, and coordinated approach that is a part of the amphibious planning process.

This NTTP/MCWP is a guide for commanders, staffs, and fire support personnel involved in supporting arms coordination. It consolidates into a single source the basics of amphibious operations and the processes involved in planning, coordinating, and executing fires in support of those operations. It articulates Navy and Marine Corps fire support coordination tactics, techniques, and procedures (TTP) and delineates the tactical organization, planning, and coordination of sea-based aviation and ground support. This doctrine is also aligned with the latest joint procedures.

This NTTP/MCWP is not intended to prevent any commander from initiating and issuing special instructions, or from conceiving and developing new operational or tactical procedures. It provides basic uniformity while permitting the flexibility and initiative that may be required by the tactical situation. Primarily reflecting the manner in which supporting arms coordination in amphibious operations will be conducted in the near term, this NTTP/MCWP also addresses evolving concepts, capabilities, and technologies.

EX.2 SUPPORTING DOCUMENTATION

References used for background information are listed in the bibliography.

EX.3 PUBLICATION ORGANIZATION

Chapter 1 — Introduction. Provides planners with general background information on amphibious operations and delineates the fundamentals and basic principles of fire support coordination.

Chapter 2 — Coordinating Agencies and Command and Control. Identifies the various MAGTF and ESG agencies involved in supporting fires, and introduces planners to the required integration and coordination of personnel and fires assets. This chapter also identifies key ESG and MAGTF staff members and their functions, outlines staff organizations, and discusses command relationships, particularly supported and supporting, in detail.

Chapter 3 — Communications and Information Data Exchange. Identifies communications and other command, control, communications, and computers (C4) requirements for supporting arms coordination, including required nets and communications planning actions.

Chapter 4 — Planning. Discusses the planning processes utilized when conducting amphibious operations and fire support coordination. This chapter details the amphibious planning process and its relationship to the supporting arms coordination planning process. It covers the naval surface fire support (NSFS), air, and ground-based fire support planning considerations considered vital to mission success, and steps through fire support planning as it relates to both the deliberate planning process and rapid response planning process (R2P2).

Chapter 5 — Targeting. Discusses the manner in which the targeting process is integrated into the overall planning and tactical decision-making process. It also identifies the agencies charged with identifying and integrating targets, and highlights the four-step targeting methodology.

Chapter 6 — Execution. Discusses Navy, Marines Corps, and joint asset fires execution requirements. This chapter covers NSFS, air, and artillery supporting arms coordination execution considerations, and delineates the procedures for passing fire support coordination responsibilities from afloat to ashore and/or ashore back to afloat.

Appendix A — Planning Guidelines and Considerations. This appendix provides planning guidelines and reiterates both ESG and MAGTF considerations for fire support coordination planners.

Appendix B — Coordination Tasks in Fire Support Execution. This appendix provides a listing of those coordination tasks considered essential to the successful execution of fires in support of amphibious operations.

Appendix C — Joint Fires. This appendix describes procedures for integrating and synchronizing AF fires in support of the joint force commander's (JFC) objectives. It also discusses both ESG and MAGTF responsibilities.

Appendix D — Emerging Technologies and Capabilities. This appendix provides a description and discussion regarding some of the emerging technologies, equipment, and capabilities involved in supporting arms coordination. Some are available now, some are just being introduced, and some will be assets available to AF fire support planners and operators in the near future.

Appendix E — Non-Automated Supporting Arms Coordination Center Recommended Operating Procedures. This appendix delineates supporting arms coordination center personnel responsibilities and recommended procedures in support of amphibious operations and the MAGTF scheme of maneuver ashore. It provides diagrams and forms to demonstrate the organizations, reports, and procedures discussed.

EX.4 TARGET AUDIENCE

The intended audience for this publication includes Navy and Marine Corps commanders, commanding officers, operational planners, and operators involved in planning for and coordinating supporting arms for amphibious operations.

CHAPTER 1

Introduction

1.1 PURPOSE

This chapter provides the tactical planner with an introduction to and overview of the basic tenets of amphibious operations from the Navy and Marine Corps perspective. It introduces the basic fundamentals of supporting arms coordination, with particular emphasis on the principles in relation to amphibious operations and the elements of supporting fires. Its purpose is to introduce commanders and their staffs to the synchronous actions necessary for the safe and successful planning, coordination, and execution of fires in support of amphibious operations.

1.2 SCOPE

This publication provides detailed tactical level supporting arms coordination doctrine for amphibious operations. It addresses amphibious supporting arms coordination command and control (C2) procedures, new and emerging systems and their capabilities and employment, and fully incorporates sea-based, aviation, and ground elements of supporting fires planning, coordination, and execution from a dual-Service perspective.

1.3 INTENDED USERS

This publication is intended primarily for the following audience:

1. Fleet and numbered fleet commanders

2. Battle force, expeditionary strike group (ESG), and landing force (LF) commanders and their staffs

Note

- ESG is the Navy's overarching term that describes a group of ships that includes amphibious ships, support ships, embarked aircraft, and potentially submarines in direct support.

- An ESG should be designated for all amphibious operations. For this publication, it is assumed that an ESG has been designated and stood-up.

3. Unit commanding officers, operational planners, and operators involved in the execution of supporting arms coordination.

1.4 SUPPORTING ARMS COORDINATION FUNDAMENTALS

In the conduct of amphibious operations, the term "supporting arms coordination" has generally referred to the activity of the supporting arms coordination center (SACC) and has essentially become synonymous with the term "fire support coordination." However, while the SACC is indeed critical to the successful coordination of supporting arms and all elements of fires in an amphibious operation or assault, planning for and coordinating the use of supporting arms requires that all organizations involved work closely together. At the beginning of an operation, the LF has no organic supporting arms other than AV-8B (Harrier) aircraft, AH-1 (Cobra) helicopters, and infantry weapons such as mortars and shoulder-fired weapons. Air support and NSFS may also be available. Once sufficient area ashore is under LF control, artillery can be landed to provide additional fire support. Since the

availability and contemplated employment of one supporting weapon system influences the requirements for the others, the fire support requirements of all components of the AF must be considered together in planning the employment of fire support means. Air support, NSFS, and, to some extent, artillery have overlapping capabilities. However, all are required in an amphibious operation because each has specific characteristics. Thus, the buildup of combat power ashore from zero forces the supporting arms coordinator (SAC) and/or force fires coordinator (FFC) to plan for fire support assets incrementally as each becomes available.

1.4.1 Keys to Understanding and Conducting Fire Support

The following paragraphs discuss terms, billets, and organizations considered vital to understanding and conducting effective supporting arms coordination.

1.4.1.1 Fires

The effects of lethal and nonlethal weapons, these fires must be synchronized and integrated, and can be delivered from air, ground, sea-based, special operations forces (SOF), and space assets. Nonlethal weapons effects include those from electronic warfare (EW), certain psychological operations (PSYOP), some information operations (IO), and the use of munitions such as illumination, smoke, or incapacitating agents.

1.4.1.2 Fire Support

This encompasses fires that directly support land, maritime, amphibious, and SOF to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. Effective fire support ensures the correct targets are adequately attacked. The capstone doctrinal reference for fire support is JP 3-09, Doctrine for Joint Fire Support.

1.4.1.3 Fire Support Coordination

This entails planning and execution of fire so that a suitable weapon or group of weapons adequately covers targets. The basic objective of fire support coordination is the production and execution of a fully integrated fire support plan that employs each asset with maximum effectiveness in support of the projected scheme of maneuver.

1.4.1.4 Supporting Arms Coordination Center

The SACC is a single location onboard an amphibious command ship (i.e., LCC, LHD, LHA) in which all communication facilities, personnel, and various intelligence inputs incident to the coordination of fire support of the artillery, air, and sea-based support are centralized. It is the agency through which the AF commander (and advance force commander when appropriate) exercises overall control and coordination of supporting arms assets. When the responsibility for the coordination of supporting fires is passed ashore, the SACC will continue to guard appropriate supporting arms circuits, maintain status boards, maintain friendly and enemy situation overlays, maintain the target list, and be prepared to resume control as required. This organization is the naval counterpart to the MAGTF and LF force fires coordination center (FFCC) and/or the ground combat element's (GCE's) fire support coordination center (FSCC).

1.4.1.5 Supporting Arms Coordinator

The SAC supervises the SACC and is the direct representative of the naval commander charged with coordinating supporting arms. Considering the advice of the corresponding LF FFC and/or fire support coordinator (FSC), the SAC integrates the fire plans for supporting arms to ensure the most effective use of assets in support of the scheme of maneuver ashore.

1.4.1.6 Force Fires Coordination Center

The FFCC exists at the MAGTF level, and in an amphibious operation is designated the LF FFCC. Through this agency, the commander plans and coordinates supporting fires with the scheme of maneuver. The LF FFCC is

task organized and includes the personnel, equipment, and communications links appropriate to the tactical situation and fire support functions to be performed. The FFCC is staffed using the supporting arms representatives from the MAGTF command element (CE) staff as a nucleus, with augmentation from other USMC sources, and representatives or liaison personnel or teams from joint and allied forces. This agency coordinates matters that cannot be handled by the GCE FSCC, those matters that affect the MAGTF as a whole, and conducts liaison with higher, adjacent, and external commands and organizations, including SACC.

1.4.1.7 Force Fires Coordinator

The FFC is the officer in charge of the FFCC. While afloat, the LF FFC receives requests from subordinate troop echelons for supporting arms not otherwise available to them or for which complete coordination cannot be effected. The FFC coordinates these requests and advises the SAC of troop requirements for air support and NSFS, and the manner in which these assets should be most effectively employed. An additional responsibility is to keep the SAC advised of the activities of artillery units ashore.

Once ashore, the FFC is the CLF's representative on matters pertaining to fire support and exercises the same functions as the SAC during the afloat phase: coordination of artillery, NSFS, and air support. Further, this officer obtains the commander's concept of fire support and develops, with the commander and his staff (particularly the G-3), the overall fire support plan to support the scheme of maneuver or plan of defense.

Note

It is also important to understand that JP 3-02 states that, "The designated commander may choose either the ATF's SAC or the LF's FFC to supervise the SACC."

1.4.1.8 Fire Support Coordination Center

At all levels of the GCE down to the battalion level, the FSCC accomplishes fire support coordination and planning. Stood up once the LF is established ashore, it is a single location in which the communications facilities, various intelligence inputs, and personnel incident to the coordination of all forms of fire support with naval operations and the scheme of maneuver ashore are centralized. While afloat, FSCC personnel may augment or assist the SACC during initial planning, preassault, and assault operations.

1.4.1.9 Fire Support Coordinator

The FSC is in charge of the MAGTF FSCC and, while afloat, is the direct representative of the CLF or the commander under whom the agency is functioning. The FSC screens requests for fire support from subordinate LF echelons, advises and assists the SAC to help ensure the most effective delivery of fire support, and keeps the SAC advised of artillery and mortar activities ashore. Once ashore, the FSC is the GCE's representative on matters pertaining to fire support and exercises the same functions as the SAC during the afloat phase: coordination of artillery, sea-based fires, and air support.

1.4.2 Basic Fire Support Tasks

Effective fire support can be achieved by following the four basic fire support tasks below:

1. Support forces in contact. The commander must provide responsive fire support that protects and ensures freedom of maneuver to forces in contact with the enemy throughout the operational area.

2. Support the concept of operations. Commanders set the conditions for decisive operations by attacking high-payoff targets (HPTs) and high-value targets (HVTs), the loss of which prevents the enemy from interfering with friendly operations and/or degrades enemy functions.

3. Synchronize fire support. Fire support is synchronized through fire support coordination, beginning with the commander's estimate and concept of operations. Fire support must be planned with the scheme of

maneuver continuously in mind. Supporting fires must be synchronized with other operations (e.g., air, intelligence, and special operations) in order to optimize the application of limited resources and avoid fratricide.

4. Sustain fire support operations. Fire support planners must formulate fire support plans to reflect logistic limitations and to exploit logistic capabilities. Ammunition, fuel, food, water, maintenance, transportation, and medical support are all critical to sustaining fire support operations.

1.4.3 Integrating Fires With Maneuver

Maneuver and mobility and firepower and fire support are interdependent, and require coordinated and synchronized planning and execution. Maneuver units such as armored, mechanized infantry light-armored reconnaissance mechanized vehicle (LAR), or heliborne forces cannot successfully maneuver in the battlefield without effective fire support to attack and suppress the enemy. Additionally, firepower assets that lack true mobility are of little tactical or operational value.

1.4.3.1 Maneuver Warfare

As discussed in MCDP 1, Warfighting, and the November 2001 Marine Corps paper entitled "Expeditionary Maneuver Warfare," maneuver warfare is a warfighting philosophy that seeks to shatter the enemy's cohesion through a variety of rapid, focused, and unexpected actions that create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. The greatest effect of firepower is generally not physical destruction, the cumulative effects of which are felt only slowly, but the disruption it causes. Fires can be used to create some degree of hazard, and the perception that the hazard is severe enough to merit a deviation from a desired or planned course of action. MAGTF commanders use combined arms, including fires, to achieve effects upon the enemy that bring about such results. Combined arms is the full integration of arms in such a way that to counteract one, the enemy must become more vulnerable to another.

1.4.3.2 Maneuver

Maneuver enables commanders to exploit enemy weaknesses at the time and place of their choosing through the use of the operational ability of naval forces. It is the means of concentrating force at critical points to achieve surprise, psychological shock, and momentum, which drives adversaries into untenable situations. Maneuver, integrated with fires, is linked to and influenced by the commander's battlespace shaping operations and directed toward achieving operational effects. Some of the innovative technologies and new equipment will provide Marines enhanced mobility and reduce the limitations imposed by terrain, weather, and access denial systems. The result will be expanded maneuver space, both seaward and on land.

1.4.3.3 Integrated Fires

Fires are central to maneuver warfare and involve more than just the delivery of ordnance on target. The human dimension of conflict entails shattering an enemy's cohesion through the introduction of fear and terror. The goal of maneuver warfare is to render the adversary incapable of effective resistance by shattering his moral, mental, and physical cohesion. In short, fires must and will be used to support maneuver just as maneuver is used to exploit the effects of fires.

There is a recognized need on the part of the Navy and Marine Corps to continue to refine and improve the supporting arms and integrated fires processes. Some of the means by which these processes will be enhanced include:

1. Increasing the effectiveness of sea-based and aviation fires and developing shore-based fire support systems with improved operational and tactical mobility

2. Streamlining fire support coordination procedures and enhancements in combat identification techniques to support rapidly maneuvering forces while decreasing the risks of fratricide

3. Other initiatives include:

   a. Increasing the ability of forces afloat and ashore to immediately distinguish friendly forces from others and to then deliver lethal and nonlethal fires with increased range and improved accuracy

   b. Improving the availability of continuous high-volume, all-weather fires for various missions.

1.4.4 Fire Support Coordination Principles

Fire support coordination is a continuous process of evaluating fire support needs or missions, analyzing the situation, and maintaining the flexibility to plan and orchestrate the implementation of the fire support plan while operating in a continually changing environment. Effective fire support planning also requires continuous interaction between higher and lower echelons. The principles discussed herein are extensions of the four basic fire support tasks discussed in paragraph 1.4.2. They serve as a framework for fire support coordination. While some of these principles are more applicable to either planning or coordination, all must be applied to furnish effective fire support.

1. Know and understand the commander's intent. All echelons must understand the intent. It establishes the framework for FFCs and SACs for fire support coordination.

2. Plan early and continuously. Fire support planning must be continuous, parallel, and concurrent to meet the needs of the present tactical situation and to prepare for the next. To effectively integrate fire support with the scheme of maneuver, planning must begin when the commander states the mission and provides command guidance.

3. Exploit all available targeting assets. Effective target engagement results from an accurate and responsive target acquisition system. Planners and/or coordinators should ensure that target acquisition requirements are identified as commander's critical information requirements (CCIR) in the collection plan and that information from all echelons, as well as adjacent and supporting elements is rapidly evaluated.

4. Consider using all fire support assets available. These assets may be organic, assigned, attached, or in a supporting role. Available fires include nonlethal means such as smoke, illumination, and EW resources. It is also important to consider the capabilities and limitations of each type of fire support and their use in current and future operations.

5. Use the lowest echelon capable of furnishing effective fire support. Coordination and delivery should be accomplished by the lowest echelon capable of achieving the desired effects. The FFC or SAC decides what is needed, and if the assets available are adequate, additional fire support will be requested for the echelon controlling the required asset.

6. Use the most effective means. Fire missions are assigned to, or requested from, the agency that can deliver the most effective fire. The SAC or FFC should consider the following:

   a. Nature and importance of the target

   b. Engagement time window

   c. Availability of attack means

   d. Desired results

   e. Number and type of assets required to achieve the desired effect.

7. Furnish the type of support requested. The requesting agency is usually in the best position to determine immediate fire support requirements. However, various tactical and logistical considerations, including the

commander's guidance and current and future needs for fire support, must be weighed in attempting to provide the type of fire support requested.

8. Avoid unnecessary duplication. Eliminating unnecessary duplication conserves fire support assets, facilitates sustainment, and maintains tempo. Fire support resources should not be wasted by over killing targets; however, economy should not be employed to the detriment of the mission.

9. Coordinate airspace. Because the deconfliction of airspace is inherent in supporting arms coordination, the fire support coordination process and the overall plan must include the necessary airspace to reduce interference between fire support assets and other airspace users.

10. Provide adequate support. The mission and commander's guidance determines the effects that fire support must achieve for the plan to succeed. The FFC and the SAC must clearly inform their respective commanders when resources to support the overall plan or any part of that plan are inadequate.

11. Provide rapid coordination. Procedures must be established and practiced to effect rapid coordination in order to attack targets within the shortest possible time. Therefore, the FFC or SAC must know the characteristics and status of available fire support weapons. They must also maintain situational awareness as the operation develops in order to attack both planned targets and targets of opportunity.

12. Provide for Flexibility. The fire support plan must allow for changes in mission, enemy posture, terrain, weather, troops and support, and time available.

13. Provide safeguards and survivability to friendly forces and installations. In particular, prevention of fratricide must always be a high priority. The primary mechanisms for limiting fratricide are close coordination at all levels and situational awareness. The use of fire support coordinating measures (FSCMs), coordination of position areas, and the locations of friendly forces during target analysis contribute to safeguarding friendly units. Care must be taken to ensure that safety measures minimize the potential for fratricide while not inhibiting boldness in combat.

14. Establish FSCMs. FSCMs facilitate the rapid engagement of targets throughout the battlespace and at the same time provide safeguards for friendly forces. They ensure that supporting fires will not jeopardize troop safety, interfere with the delivery of other fire support means, disrupt adjacent unit operations, and protect certain designated areas that may have future value to friendly forces. Commanders must disseminate FSCMs and safety measures to the entire force.

15. Establish communications support. If personal coordination is required but collocation is not possible or desired, liaison personnel are used and an electronic voice and/or data interface is established. Arguably, the failure to establish reliable communications among all participants in a fire support mission is the major reason such missions fail or are not carried out with requisite timeliness. Supporting arms coordination communications are covered in Chapter 3.

1.4.5 Elements of Supporting Fires

The desired effect and assets available are major considerations in fire support planning and coordination. They influence weapons selection, type and amount of munitions, and the required time of delivery. Availability and characteristics of the weapons and munitions, troop dispositions (unit locations and proximity to targets), and the scheme of maneuver are also considered. The goal is to use the best combination of supporting fires, available weapons, munitions, and platforms to achieve the desired effect on approved targets. Discussed below are the three basic elements of supporting fires that supporting arms planners and coordinators must consider.

1.4.5.1 Sea-Based Fire Support

Surface combatants with guns, missiles, and EW systems provide NSFS. Submarines with Tomahawk missiles can also provide NSFS.

1.4.5.1.1 Missions and Tasks of Naval Surface Fire Support in Amphibious Operations

1. The primary mission of naval gunfire, in conjunction with air and ground assets, is to support the capture of the AF objectives and defend friendly forces by:

   a. Destroying or neutralizing shore installations that oppose the approach of ships and aircraft to the objective area.

   b. Destroying or neutralizing defenses that may oppose the landing.

   c. Destroying or neutralizing defenses that oppose the LF's advance to the objective.

2. The operational uses of NSFS include:

   a. Destruction. Fires delivered for the sole purpose of destroying the target's combat effectiveness. As per JP 1-02, DOD Dictionary of Military and Associated Terms, a target is considered destroyed when it is so damaged that it cannot function as intended nor be restored to usable condition. Destruction missions are usually restricted to high-priority targets.

   b. Neutralization. Fires delivered to render a target ineffective or unusable, although temporarily. A unit or weapon may be considered neutralized when its ability to accomplish its combat mission is degraded for a specified time.

   c. Harassing. Fires designed to disturb rest, curtail movement, and lower morale.

   d. Interdiction. Fires placed on an area or point to prevent the enemy from using that area or point.

   e. Suppression. Fires on or about a weapons system to degrade its performance below the level needed to fulfill its mission objectives during the conduct of a fire mission.

   f. Illumination. Fires delivered to silhouette a target by placing an illumination round approximately 2,000 feet above and 1,000 yards beyond the target. The conventional illuminating standard is to have two starshells burning at all times.

1.4.5.1.2 Tactical Missions for Naval Surface Fire Support in Amphibious Operations

1. NSFS can be assigned the following tactical missions:

   a. Direct support (DS). A mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance.

   b. General support (GS). That support that is given to the supported force as a whole and not to any particular subdivision thereof.

2. Nontactical missions associated with NSFS include:

   a. Reinforcing. Reinforcing units are under the control of a DS commander. A reinforcing mission is one in which the supporting unit assists the supported unit in accomplishing the supported unit's mission. Only like units (e.g., NSFS to NSFS) can be assigned reinforcing and reinforced missions.

   b. General support-reinforcing (GS-R). The mission of these units is to provide GS to the whole force while reinforcing the fires of a DS unit.

   c. Close support. That action of the supporting force against targets or objectives located sufficiently near

the supported force so as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force.

d. Mutual support. That support that units render each other against an enemy, because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities.

More detailed information regarding the capabilities, limitations, and use of sea-based fire support is found in Chapter 4 and Appendix E.

1.4.5.2 Aviation Fire Support

Air support is an integral element of modern warfare, and offensive air has progressed from a means of harassing the enemy to a method of controlling the battlefield. The amount, type, and proper employment of various air assets may well determine the success of an amphibious operation.

1.4.5.2.1 Aviation Support Terms

The following terms pertain to aviation support during amphibious operations:

1. Air superiority is defined as that degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.

2. Air supremacy is that degree of air superiority wherein the opposing air force is incapable of effective interference.

1.4.5.2.2 Basic Functions of Aviation in Amphibious Operations

The aviation functions listed below may be furnished initially by Navy, Marine, or other joint forces deployed aboard aircraft carriers, large deck amphibious ships, other suitable ships, and, when practicable, from airfields contiguous to the area of operations.

1. Air warfare (AW). AW operations are conducted against hostile aircraft and/or missiles, their supporting forces, and operating bases for the purpose of rendering them ineffective. AW is divided into offensive and defensive AW.

   a. Offensive air warfare (OAW). OAW operations include those actions taken to destroy or reduce the enemy air and missile threat before enemy assets take off or assume attacking roles and air attacks that destroy or neutralize hostile aircraft, airfields, radar, air defense (AD) systems, and supporting areas.

   b. Defensive AW or AD (active and passive). AD operations include all defensive measures designed to destroy attacking enemy aircraft or missiles, or to nullify or reduce the effectiveness of such an attack. Active AD is direct defensive action to destroy or reduce the effectiveness of enemy in-flight attacks. Active AD is achieved through surveillance, C2, and weapons employment. Passive AD actions reduce the effects of an enemy air attack.

   c. Defensive counterair (DCA). DCA is an aircraft patrol provided over an area of operations, the force requiring protection, the critical area of the combat zone, or in an air defense area, for the purpose of intercepting and destroying hostile aircraft before they reach their targets.

2. Assault support. Assault support operations provide air transportation of personnel, supplies, and equipment into or within the area of operations by fixed-wing or helicopter transports. There are seven categories of assault support:

   a. Combat assault transport

b. Aerial delivery

c. Aerial refueling

d. Air evacuation

e. Tactical recovery of aircraft and personnel (TRAP)

f. Air logistical support

g. Battlefield illumination.

3. Aerial reconnaissance (visual, multisensor, electronic, imagery). Intended to provide the MAGTF commander with information that can be used to influence operations, it provides current raw data about terrain, weather, hydrography, and the enemy situation. Operations may involve manned aircraft (fixed- or rotary-wing), unmanned aerial vehicles (UAVs), or satellite systems. Reconnaissance includes search and patrol, air spotting for naval gunfire and artillery, air observation of the movement and disposition of friendly and enemy forces, and airborne early warning.

4. EW. EW systems collect tactical information. The missions are flown in response to specific requests. EW provides the MAGTF commander with information to update the enemy's order of battle (OOB) and increases combat power by disrupting the enemy's use of the electromagnetic spectrum.

5. Aircraft and missile control. This allows the MAGTF commander the capability to influence combat operations with aviation combat element (ACE) assets. It provides the facilities, equipment, communications, procedures, and personnel to plan, direct, and control the ACE's efforts.

6. Offensive air support (OAS). OAS operations deliver firepower against enemy installations, facilities, and personnel to isolate the battlefield and destroy enemy resources. It does not include operations to reduce enemy air capability. OAS operations may be classified according to the purpose of their task (e.g., neutralization or destruction missions) and/or the coordination of their task with the fire and maneuver of ground elements of the LF (e.g., close air support (CAS) or direct air support (DAS). To employ OAS effectively, the MAGTF must achieve air superiority.

7. Supplementary air support operations. These operations include search and rescue (SAR), sea-air-land team (SEAL) and minesweeping operations, smokelaying, and courier, psychological, antisubmarine, antisurface patrol craft operations, and airborne mine countermeasures.

As soon as adequate terrain is uncovered, and as forward operating bases are ready for flight operations, Marine aviation units may be phased into the objective area to provide organic air support to the CLF once control of operations has been assumed ashore. Navy aviation units may also continue to provide organic air support for subsequent operations ashore.

More detailed information regarding the capabilities, limitations, and use of aviation fire support is found in Chapter 4 and Appendix E.

1.4.5.3 Ground-Based Fire Support

During the initial phases of an amphibious operation, NSFS and aircraft normally provide the bulk of the fire support. Subsequent to landing, ground-based fire support, particularly artillery and mortars, may assume a greater role in providing fires to the LF.

1.4.5.3.1 Artillery

The mission of artillery is to provide close and continuous artillery and rocket and missile fire support by

neutralizing, destroying, or suppressing targets. This mission requires extensive logistics support and generally involves the assignment of a dedicated direct support, combat service support (CSS) element. Therefore, except in rare cases, artillery does not participate in early action ashore. Artillery should not be landed until potential firing positions are safe from enemy direct fire. Also, the number and type of landing craft available to transport the artillery ashore must be taken into consideration, as well as any restrictive terrain that might hinder initial mobility once landed. In order for artillery to fully accomplish its mission it must be able to conduct three important tasks:

1. Provide timely, close, accurate, and continuous fire support.

2. Provide depth to combat by attacking hostile reserves, restricting movement, providing long-range support for reconnaissance forces, and disrupting enemy C2 systems and logistical installations.

3. Deliver counterfire to ensure the freedom of action of the ground forces.

1.4.5.3.2 Field Artillery Tactical Missions

Through a process referred to as "organization for combat," artillery units are assigned a command relationship and receive a tactical mission that delineates their fire support responsibility.

1. DS. DS is the relationship between an artillery unit and a maneuver unit. This requires an artillery unit to furnish close and continuous fires to a single supported unit. The artillery unit will be positioned to support fires in the supported unit's zone of action and will establish and maintain communications with liaison and forward observer teams.

2. GS. This requires an artillery unit to support the force as a whole and to be prepared to support any subordinate element.

3. Reinforcing. Reinforcing is a relationship between two or more artillery units. It requires a unit to respond to requests for fire from another artillery unit to reinforce the fires of the unit assigned the DS mission.

4. GS-R. Units with GS-R missions support the entire force or reinforce specific units. This is the most flexible standard tactical mission.

5. Nonstandard tactical missions. These are used when the fire support requirements cannot be met or conveyed by a standard mission. This type amplifies, changes, or limits one or more of the inherent responsibilities.

1.4.5.3.3 Mortars

The primary missions of mortars are to provide immediately available, responsive indirect fires that support the maneuver of LF, and to reinforce direct fire during close combat. Mortars can provide close continuous fire support in offensive combat and in a defensive role.

More detailed information regarding the capabilities, limitations, and use of ground-based fire support is found in Chapter 4 and Appendix E.

CHAPTER 2

Coordination Agencies and Command and Control

2.1 PURPOSE

Coordinating supporting fires during amphibious operations is a dynamic and complicated process. This chapter discusses the organization, functions, and responsibilities of key coordination agencies and staffs so as to enhance understanding of the coordination, integration, and teamwork required for successful supporting fires operations. To exercise effective C2, a commander must have a thorough knowledge of the integrated system of doctrine, procedures, organizational structures, personnel, equipment, facilities, and communications at his or her disposal. Commanders must also understand the chain of command and command relationships relevant to amphibious operations in which their forces are participating. This chapter discusses those relationships and then links them and their supporting systems to supporting arms coordination.

2.1.1 Concept of Coordination

The basic objective in coordinating supporting arms is to ensure the most effective fire support for all elements participating in an amphibious operation. This involves the coordination of air, sea-based, and ground fire support to ensure their economical employment, maximum effectiveness, and the requisite safety to friendly forces. From the beginning of ship-to-shore movement until shortly after the first wave lands, coordination of supporting fire consists principally in supervising the execution of preplanned fire and instituting modifications to schedules where necessary. As the control agencies of the LF become operational ashore, all practicable close support (CS) calls for fire are provided as requested by troop units. Coordination problems arising in the execution of a call for fire should be resolved at the lowest echelon able to effect complete coordination of a particular mission.

2.2 COORDINATION AGENCIES

Fire support coordination is a flexible process that should be kept as simple as possible. It involves operational, tactical, and technical considerations and the exercise of fire support command, control, and communications (C3). Coordination is reflected in the mission's concept of operations (CONOPS) and in the sequencing and timing of actions to achieve objectives. Close coordination between naval commands and the LF is required for all aspects of supporting arms. Various agencies and personnel play specific roles in fire support coordination, and an understanding of each element's purpose is essential to all participants. This section provides more detailed information regarding key coordination centers and individuals, and their functions in the overall supporting arms process.

2.3 SUPPORTING ARMS COORDINATION CENTER

The SACC, composed of personnel from the ESG and LF, is the AF nerve center for planning, coordinating, and executing the use of supporting arms in an amphibious operation. The organization of the SACC is essentially the same at each level of command. However, variations in individual operations require that SACC organizations be planned to fill specific operational needs. The organization described herein is meant to be used as a guide.

2.3.1 Supporting Arms Coordinator

The SAC is charged with coordinating overall fire delivery of AF supporting arms and exercising general supervision over the activities of the SACC. More specifically, the SAC is responsible for:

1. Preparing, modifying, coordinating, and executing all fire support plans
2. Safely delivering offensive air support in coordination with NSFS
3. Developing, engaging, and record keeping of enemy targets
4. Providing fire support to the LF
5. Delivering all ESG supporting fires in a safe and timely manner
6. Maintaining economy of supporting arms assets and ordnance.

2.3.2 Naval Surface Fire Support Control Section

Manned by members of the commander, amphibious task force's (CATF's) staff, this section operates the NSFS control net and monitors other NSFS nets. It is responsible for the overall planning, coordination, and execution of all NSFS for the LF and naval forces. The individual assigned to supervise this section's activities is the NSFS control officer.

2.3.2.1 Naval Surface Fire Support Control Officer

This individual is assigned by CATF to exercise general supervision over the activities of the NSFS section. In Marine expeditionary unit (MEU)-size amphibious operations, this officer and the SAC are often the same person. The NSFS control officer:

1. Advises and assists the SAC in the planning and execution of NSFS
2. Directs assignments of fire support ships and units to areas, duties, and tasks including supervision of fire support ship rotation, relief, and reassignment
3. Prepares and submits necessary modifications to NSFS plans
4. Keeps SAC informed regarding the status of the execution of NSFS plans
5. Ensures that all pertinent information received over NSFS nets is disseminated to all appropriate SACC personnel.

2.3.2.2 Naval Surface Fire Support Support Officer

The NSFS support officer helps the SAC plan and coordinate fires by surface support ships through:

1. Maintaining close liaison with the LF NSFS officer
2. Working with the NSFS control officer to keep the NSFS operations overlay current
3. Ensuring all pertinent information received over NSFS nets is disseminated to appropriate personnel
4. Maintaining the NSFS status board.

2.3.2.3 Other Personnel

Other personnel located in the NSFS control section include:

1. NSFS control (A/B) net controller. Assists the SAC in planning and executing NSFS support plans and maintains liaison with the LF NSFS officer.

2. NSFS reporting in-and-out net controller. Assigns spotter aircraft to specific fire support ships and shore fire control parties (SFCPs) as directed, and briefs aircraft on the locations of targets, front lines, zones of action, etc. Also coordinates instructions to spotter planes with the tactical air controller (TAC).

3. SEAL team command net controller. Keeps the SEAL commander informed regarding the status of NSFS, air plans, or artillery in support of SEAL operations. Also informs the SAC on the progress of SEAL operations.

2.3.3 Air Support Section

Members of the TACRON man this section. It functions as a part of the tactical air control center (TACC), but is usually located in the SACC, controlling supporting aircraft or transferring control to subsidiary tactical air direction centers (TADCs) ashore or afloat. This section also coordinates with the Navy TACC to assist in the deconfliction of air missions, routes, and requests for fire. The air support coordinator, who reports to the tactical air officer (TAO), directs this section. Members of the LF staff perform advisory or liaison duties to this section.

2.3.3.1 Air Support Controller

The air support controller (ASC) supervises the activities of the air support section. Specific duties include:

1. Advising whether or not to use air assets

2. Coordinating all tactical air (TACAIR) requests with other members of the SACC

3. Receiving and consolidating daily planned air support requirements, coordinating requirements with the SAC, and presenting them to the TAC for assignment and inclusion in the daily air schedule

4. Relaying requirements for immediate CAS to the TAC

5. Assigning aircraft for strike and support tasks

6. Advising the SAC of the status of execution of air support missions

7. Recommending aircraft munitions for assigned targets

8. Coordinating requested air support with the LF air officer

9. Informing the target information center (TIC) of all OAS engagement data.

2.3.3.2 Assistant Air Support Controller

The assistant air support controller (AASC) supervises and directs the use of all aircraft allocated to the air support control section. Other duties include:

1. Assigning aircraft for strike and support tasks

2. Assigning support aircraft to a TADC

3. Briefing the tactical air coordinator (airborne) (TAC(A)), flight leader, and forward air controller (airborne) (FAC(A)) on the conduct of air request missions

4. Advising the ASC regarding:

   a. The status of execution of the air support mission

   b. The use of support aircraft.

2.3.3.3 Tactical Air Direction Controllers

Tactical air direction controllers (TADCs) control all aircraft assigned to them by the AASC and assign missions and targets as directed. The number of TADCs is determined by the number of support aircraft to be controlled. Other duties include:

1. Briefing flight leaders on the conduct of air request missions assigned

2. Passing control of air support flights to tactical air control parties (TACPs) for individual tasks

3. Transmitting air raid warning conditions to aircraft under their control

4. Recording and disseminating damage assessment reports and other pertinent information from support aircraft.

2.3.3.4 Tactical Air Request Net Operators

Tactical air request (TAR) net operators maintain communications with the TACPs ashore. The number of TAR nets is determined by the size of the LF. They also perform the following:

1. Receive, record, and initiate the processing of requests for air support missions

2. Relay reports of air missions to the air intelligence officer (AIO) for appropriate dissemination

3. Pass air raid warning conditions to TACPs ashore

4. Receive front line positions and ground situation reports for relay to the AIO.

2.3.3.5 Tactical Air Observer Net Operator

This operator transmits orders to and receives reports from tactical air observers. The number of tactical air observers employed determines the number of tactical air observer nets. This net belongs to the LF and is monitored by the Navy TACC. Other net operator duties include:

1. Relaying all information received to the FSCC, especially the progress of the ship-to-shore movement and advance inland, enemy locations and activity, target damage assessment, and additional information that may be required by the ESG or LF commanders

2. Advising the ASC of the activities of the tactical air observers.

2.3.3.6 Air Intelligence Officer

The AIO assists in the preparation of plans to gain and maintain air superiority in the area of operations. Other AIO duties include:

1. Preparing the air target list

2. Preparing and maintaining a current plot of friendly LF positions ashore

3. Evaluating TARs for completeness, accuracy, and priority

4. Recommending order usage on targets (preplanned and TARs)

5. Coordinating with both ESG and LF intelligence officers

6. Passing intelligence received from airborne sources to appropriate agencies.

2.3.4 Target Information Center

This is the functional section responsible for the acquisition, analysis, and processing of all targeting information. The ESG target intelligence officer (TIO), LF TIO, and other personnel man the TIC. The TIC maintains coordination and liaison with the AIO in the TACC (afloat) and the LF FFC. These personnel keep the SACC informed of the status of HVTs and HPTs, maintain liaison between the SACC and the amphibious force intelligence center (AFIC)/joint intelligence center (JIC), and prepare and maintain the amphibious force target list (AFTL) and target bulletins (TARBULs). If geographic separation prevents the physical establishment of a joint TIC, LF representatives join the center upon embarkation. With the exception of the LF TIO, TIC members will normally work in the SACC on the AF flagship. The LF TIO will normally work out of the AFIC/JIC. The ATF TIO is responsible for the overall performance of the TIC and maintains close liaison with the AF intelligence and operations staffs. Although the TIC is dissolved when the LF headquarters moves ashore, it must be prepared to resume normal operations if required.

2.3.4.1 Personnel Responsibilities

The ESG TIO, under the cognizance of the ESG intelligence officer (N-2), is primarily responsible for processing target data on fixed targets. The AIO processes target data on the air threat and related targets, and provides rapid exchange of information and intelligence between the TIC and supporting air assets. On the LF staff, the LF TIO, under the cognizance of the Marine intelligence officer (G-2) in the AFIC/JIC, is primarily responsible for processing target data on mobile targets. The LF TIO, under the cognizance of the FFC, is responsible for processing target data within the SACC and passing that data to supporting arms agencies and LF elements ashore. All members of the TIC are responsible for ensuring the continuous interchange of information and intelligence between the AFIC/JIC, SACC, and other targeting entities within the AF.

2.3.4.2 Sources of Target Information

AF component commanders receive target intelligence and information from higher, adjacent, and subordinate commands. They initiate appropriate action to fill specific intelligence needs and maintain a continuous flow of target information. Once the AF is formed, the flow of information is from the JIC/AFIC to and from the TIC, and from the TIC to the SACC. Either the JIC/AFIC or the SACC may receive information of targeting value from external sources as indicated in Figure 2-1.

2.3.4.3 Information from Staff Intelligence Personnel

These personnel locate and describe targets and conduct damage assessment based on intelligence data from higher echelons and reconnaissance reports, photo interpretation, interrogation of enemy prisoners of wary (EPWs), captured documents, etc.

2.3.4.4 Information from Naval Surface Fire Support and Troop Representatives

Important data and information are also obtained from units at sea or taking part in the scheme of maneuver. This information includes:

1. Units engaging targets

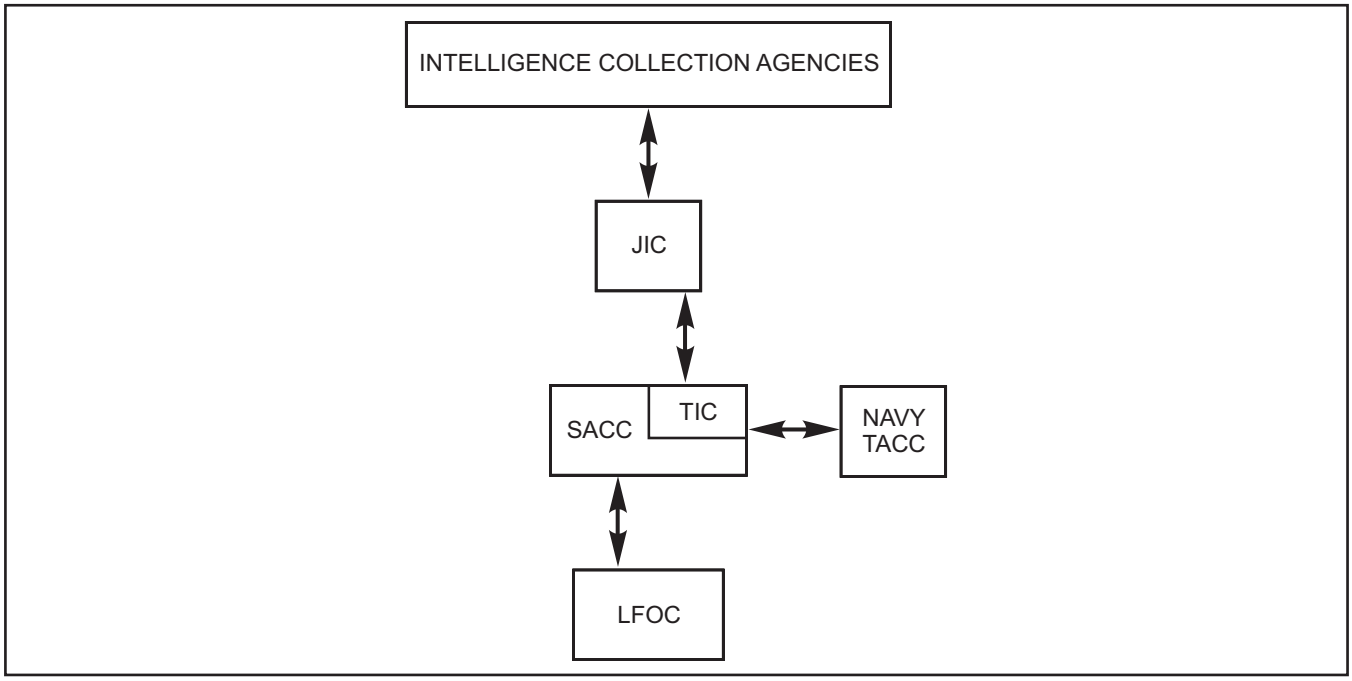

Figure 2-1. External Sources of Targeting Information

2. Type and number of rounds fired

3. Damage reports of units firing

4. New targets located by firing units.

2.3.4.5 Information from the Air Support Section

This information includes:

1. Air support units engaging targets

2. Ordnance expended by number, type, and size

3. Damage reports of units firing

4. New targets located by air support units.

2.4 TACTICAL AIR CONTROL CENTER (UNITED STATES NAVY)

In an amphibious operation, a single coordinated tactical air control system is developed to control and coordinate all air operations within an assigned area of responsibility. The amphibious tactical air control system (ATACS) is organized and equipped to plan, direct, and control tactical air operations within the area of operations and to coordinate air operations with other services. ATACS is composed of two separate, but similar, subsystems: Navy tactical air control system (NTACS) (afloat) and Marine air command and control system (MACCS) (ashore). Within the NTACS, the Navy TACC, manned by TACRON personnel, is the primary USN ship-based air operations installation within the designated operations area from which all aircraft and air warning functions of tactical air operations are controlled. The tactical air officer (TAO) serves as the senior aviation advisor to the CATF, coordinates aviation planning, and exercises coordination and control responsibility over all phases of AW, helicopter coordination, and DAS for an amphibious operation. The TAO is usually the senior TACRON officer embarked in the AF flagship during MEU operations, the TACRON commanding officer during Marine

expeditionary brigade (MEB) operations, and the tactical air control group (TACGRU) commander during Marine expeditionary force (MEF) operations. The tasks associated with the TACC (USN) include:

1. Effectively using every aircraft assigned to support the AF

2. Ensuring an integrated defense for AF ships and troops against:

   a. Enemy air attack, in conjunction with the air warfare commander (AWC), normally the commander of a guided-missile cruiser (CG) or guided-missile destroyer (DDG) equipped with the Aegis system.

   b. Enemy submarine attack, in conjunction with the undersea warfare commander (USWC), normally delegated to the commander of a Cruiser Destroyer Group (CRUDESGRU) asset. Supporting assets in this effort may include maritime patrol aircraft (P-3), submarines, and ship based fixed- and rotary-wing aviation assets.

   c. Enemy surface attack, in conjunction with the surface warfare commander (SUWC), normally the commander of a CRUDESGRU or CSG asset. USMC aviation assets may be tasked to support the SUW effort as part of the plan to gain and maintain naval superiority, or when a situation exists that requires defense of the AF.

3. Providing CAS and other air support as requested by the LF, giving pilots briefings on the targets to be attacked, types of strikes desired, manner in which attacks are to be made, and the location of friendly front-line positions. This function is normally the responsibility of the supporting CSG or MAGTF aviation assets within the area of operations under the coordination and control of the air support control section (ASCS) of the TACC (USN).

4. Consolidating and coordinating air support requirements with supporting air forces, supplying the latest intelligence to sea- and land-based air forces scheduled to execute support missions.

5. Monitoring and coordinating all helicopter operations, including those conducted by LF assets and supporting composite warfare commanders (CWCs) in the surface warfare (SUW) and undersea warfare (USW) efforts.

6. Exercising coordination and/or control of all air traffic in the area of operations to protect friendly aircraft from collision, provide air navigational assistance, provide assistance to aircraft in emergency situations, and assist in early identification of enemy aircraft in the area.

7. Providing an ASC to advise the SAC or FSC regarding available CAS assets, including weapons load, fuel status, and other pertinent data that aids in supporting arms assignment and coordination.

2.4.1 TACC (USN) Sections

The following paragraphs provide a brief discussion of the five sections of the TACC (USN) and their defined areas of responsibility.

2.4.1.1 Air Traffic Control Section

The air traffic control section (ATCS) provides initial safe passage, radar control, and surveillance for CAS aircraft and all other aircraft entering, operating within, or traversing the area of operations. It also coordinates SAR operations and can provide early detection, identification, and warning of enemy aircraft. Coordination of airspace in the area of operations is conducted in close cooperation with designated AW commanders supporting the ESG. All aircraft entering the area of operations from external areas normally contact the TACC (USN) via the tactical air traffic control (TATC) net. The ATCS also provides flight following tanker coordination and air tasking order (ATO) supervision for the TACC (USN).

2.4.1.2 Helicopter Coordination Section

The helicopter coordination section (HCS) coordinates helicopter direction center (HDC) operations, those of other subordinate control agencies, and the control of specific helicopter missions when required. The helicopter coordinator (HC) supervises the HCS, supports HDCs, and advises the TAO on the employment of helicopters. Close coordination with the LF air officer and the ACE staff is essential to support the priority of effort established by the CATF/CLF. The HCS also coordinates helicopters conducting SUW/USW operations within the operating area.

2.4.1.3 Air Warfare Section

The air warfare section (AWS) conducts planning, coordination, and control of AW operations including assigned aircraft, antiaircraft artillery (AAA), surface-to-air missiles (SAMs), and air warning systems in the designated area of operations. The detection, classification, identification, and engagement of air targets by the ESG is conducted by designated AW-capable assets. The AWS provides the CATF an oversight and coordination staff for the conduct of offensive and defensive AW.

2.4.1.4 Air Support Control Section

The primary task of the ASCS is to provide quick reaction to satisfy requests from the LF for CAS. The ASC, frequently a U.S. Army or USMC officer, supervises the ASCS and advises the SAC on the use of CAS aircraft. The ACSC coordinates with the MAGTF air officer, ACE, FSCC, and the SACC for OAS, air support (AS), and air reconnaissance (AR) missions; provides tactical air direction of assigned aircraft; and provides aircrews with current and complete friendly intelligence, enemy intelligence, and target briefings. The ASCS has the authority to respond to changing mission requirements by diversion of preplanned sorties, launch of strip-alert sorties, tasking of airborne on-call sorties, or coordination for additional assets from supporting aviation resources. Personnel from the direct air support center (DASC) should integrate operations with the ASCS prior to any landing as part of amphibious operations, and coordinate with the ASCS subsequent to establishment ashore.

2.4.1.5 Plans and Support Section

The plans and support section (PSS) provides administrative, communications, and intelligence support; conducts future planning; and coordinates, produces, and distributes required aviation appendices and annexes of CATF operation orders (OPORDs) and the ATO/airspace control order (ACO)/operation task (OPTASK) air.

2.5 TACTICAL AIR COMMAND CENTER (UNITED STATES MARINE CORPS)

The MACCS provides the ACE commander, who is normally designated as the TAC for the MAGTF, with the means to command, coordinate, and control air operations within an assigned sector. This officer is also responsible for integrating all Marine aviation functions within the MAGTF as well as with joint and combined forces. The MACCS is composed of command and control agencies with communications-electronics equipment that incorporates a capability from manual through semiautomatic control. The TACC (USMC), the senior MACCS agency, is the operational command post ashore for the ACE commander. The latter's staff supports the TACC (USMC) along with personnel and equipment sourced by the Marine tactical air command squadron (MTACS). Stood up once the LF is established ashore, this center functions similarly to the TACC (USN). The tasks associated with the TACC (USMC) include:

1. Maintaining complete information on the air situation, including ground combat information essential to the air effort

2. Managing all aircraft in the objective area to maximize efficiency for all TACAIR operations and aircraft utilization

3. Supervising the operations and tactics of subordinate MACCS agencies

4. Serving as the operational point of contact between the MACCS and external air control systems of the Navy, Army, Air Force, or multinational forces

5. Establishing and disseminating appropriate AD alert conditions to the major elements of the MAGTF

6. Prescribing emission control (EMCON) conditions

7. Prescribing succession of C2 responsibilities within the MACCS to compensate for any serious degradation within a component agency.

2.5.1 TACC (USMC) Sections

The TACC (USMC) is organized into two sections — the future operations section and the current operations section.

2.5.1.1 Future Operations Section

Operated by the TAC/ACE commander's staff, with liaison elements from other joint and multinational aviation components, this section provides the required staff actions for the conduct of aviation missions within the LF area of operations. The section prepares ATO, special instructions (SPINS), fragmentary orders (FRAGORDs), ACO, and aviation appendices and annexes associated with the airspace control plan (ACP) based on LF requirements and aircraft availability. The ACE planning staff also develops the recommendation for apportionment presented to the ACE commander, LF commander, CLF, and/or joint force air component commander (JFACC) for concurrence and approval. The future operations section is then responsible for the allocation of aviation sorties based on the apportionment decision.

2.5.1.2 Current Operations Section

This section executes the ATO, reacts to the changing battlefield, and adjusts missions to support the established priorities for support of maneuver elements, HVTs and HPTs, and the commander's intentions. The MTACS provides the current operations section personnel and equipment. The personnel are supervised by the senior air coordinator whose staff includes air control specialists in the areas of AD, OAS, AS, airspace management, communications, and data link management. This section also supervises the execution of air operations by subordinate MACCS control agencies in a real-time or near-real-time environment.

2.5.2 Marine Corps Air Control Agencies Ashore

The following agencies are elements of the MACCS that are established ashore when the LF controls all aspects of air operations.

2.5.2.1 Tactical Air Direction Center

The TADC is an air operations facility subordinate to a TACC (USN/USMC) or a United States Air Force (USAF) air operations center. Normally identical to a TACC in organization, facilities, and capabilities, the essential difference between the TACC and the TADC is the amount of airspace for which each is responsible and the scope of assigned functions. If tactical air operations cover areas of such size that it is impractical to direct all air operations from a single TACC, one or more TADCs may be established within separate geographic areas. The TADC (afloat) is traditionally organized in a similar manner as the five sections of a TACC (afloat). When a MAGTF has overall responsibility for control of the air in the objective area, the CLF establishes a TACC (ashore), and when overall responsibility resides external to the MAGTF, the CLF establishes a TADC for his sector of responsibility.

TADCs are normally formed to control and coordinate tactical air operations under three conditions:

1. Advance force operations. When the advance force commander enters the area of operations, he assumes

airspace control authority and conducts preassault operations. Once the AF arrives in the area, CATF assumes responsibility for air operations and exercises control and coordination through the TACC.

2. Sector operations. When attack groups are formed for operations in widely separated landing areas, the ESG commander normally assigns responsibility for airspace control to each attack group commander.

3. Phasing ashore. Subordinate LF TADCs, as designated by the CLF, monitor air control circuits and stand ready to assume all or part of the duties of the TACC. During the initial stages of an amphibious operation when control is afloat, the landward sector of the area of operations may be assigned to an LF TADC (ashore). When the CLF is capable of assuming control, and when concurred by the CATF, all control of air assets in the area of operations passes ashore. The primary control agency for the landward sector, previously designated the TADC, becomes the TACC (ashore). The TACC (afloat) may then be designated as a TADC (afloat) assigned the seaward sector of the operating area.

2.5.2.2 Tactical Air Operations Center

The tactical air operations center (TAOC) is subordinate to the TACC (USMC). It provides safe passage, radar control, and surveillance for CAS en route to and from target areas, and control and surveillance for SAMs in support of the MAGTF. The TAOC also provides navigational assistance to friendly aircraft and serves as an alternate TACC/TADC when directed. Control of the LF SAM units is integrated by the TAOC. The MACCS provides equipment and personnel for the operation of the TAOC. The responsibilities of the TAOC include:

1. Detecting, classifying, and identifying all aircraft within its sector of responsibility

2. Maintaining tracks of identified contacts, providing en route control and navigational assistance, coordinating with adjacent airspace control agencies, and coordinating movement within the assigned area

3. Maintaining a summary display of the air situation and disseminating appropriate elements of this information to other designated agencies

4. Evaluating, selecting, and assigning weapons

5. Controlling the engagement of enemy air threats by aircraft or SAMs

6. Directing the operations of satellite or subordinate AD agencies

7. Operating as an alternate TACC or TADC for limited periods of time

8. Providing early warning and cueing to MAGTF units

9. Providing electronic warfare/control (EW/C) sites to supplement radar coverage provided by ships or the TAOC.

2.5.2.3 Direct Air Support Center

The DASC is the principal air control agency responsible for directing air operations that directly support ground forces. The DASC functions in a decentralized mode, but is directly supervised by a TACC (USMC). It is normally the first principal air control agency ashore during amphibious operations, landing in scheduled or on-call waves with the senior FSCC. The DASC provides services and functions similar to the Air Force's air support operations center (ASOC), the Navy HDC, and the ASCS in the TACC (USN). It processes immediate air support requests, coordinates aircraft employment with other supporting arms, manages terminal control assets in support of ground combat and CSS forces, and controls assigned aircraft transiting its area of responsibility. Other DASC responsibilities and tasks are:

1. Receives and processes the joint tactical air strike request (JTAR), the standard form for the combat forces of all services.

2. Receives and processes assault support requests (ASRs).

3. Receives FRAGORDs and coordinates preplanned scheduled and on-call DAS.

4. If delegated authority by the ACE commander, adjusts preplanned schedules and diverts airborne assets per the priorities of the continuing ground combat situation. Changes are coordinated with the FSCC.

5. Receives, processes, and coordinates requests for immediate DAS.

6. Coordinates the execution of DAS missions with the other supporting arms through the appropriate FSCC and with the appropriate MACCS agencies.

7. Assigns control of aircraft to subordinate terminal control agencies such as TACPs, FAC(A)s, and TAC(A)s.

8. Provides requesting aircraft and other air control agencies with appropriate advisory information for the conduct of safe flight. Such information includes artillery and naval gunfire, air strikes, enemy antiaircraft activity, and restrictive fire plans.

9. Briefs the aircrews of supporting aircraft on assigned missions and approved modifications.

10. Receives, records, and reports information from TACP elements and battle damage assessments (BDAs) from returning aircraft.

11. Coordinates preplanned DAS missions from the ATO.

12. Receives and disseminates pertinent tactical information reported by aircraft and other air control agencies with advisory information to assist in safe flight.

13. Monitors, records, and displays information on DAS missions.

14. Maintains friendly and enemy ground situation displays to coordinate DAS.

15. Provides aircraft and other MACCS agencies with information concerning friendly and enemy situations.

16. Refers unresolved supporting arms conflicts to the senior FSC.

2.5.3 Supporting Amphibious Tactical Air Control System Control Agencies

Several control agencies operate in support of the primary organizations discussed in the preceding paragraphs. Descriptions of their functions and personnel are contained in the following paragraphs.

2.5.3.1 Airborne Control Agencies

The personnel and functions involved in the direction and control of the AF's aviation assets are discussed below.

1. FAC(A) is normally a naval aviator or naval flight officer (NFO) experienced and trained in air control operations. Operating as an extension of the TACP, the FAC(A)'s primary mission is the detection and destruction of enemy targets through CAS and DAS. The FAC(A) may be assigned to a TAC(A) or air support controller (airborne) (ASC(A)) to provide air control for various operations, including amphibious operations.

2. TAC(A) also normally an experienced naval aviator or NFO, is an extension of the DASC or the TACC/TADC (USN). The TAC(A) may use either fixed- or rotary-wing aircraft, and must be experienced in all aspects of fire support coordination as well as the NTACS/MACCS. The TAC(A) coordinates air activities within an assigned area of responsibility (AOR) and controls and coordinates TACAIR support missions with friendly units, coordinates CAS and DAS missions when directed, and artillery and NSFS missions when required.

3. ASC(A) is an experienced helicopter pilot airborne over the helicopter approach and retirement lanes to assist the air mission commander/GCE commander/HDC or DASC in the control and coordination of tactical helicopter operations. The ASC(A) may be capable of spotting, target marking, and fire support. This function is normally performed from an AH-1W or UH-1N helicopter.

4. Airborne early warning and control (AEW&C). The Navy E2-C provides the primary AEW&C during amphibious operations. The E2-C is also an excellent source of navigation assistance for rotary-wing assets without global positioning system (GPS) or high-resolution instrument navigation equipment.

2.5.3.2 Ground Combat Element Control Agencies

GCE control agencies are directly involved in supporting the LF scheme of maneuver. The personnel and the functions performed by these organizations are discussed below:

1. TACP enables ground commanders to control aircraft by establishing and maintaining necessary communications with other elements of the MACCS, advising ground unit commanders on the employment of aircraft, transmitting requests for DAS, and transmitting directions to aircraft providing CAS and other air support. TACPs are located in USMC and Army combat elements from battalion to corps level. Battalion-level TACP elements provide the forward air controllers (FACs) for USMC forces and FAC/enlisted terminal attack controllers (ETACs) for U.S. Army forces.

2. FAC/ETAC personnel provide the terminal control of aviation sorties for the delivery of ordnance and tactical transport of personnel, equipment, and supplies. The primary role of FAC and ETAC personnel is to support company and battalion-level forces in the delivery of CAS from rotary- and fixed-wing aircraft.

2.5.4 Other Service Control Agencies

Air Force and Army systems and organizations for the control of tactical operations are discussed in the following paragraphs.

2.5.4.1 Tactical Air Control System

The USAF tactical air control system (TACS) is a hierarchy of organizations and communications systems to plan, direct, and control tactical air operations and coordinate air operations with other services, coalition partners, and allies. TACS elements may be employed for contingencies or to augment theater-specific systems. While organizational configurations vary by regional theater, the basic functions performed by the TACS are the same.

2.5.4.2 Theater and Army Air-Ground System Forces

These organizations and their basic functions are listed in the following paragraphs.

2.5.4.2.1 Army Airspace Command and Control

Located at the Army corps and division level, this element is an operations (G-3) staff responsibility. The Army airspace command and control (A2C2) element is responsible for the planning, coordination, and supervision of aviation requirements for the Army/land component commander (LCC). Preplanned air support requests, airspace control procedures, AD operations by Army assets, and FSCMs are developed and coordinated with various TACS organizations by the A2C2 element.

2.5.4.2.2 Battlefield Coordination Element

The battlefield coordination element (BCE) provides land force requirements for TACAIR support to the Air Force's air operations center (AOC). It also monitors and interprets the land battle situation for the AOC and coordinates intelligence and operational data between U.S. Army and USAF components.

2.5.4.2.3 Flight Operations Center and Flight Coordination Center

The flight operations center (FOC) is the senior U.S. Army corps level en route air traffic control facility. It provides procedural control for Army air traffic in the rear area. The FOC is normally collocated or electronically connected with the Air Force's control and reporting center. Similar in function and capability to the FOC, the flight coordination center (FCC) provides a communications link between dispersed Army airfield facilities and the corps-level FOC.

2.5.4.2.4 Army Air Defense Command Post

This organization controls the operational employment of Army AD weapons systems. Theater-, corps-, division-, or brigade-level forces may establish an Army air defense command post (AADCP). The AADCP establishes communications nets with the AOC and control and reporting center (CRC). Communications with USMC and USN agencies are established at the TACC/TAOC/force antiair warfare coordinator (FAAWC) levels.

2.6 FORCE FIRES COORDINATION CENTER

The FFCC ensures the timely, efficient employment of organic and external assets against enemy targets. It ensures that lethal and nonlethal fires are planned and executed to support the commander's intent and guidance. While the FFCC assists the commander in fighting a single battle, its focus is on the deep fight. It also assists in providing and coordinating fires for the close and rear fight.

Within the MAGTF, the FFCC interfaces with the GCE FSCC, the TACC (USMC), the MACCS, the combat service support element's (CSSE's) combat operations center (COC), and the rear area operations center (RAOC), if established. It coordinates matters that cannot be coordinated by the GCE FSCCs, or those that affect the MAGTF as a whole, and with higher, adjacent, and external commands. External to the MAGTF, the FFCC interfaces and integrates with other joint and combined fire support agencies, including the SACC, the joint air operations center (JAOC), and the Army's battlefield coordination detachment (BCD). While fires may be used in support of any element of the MAGTF, they are primarily used by the MEB/MEF commander to prosecute the single battle.

The MEB/MEF COC provides the commander with a means to control forces, and is the primary control node during operations. As the focal point for supervision and execution of CONOPS, the COC coordinates and monitors the execution of the current OPORD or FRAGORD. The COC also monitors the friendly and enemy situation, analyzes the current battle, and recommends adherence to or changes in the current order, priority of effort, and targeting priorities to the MEB/MEF commander. Within the COC, the G-3 current operations officer (CUROPSO) directs all activities under the cognizance of the G-3. The CUROPSO and the senior watch officer (SWO) are responsible for integrating warfighting functions to accomplish the commander's intent during the current battle and setting the conditions for the future battle.

The FFCC's primary tasks are:

1. Ensure the commanding general's (CG's) targeting priorities are followed.
2. Review major subordinate command (MSC) fire support plans.
3. Ensure MSCs have adequate support.
4. Coordinate and disseminate battlefield geometry.

5. Advise the CG and G-3 on capabilities, limitations, and employment of fires.

6. Provide representation on the operational planning team (OPT) to plan fires.

7. Destroy or substantially degrade enemy operational capabilities.

8. Facilitate maneuver by the ACE and the GCE by suppressing the enemy's deep strike missions, disrupting the enemy's operational maneuver and tempo, and creating exploitable gaps in enemy positions.

9. Isolate the battlespace by interdicting enemy military potential before it can effectively be used against friendly forces.

10. Provide timely reactive forces.

11. Redirect resources as required.

12. Facilitate execution or modification of the ATO.

13. Monitor and coordinate counterfire.

14. Resolve fire support conflicts.

2.6.1 Force Fires Coordination Center and Supporting Arms Coordination Center Relationships

While afloat, the FFCC and SACC cooperate closely during initial amphibious planning, preassault operations with the advance force, and assault operations. The SAC and the FFC integrate fire plans and ensure the most effective employment of fires in support of naval operations and the LF scheme of maneuver. Personnel within the SACC exchange information rapidly and expedite the processing and coordination of fire support requests. The LF FFCC and the GCE FSCC provide representatives in the SACC during the critical period before fire support coordination responsibility is passed to the CLF ashore.

Some SACC and LF FFCC personnel normally accompany the advance force to advise its commander regarding the attack on targets posing a potential threat to operations and to ascertain target status at the objective. They keep abreast of the current situation and brief the ATF staff after dissolution of the advance force.

Once the FFCC is established ashore and has assumed responsibility for the coordination of artillery, NSFS, and air support for the CLF, the SACC assumes a standby and monitoring status.

2.6.2 Force Fires Coordination Center Organization

This organization is divided into three sections — plans, target information, and current fires sections. The plans and target information sections may operate together, depending on the scope of the operation.

2.6.2.1 Plans Section

This section is tasked with supporting the planning functions carried out in the G-3 (future operations) and G-5 (future plans) sections. FFCC representatives from plans, other liaison officers (LNOs) to the planning cells, and the OPT provide inputs to the FFC that are used in producing planning documents for the target guidance working group (TGWG) and the synchronization working group. This section is also responsible for integrating various operations (e.g., information and engineer operations), planned by the G-3, into the fires planning and subsequent target development process.

2.6.2.2 Target Information Section

This section is responsible for chairing the TGWG that develops the MEB's/MEF's integrated targeting

objectives for approval by the commander, and also prioritizes the attack on those targets. The section conducts the MEB/MEF targeting boards, participates in confirmation briefs, and manages the submission of target nominations to higher headquarters. The TIO chairs the TGWG and the synchronization working group and coordinates other targeting boards or briefs. The TIO also manages the target intelligence database to create lists of targets, then sponsors those targets through the targeting board, and either forwards approved targets to MEB/MEF fire support agencies or nominates them to higher headquarters.

2.6.2.3 Current Fires Section

The current fires section executes the deep fight and coordinates fires for the close and rear fight, as required. It receives the fire support plan from the target information section, the ATO from the air center, monitors the execution of the fire support plan, revises and adjusts the plan in keeping with the developing situation, and engages reactive targets per the MEB/MEF commander's guidance. Within the COC, the current fires section coordinates closely with the current operations section, intelligence, the C3 analysis cell, and the LNOs. Externally, this section maintains close contact with the ACE TACC and force artillery. Manning within this section includes the following:

1. The current fires officer in charge (OIC), normally a field artillery officer, provides and modifies specific direction for current fires section execution, is responsible for the section's operations and training, and must also be familiar with advanced field artillery tactical data system (AFATDS) and theater battle management core system (TBMCS).

2. The current fires watch officer is responsible for monitoring, coordinating, and supervising the execution of fire plans and the ATO. The focus is on the deep battle, but the close fight must be monitored and adjustments directed as required. As the senior FFCC officer in the COC, this officer is responsible for the organization and operation of the COC current fires section and for training its watchstanders.

3. The air fires watch officer assists the current fires watch officer and is directly responsible for all matters pertaining to the use of aviation assets in the current battle. This officer maintains close contact with the TACC, monitors the ATO, and focuses on reactive targeting in the deep battle using targeting priorities, the attack guidance matrix (AGM), and the battlespace shaping matrix (BSM). The air fires watch officer assists in validating the targets scheduled for air attack by informing the TACC of all significant target information and intelligence concerning the location and disposition of those targets.

4. The surface fires watch officer is directly responsible for all matters dealing with indirect fires in the current battle. This officer maintains and keeps the current fires watch officer informed regarding the status of all artillery units. When force artillery is utilized, they provide direct coordination between the COC and force artillery, employing the force artillery LNO who is collocated with the FFCC. Focused on the deep fight, the surface fires watch officer continually coordinates with the current intelligence watch, the air officer, and other collection assets to determine appropriate targets for long-range artillery.

5. The naval surface fires watch officer assists the surface fires watch officer and the current fires watch officer, and is directly responsible for all matters dealing with NSFS in the current battle. This officer also recommends FSCMs as they relate to NSFS; requests that NSFS ships occupy a specific fire support area (FSA) or fire support station (FSS) if indicated by the current situation; and transmits decisions and requirements on the employment of naval surface fire to the appropriate control agency for action.

6. LNOs deploy with all necessary task-related computers, communications equipment, and administrative materials. They are responsible for ensuring that the FFCC receives all fires-related intentions and actions undertaken at the headquarters in which they are located. Further, they are responsible for communicating the intentions and activities of USMC fires to the unit to which they are assigned. They coordinate and plan on behalf of the FFC, and may assist in the processing of cross border and boundary operations between the two headquarters.

2.7 FIRE SUPPORT COORDINATION CENTER

The FSCC is stood up once the LF is established ashore. The FSCC is the centralized location for the communications facilities, various intelligence inputs, and personnel involved in the coordination of fire support for naval operations and the scheme of maneuver ashore. While still afloat, FSCC personnel may assist or augment the SACC during initial planning, preassault operations with the advance force, and assault operations. The number of personnel and amount of equipment varies with the level of command and responsibility, the size and complexity of the forces involved, the degree of planning and coordination required, and the commander's desires.

2.7.1 Landing Force FSCC

Depending on the tactical situation, the LF FSCC includes the personnel, equipment, and communications links required for all fire support functions. This staff is composed of supporting arms representatives from the MAGTF CE, with augmentation from other USMC sources and LNOs from joint, allied, or coalition forces.

2.7.1.1 Fire Support Coordinator

Designated by the LF commander, the FSC performs the following duties:

1. Identifies personnel, LNO, communications, and equipment requirements for the MAGTF FSCC.
2. Advises the MAGTF commander and staff on fire support coordination matters.
3. Reviews NSFS, air, and artillery estimates of supportability from the MAGTF FSCC.
4. Participates in LF planning sessions with other elements of the MAGTF. The FSC supervises deep operations planning and monitors close and rear operations.
5. Coordinates with the MAGTF electronic warfare officer (EWO) and signals intelligence/electronic warfare coordination center (S/EWCC) personnel to ensure jamming, electronic deception, and destructive electronic countermeasures are integrated with the fire support plans.
6. Establishes liaison with fire support personnel at higher, adjacent, and subordinate headquarters.
7. Coordinates with the MAGTF intelligence (G-2/S-2) and personnel in intelligence and targeting facilities on intelligence and targeting matters.
8. Assists the air officer in reviewing OAS requirements from MAGTF elements.

2.7.1.2 Artillery Officer

The artillery officer's responsibilities include:

1. Preparing artillery estimates of supportability
2. Keeping abreast of artillery capabilities available to the MAGTF.

This officer coordinates artillery matters with the artillery officer in the GCE FSCC and the senior artillery commander in the GCEs.

2.7.1.3 Naval Surface Fire Support Officer

The NSFS officer's duties include:

1. If required, preparing NSFS estimates of supportability

2. Reviewing NSFS requirements submitted by elements of the MAGTF

3. Monitoring the status of NSFS, including the availability of ships and munitions

4. Supervising the preparation of an NSFS plan.

2.7.1.4 Air Officer

The air officer's responsibilities include:

1. If required, preparing aviation estimates of supportability

2. Consolidating MAGTF air support requirements

3. Determining MAGTF air support capabilities

4. Establishing liaison with the ACE, the GCE air officer, and the air officers of higher and adjacent headquarters regarding air support and airspace management

5. Preparing the air fire plan in the MAGTF OPORD.

2.7.1.5 Target Intelligence Officer

The TIO officer's responsibilities include:

1. Supervising the processing of target data within the G-3 section

2. Working closely with the G-2 section on targeting matters

3. Preparing and maintaining a MAGTF target list

4. Working closely with higher, adjacent, and subordinate targeting personnel.

2.7.2 FSCC in the Ground Combat Element

All echelons of the GCE establish an FSCC as an advisory and coordination agency. Located with the COC, its facilities, equipment, and material are provided by the headquarters to which the FSCC belongs. Supporting arms units provide representatives and equipment necessary for conducting coordination, targeting, and communications functions for their respective assets. The senior FSCC in the GCE is designated as the GCE FSCC and is collocated with the DASC or a DASC liaison team.

2.7.2.1 Division FSCC

Because the division headquarters possesses a much greater capability to collect and analyze target information than any other echelon in the GCE, the division FSCC plays a key role in targeting. Supporting arms representatives from the division FSCC identify requirements and make recommendations to the division commander for the allocation of fire support assets.

2.7.2.2 Regimental FSCC

The regiment attempts to influence future operations, normally 24 to 48 hours in advance of the current battle. Commanders influence the battle with fire support by:

1. Assisting and supervising subordinate battalion FSCCs and clearing fires that impact on the regiment's zone of action beyond the battalion's zone

2. Coordinating ingress and egress routes for CAS missions

3. Coordinating routes and times for movement of artillery units in whose zone of action the movement will occur.

2.7.2.3 Infantry Battalion FSCC

Most fire support coordination ashore in amphibious operations is performed in battalion FSCCs. All fire support requests originating in the battalion are monitored or received in the FSCC. They are then checked to ensure that supporting arms are integrated with the scheme of maneuver and that friendly forces are not endangered. Also, the battalion FSCC usually coordinates clearances for observers to attack targets outside the battalion's zone of action.

2.7.2.3.1 Tactical Air Control Party

In this organization the senior air officer acts in a dual capacity as a special staff officer to the battalion commander regarding all aviation matters, and as the OIC of the battalion TACP. In the latter capacity, he also works with the FSCC as the air representative. The other two air officers are leaders of FAC parties.

2.7.2.3.2 Forward Air Controller Parties

There are two FAC parties in each infantry battalion. They prepare the majority of the preplanned and immediate CAS requests.

2.7.2.3.3 Shore Fire Control Party

This organization includes the two battalions listed below:

1. The NSFS liaison team consists of one NSFSLO, one NSFS liaison chief, and five field radio operators. This team performs liaison and coordination functions in the battalion FSCC. At the regiment and battalion levels, NSFLOs are naval officers provided by the supporting artillery battalion. Their duties include:

   a. Monitoring the NSFS ground spot net/SFCP local net and clearing requests for fire at the battalion level

   b. When necessary, transmitting fire requests and conduct of fire messages between other stations (e.g., artillery or other ground observers) and NSFS ships

   c. Requesting that NSFS ships occupy specific FSAs or FSSs

   d. Keeping the FSC informed of ships' ammunition status and rotation schedules

   e. Supervising and coordinating the activities of the SFCP (battalion level)

   f. Keeping the supported unit TIO or S-2 advised of all target information received via NSFS channels.

2. The NSFS spot team consists of one NSFS spotter (typically a Marine lieutenant), two SFCP personnel, and two field radio operators. Normally employed with a battalion or company, spot teams call for and adjust NSFS.

2.7.2.3.4 Mortar Section

The mortar platoon, organic to the weapons company or battalion, provides a mortar liaison party to work in the battalion FSCC and four forward observer (FO) teams to support the companies and/or man observation posts. Mortar platoon representatives:

1. Monitor the battalion mortar net and clear requests for fire.

2. Coordinate the movements of the mortar platoon or any of its section with the FSC.

3. Keep the FSC informed regarding the mortar platoon's ammunition status.

4. Pass requirements for planned fires to the mortar fire direction center (FDC).

2.7.2.4 Company Fire Support Coordination

A company does not have an FSCC as such. The artillery FO, mortar FO, and the assigned FAC and NSFS spotter assist the company commander and the weapons platoon commander in performing company-level fire support coordination.

2.8 INTEGRATING AND COORDINATING AIR SUPPORT

One of the most challenging tasks performed by an FSCC at any level is integrating and coordinating air support with NSFS and/or ground fires. The overarching goal is achieving the desired effects from the air attack without suspending the use of other supporting arms or unnecessarily delaying the scheme of maneuver. An additional goal is to offer a reasonable measure of protection to the aircraft from the unintended effects of friendly surface fires as well as enemy fires. (Additional aspects of the coordination and integration of all types of fires are discussed in Chapter 6.)

2.9 FIRE SUPPORT COORDINATION CENTER PHYSICAL ARRANGEMENT CONSIDERATIONS

Because the functions of battalion, regimental, and division FSCCs differ, each has their own internal organization. The organization should allow for the most rapid and efficient coordination and exchange of information between FSCC personnel and other staff positions. The FSCC is physically located in the COC of the command post, and the FSCC's organization usually depends on space availability. Regardless of echelon, the following considerations apply to the physical arrangement of an FSCC:

1. The FSCC must be close enough to the S-2 and S-3 for easy information exchange.

2. FSCC personnel require quick access to all fire support communications nets.

3. FSCC watch officers and staff noncommissioned officers (NCOs) need to be able to closely supervise radio operators on fire support nets.

4. Radio operators on fire support nets need to be close to each other to facilitate the coordination and deconfliction of fire support by the FSC and other FSCC personnel.

5. Fire support nets should be separated from the command's tactical and command radio nets. Because both types of nets are extremely busy, placing them in an adjacent location can add to the confusion and possibility of error.

6. There must be reliable communications (preferably wire) between the FSCC and the operational systems control (SYSCON) center. This center provides assistance in restoring communications or adjusting communications to compensate for combat damage.

7. The FSC should position himself or herself to facilitate internal supervision of the FSCC in conjunction with the S-2 and S-3.

8. To help ensure a rapid exchange of pertinent information for appropriate members of the FSCC and to other sections of the COC, a smooth and consistent flow of message traffic should be established.

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CHAPTER 3

Communications and Information Data Exchange

3.1 PURPOSE

To exercise effective C2 during amphibious operations, particularly supporting arms coordination, a commander must have a thorough knowledge of a complex integrated system of tactics, doctrine, procedures, organizational structures, personnel, facilities, and C4I systems and equipment. Amphibious operations require a dynamic and flexible C2 system capable of supporting the rapid decision making and execution that characterize high tempo operations. In particular, the ESG must have the ability to plan for, provide C2 for, and support all functional areas (fires, aviation, intelligence, CSS, etc.) simultaneously. The systems involved in delivering communications, information, and additional key data during amphibious operations must be robust, flexible, and as expeditionary as the ESG they support. C2 issues within the ESG and LF may be compounded by the introduction of ships into the ESG that haven't routinely participated in amphibious operations in years past. C2 procedures must take potential limitations for supporting ships and units into account.

This chapter outlines the criticality of sound communications planning in amphibious and/or supporting arms operations, and the necessity for the commanders to understand and properly utilize the C4I procedures and architectures available to them. Further, it introduces some recommended actions to be taken if installed systems and established procedures become casualties or fall short of expectations or requirements.

3.2 COMMUNICATIONS PLANNING DURING THE FIVE PHASES OF AN AMPHIBIOUS OPERATION

The five phases of an amphibious operation are:

1. Planning
2. Embarkation
3. Rehearsal
4. Movement to the objective
5. Assault.

Under routine conditions the LF embarks first and movement to the objective begins before planning commences. No matter what the order of events, communications planning and the connectivity it produces are essential to the success of each step.

3.2.1 Planning Phase

The planning phase starts when the Initiating Directive is issued, and continues until embarkation begins. This phase should not be confused with the preliminary planning conducted prior to the receipt of the mission order. C4I systems connectivity must be established among all major participating commands at the commencement of this phase. Communications security (COMSEC) is essential and must be maintained throughout planning.

3.2.1.1 Initial Planning Actions and Considerations

At the start of the planning phase, respective staff C4I officers (N-6 or G-6/S-6) should at a minimum take the following actions:

1. Orient their respective staffs to available communications and other C4I assets. These assets range from email to more specialized communications links such as SECRET Internet Protocol Router Network (SIPRNET) and "chat" capabilities.

2. Coordinate planning not only within the local command but also with the headquarters of senior, subordinate, adjacent, and supporting units. Proper coordination involves the prompt exchange of information, decisions, plans, orders, and instructions among all participants.

3. Establish communications among all major participating commands. The communications plan must permit rapid integration of the AF without undue interference between elements.

4. Consider using local frequencies and communications standards as opposed to those typically in use in the operating area to insure compatibility and prevent interference.

3.2.1.2 Responsibilities for Communications During the Planning Phase

During the planning phase the responsibilities for developing a solid communications plan are shared by ESG and LF personnel.

3.2.1.2.1 Expeditionary Strike Group Commander/Commander, Amphibious Task Force Responsibilities

Through the N-6, the ESG commander/CATF is responsible for:

1. Determining ESG communication requirements, review and approval of communication requirements for the LF, and consolidation and promulgation of all ESG communication requirements

2. Acquiring and assigning technical facilities to ESG subordinate elements

3. Determining priorities for, and assigning, shipboard communications assets

4. In coordination with the G-6/S-6 and the N-2/G-2 or S-2, reviewing and approving the ESG EW plan

5. Establishing adequate communications for embarking naval support elements (e.g., SEAL, NAVBEACHGRU)

6. Preparing appropriate OPSEC guidance and military deception plans

7. Announcing and overseeing liaison requirements

8. Developing and promulgating a complete and coordinated ESG communications plan for inclusion in the overall C4I systems support plan

9. Developing and promulgating a communications plan with other maritime forces.

3.2.1.2.2 Commander, Landing Force Responsibilities

Through the G-6/S-6, the CLF is responsible for:

1. Establishing a coordinated LF communications plan to be included in the overall ESG C4I systems support plan

2. Determining requirements for communications facilities controlled by higher headquarters and submitting those requirements to the ESG commander/CATF through the N-6

3. While embarked, requesting and conducting required liaison for shipboard communications facilities and network requirements

4. Developing an LF EW plan and submitting it to the ESG commander/CATF via the N-6 and/or the N-2 for inclusion in the overall ESG EW plan

5. Establishing and maintaining liaison with the ESG commander/CATF staff and subordinate LF units

6. Developing and promulgating a coordinated LF communications plan and submitting it to the ESG commander/CATF, via the N-6, for approval

7. Establishing computer and network requirements while embarked

8. Developing and promulgating a plan for communications connectivity with other ground forces ashore

9. Identifying connectivity requirements prior to movement ashore.

3.2.1.3 Communications Planning Considerations

Each commander must make communications requirements known to the C4I officers. Based on those requirements, the C4I officers should determine the best means to effect the transmission of information needed by the commanders and their staffs to maintain effective C2 of assigned forces. It is vital that the C4I officers coordinate with the other staff officers and with counterparts of senior, subordinate, adjacent, and supporting commands or units.

3.2.1.3.1 Mission

The mission indicates, in concise terms, the location of the operation, the time it will occur, what must be accomplished, and the forces assigned.

3.2.1.3.2 Concept of Operations

The CONOPS gives the C4I officers an indication when events will occur, what the focus of effort is or will be, projected locations of units and installations, and the distances over which communications will be required. The CONOPS also drives the selection and apportionment of specific communications equipment and, to some degree, the ESG communications plan.

3.2.1.3.3 Organization

The task organization lists all tactical, administrative, and service groupings, depicts the combat organization, and indicates command relationships. Consideration of the task organization during all phases of the amphibious operation helps C4I officers determine the need for lines of communication with senior, subordinate, adjacent, and supporting units.

3.2.1.4 Communications Planning Factors

The C4I officers evaluate planning factors against the commanders' communications requirements, the mission, the CONOPS, the task organization, and each of the recommended courses of action (COAs).

3.2.1.4.1 Available Resources

Specific items considered in the evaluation of available resources include:

1. The number, specialties, and status of assigned personnel and the availability of replacements in the area of operations.

2. The quantity, condition, and operational characteristics of authorized and special allowance equipment, and the availability of replacement equipment.

3. The quantity and condition of available supplies and the availability of resupply in the area of operations.

4. Maintenance support of LF communications equipment for each phase of the operation, to include interservice agreements and the availability of test equipment.

3.2.1.4.2 Enemy Situation

It should always be assumed that an adversary has a significant SIGINT/EW capability. The C4I officer should also be aware of the nature and location of enemy facilities in the objective area for possible future friendly use.

3.2.1.4.3 Characteristics of the Area of Operations

Principal characteristics to be considered in the objective area include:

1. Terrain

2. Weather

3. Electromagnetic environmental effects (E3) (e.g., command posts too close together, the use of non-Tempest equipment, and improper grounding techniques).

3.2.1.5 Communications Concept

Once the C4I officer has determined the commander's communications requirements and the factors affecting the employment of communications assets, the means available to provide the communications required for the operation must be considered.

3.2.1.5.1 Electrical Communications

Electrical communications required for the operation are dictated by the types of service required by individual users, anticipated traffic loads, distances to be encountered, characteristics of the area of operations, available resources, and the enemy situation.

3.2.1.5.2 Visual Communications

The employment of visual communications may be dictated by requirements for recognition and identification and for transmission of prearranged messages by visual means.

3.2.1.5.3 Sound Communications

Employment of sound communications may be dictated by requirements for the dissemination of alerts and warnings, propaganda broadcasts, and other similar purposes. Types of sound signals and their meanings must be determined and carefully coordinated for the operations.

3.2.1.6 Communications Control

In planning communications control (COMMCON), C4I officers analyze proposed communications system control requirements. Within the capabilities of available resources, the organization and method of operation of the system and technical control are developed to satisfy those requirements.

3.2.1.6.1 Command and Control Systems Annex

The communications concept is evaluated to determine if the plan satisfies all requirements. The concept is modified if/as required and, once approved by the commanders, is promulgated as the Communication Electronics Annex to the OPLAN/OPORD.

3.2.2 Embarkation Phase Actions

Prior to embarkation, planners must provide for adequate C4I systems support between the AF and any external transportation agencies. The CLF is normally responsible for planning, providing, or obtaining the communications for control and coordination of embarkation, including coordinating the use of established facilities.

3.2.3 Rehearsal Phase Actions

This phase is the period for testing the adequacy of plans, the timing of detailed operations, the adequacy of communication systems, and the combat readiness of participating forces, ensuring that all participating units are intimately familiar with the plans. It normally involves all elements of the ESG and provides the opportunity to test the employment of communication techniques, equipment, and systems prescribed in the plan as early as the operational situation permits. During this phase, specific communication considerations include:

1. Using minimum power for radio communication to help maintain OPSEC

2. To retain COMSEC, changing radio frequencies and call signs subsequent to the rehearsal

3. Conducting a critique of communication performance during the rehearsal

4. Modifying appropriate portions of the communications plan and ensuring those modifications are coordinated with all participants

5. Maximizing the use of secure voice equipment

6. Scheduling the rehearsal to minimize enemy satellite surveillance.

3.2.4 Movement to the Objective Phase Actions

During this phase:

1. The components of the ESG move from points of embarkation to the area of operations.

2. The ESG commander/CATF is responsible for providing most external communications as well as communications between ships of the ESG.

3. Radio communications are severely restricted to preclude the enemy from learning the location, movements, and intentions of the ESG/AF. Accordingly, the ESG commander/CATF prescribes the EMCON condition during movement, and communications within and between various movement groups of the AF are provided by helicopter, visually, or line-of-sight radio. The C4I systems support plan must reflect restrictions applicable to radio circuits and provide for handling important messages within imposed limitations.

4. LF radios should be tested as per the EMCON plan prior to the operation.

3.2.5 Assault Phase Actions

The assault (or action) phase comprises the period from the arrival of the major assault forces of the AF in the area of operations to the accomplishment of the mission.

During the early stages of an amphibious operation, naval and LF elements rely primarily on single and multichannel radio communications as the means for exercising control and coordination over assigned forces. At some appropriate point prior to H-hour, EMCON is usually lifted by the ESG commander/CATF in order to test all circuits before movement ashore begins.

As the operation develops, communications assets are progressively phased ashore to support the scheme of maneuver. The LF CE is phased ashore only after the communications build up can support the C2 requirements.

Throughout the assault phase, and even after the CE has been phased ashore, continuous coordination is required between CATF and CLF to ensure that all LF requirements are satisfied in support of movement ashore, medical evacuation (MEDEVAC), and resupply.

3.2.6 Advance Force Operations Actions

Before advance force operations begin, communications planning must occur among elements of the advance force, supporting forces, and the main AF. Special consideration must be given to passing intelligence between the advance force and the main body of the AF.

Prior to H-hour, traffic should be minimized to avoid revealing the intention to conduct an amphibious operation and to keep circuits clear for high-precedence traffic.

3.3 COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE IN SUPPORTING ARMS COORDINATION

As discussed in Chapter 2 and Appendix F and in other joint and Service publications, the SACC, located aboard the ATF flagship, is the agency through which the CATF, as the supporting commander, exercises overall coordination of supporting fires within the operations area. The SACC remains active until control of supporting arms is passed to the CLF ashore. FSCCs, which remain active throughout the operation, are established ashore by infantry battalions, regiments, and divisions. The CLF moves ashore and establishes an FFCC.

3.3.1 Supporting Arms Coordination Center Communications Requirements

Communications requirements within the SACC are outlined in the following paragraphs.

3.3.1.1 Coordination Section

The coordination section must establish and maintain consistent communications with the CATF and their staff, CLF and their staff, control agencies and facilities aboard the flagship, and with LF FSCCs as they are established ashore. Single channel radio is the primary method of communications during movement ashore and subsequent offensive operations. For the SACC, this is the only method of communications with TACAIR, NSFS units, and artillery.

3.3.1.2 Naval Surface Fire Support Section

The NSFS section requires communications with fire support ships, units, NSFS representatives in the LF FSCCs, and NSFS air spotters.

3.3.1.3 Air Support Section

The air support section requires communications with the TADCs, DASC, air representatives in the LF FSCCs, support aircraft, FACs, TAOs, TAC(A)s, HDCs, and aircraft carriers.

3.3.2 Supporting Arms Coordination Nets

Supporting arms communications are established to provide tactical and operational control of fires in support of the LF, effective liaison between all naval and LF supporting fires agencies, and administrative control of fires in support of the LF. It should be kept in mind that operations conducted in an EW environment may require planning for additional equipment and alternate means of communication to overcome the enemy's EW capability.

Communication annexes for the ATF, advance force, and LF OPORDs show the call signs, frequencies, circuit designators, instructions concerning use of voice radio security devices, and other special instructions pertaining to the radio nets to be used. The requirement for authenticating communications on fire support nets is important; all questionable transmissions must be confirmed.

3.3.2.1 Naval Surface Fire Support Nets

The following are key communications nets required for successful NSFS operations.

3.3.2.1.1 NSFS Control Net (High Frequency)

This net is used for requesting and assigning fire support ships, relief and emergency reports, and disseminating orders pertinent to the execution of scheduled fires. Other stations on this net include the SACC, fire support group and unit commanders, fire support ships, screen commanders, and the GCE NSFS officer. CATF is net control.

3.3.2.1.2 NSFS Control Overload Net (High Frequency)

This net is identical to the NSFS Control Net except a different frequency is utilized. These nets may be designated NSFS Control Alfa and NSFS Control Bravo. The NSFS Control Overload Net may be used when there is a high volume of traffic on the NSFS Control Net or to send ammunition status, attack results, and other administrative traffic. CATF controls this net.

3.3.2.1.3 NSFS Net (High Frequency)

This net is used to request NSFS support and coordinate NSFS support ships in GS of the LF. Other stations on this net include SACC, the GCE, LF general support ships, and the CE. CATF controls this net.

3.3.2.1.4 NSFS Ground Spot Net (High Frequency)

The purposes of this net are control of individual ship NSFS and to call and adjust fire. A secondary use is to exchange vital information between stations on the network, such as frontline positions. This net is the link between the NSFS spotter, fire support ships, and the battalion NSFS LNO during fire missions. It is not normally activated at the MAGTF CE level unless a MAGTF FFCC is established. Other stations on this net are the SACC, battalion FSCCs, NSFS spot teams, DS ships, and GS ships.

3.3.2.1.5 Overall NSFS Control Net (High Frequency)

This net is activated when amphibious operations employ two or moreattack and landing groups for overall control of NSFS. Other stations on this net include attack group commanders, special support groups, CLF, and the landing group commanders. CATF controls this net.

3.3.2.2 Tactical Air Support Nets

The following are key communications nets required for successful TACAIR support operations.

3.3.2.2.1 Tactical Air Direction Net (Ultrahigh Frequency/Very High Frequency)

This net provides a means for directing aircraft conducting CAS and for the DASC to brief support aircraft on target information, or assignment to the FAC, etc. Multiple TAD nets are required and are assigned to major air control agencies. This primary TAD net is a ultrahigh frequency (UHF) circuit with the secondary being a very high frequency (VHF) circuit. Others utilizing this net include the SACC, DASC, TACP, and OAS aircraft.

3.3.2.2.2 Tactical Air Request/Helicopter Request Net (High Frequency/Very High Frequency)

This net allows forward ground combat units to request immediate air support from the ASC/TACC/DASC. Intermediate ground combat echelons monitor this net and may modify, disapprove, or approve a specific request. The TACC/DASC uses this net to brief the requesting unit on the details of the mission. Target damage assessments and emergency helicopter requests may be passed over this net. Other stations on this net are the SACC, DASC, TACPs, HDC, TAC, and FAC.

3.3.2.3 Landing Force Fire Support Nets

The following are communications nets required for successful LF operations.

3.3.2.3.1 Force Fire Coordination Net (Very High Frequency)

The purpose of this net is to provide a means for overall fire support coordination, linking all major fire support coordination agencies of the MAGTF. It is normally activated at the MAGTF CE level only when an FFCC is established. Those agencies on this net include the SACC, senior FSCCs, and the senior artillery FDC.

3.3.2.3.2 LF Artillery Command/Fire Direction (High Frequency)

This net is established for rapid dissemination and coordination of fire support information. It is used by the SACC, and the senior artillery organization, regiment, or battalion to maintain situational awareness regarding artillery status.

3.3.2.3.3 LF Naval Surface Fire Support Net (High Frequency)

This net provides a means for requesting NSFS and coordinating the employment of NSFS ships in GS of the LF. The net is guarded by, and provides radio communications for, the LF NSFS officer (net control), subordinate units, and ships in GS of the LF.

3.3.2.3.4 Naval Surface Fire Support Ground Spot Net (Primary High Frequency/Secondary Very High Frequency)

This net provides direct communication between the NSFS spot team and an assigned DS ship supporting the battalion. The naval surface fire support liaison officer (NSFSLO) at the battalion FSCC is normally net control and monitors all traffic. For frequency adjustment, fire support ships tune the transmitter and receiver to the spotter. One frequency is allocated to each infantry battalion assigned a DS ship. If a GS ship is assigned a mission in support of the infantry battalion, it enters the NSFS Ground Spot Net for the duration of that mission.

3.3.2.3.5 Naval Surface Fire Support Air Spot Net (Ultrahigh Frequency)

This net is used when the NSFS air spot team cannot observe a target or NSFS adjustment is done by air. Air spotters talk directly to the DS or GS ship. Stations on the net include the NSFS air spotter and the fire support ship(s). When required, the NSFSLO at the infantry battalion, regiment, and division, as well as the NSFS spot

team, may enter this net. The appropriate fire coordination agency exercises net control when the air spotter is working in conjunction with ground units.

3.3.3 Chat Utilization

While not considered an acceptable substitute for the fire support coordination nets discussed in the preceding paragraphs, chat has significantly increased collaboration and has provided a reliable administrative backup for command radio nets. However, the benefits of chat rooms must be weighed against the loss of situational awareness that results if chatting distracts watchstanders from tactical displays.

While record message traffic and voice communications, as described above, remain the primary methods of promulgating operational fire support tasking, IT-21 ships and stations guard chat on either a GCCS-M or NT workstation for real-time Internet protocol connectivity. Chat must only be used for the professional exchange of information. Participants may monitor chat rooms for situational awareness, but should not transmit unless required to do so as part of the mission. Users who have no valid operational requirements for logging onto chat servers should refrain from doing so to avoid affecting system stability or limiting legitimate user access.

Coalition partners must be taken into consideration when utilizing chat. Many do not have a chat capability. Therefore, voice or message traffic remains the primary means of communication when coordinating with allied or coalition units.

3.3.3.1 Procedures

Depending on the area of operations, units are required to establish and/or guard specific chat rooms designated by the fleet commander. As chat room controller the fleet commander maintains circuit discipline, monitors room members for proper identification, and ensures the chat room is being used correctly for its stated purpose. At the discretion of the controller, users other than those listed in established guard requirements may monitor chat rooms for situational awareness. Controllers may limit chart room participants to invitation only.

The ESG and/or ATF commander has the authority to establish chat rooms other than those identified in established guard requirements. An example would be a chat room established for a specific meeting or purpose, such as the exchange of supporting arms coordination information.

The capability does exist to use chat servers to transfer imagery for targeting or intelligence. However, experience during actual missions has shown that such actions require a significant amount of bandwidth, and may impede normal chat services. Therefore, imagery transfer via chat servers is discouraged.

3.4 COMMUNICATIONS SUPPORT REQUIREMENTS IN AMPHIBIOUS OPERATIONS

The ESG must have the ability to plan for, provide C2 for, and support all functional areas (i.e., fires, aviation, intelligence, CSS, etc.) afloat and ashore. To ensure that support for these functions is available, a reliable, secure, rapid, flexible, and interoperable C4I system is required in planning and execution. Communications support requirements are summarized below:

1. Support planning
2. Control movement ashore
3. Coordinate AF protection
4. Control assault vehicles and craft
5. Monitor C2 of advance force operations
6. Coordinate supporting arms

7. Coordinate logistic support and CSS

8. Coordinate support provided by other forces

9. Regulate medical support

10. Coordinate use of communications and EW.

3.5 COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE SYSTEMS SUPPORT PLAN

An effective and efficient C4I systems support plan is vital to ensuring a viable and flexible C2 system capable of supporting the rapid decision making and execution integral to high-tempo amphibious operations. This C4I systems support plan should fulfill the following requirements:

1. Provide an EMCON plan and information security (INFOSEC) posture that balances OPSEC versus operational requirements.

2. Provide transmission and cryptographic security.

3. Provide C2 protection.

4. Avoid mutual interference throughout the electromagnetic spectrum.

5. Deconflict friendly electronic attack (EA) from other friendly frequencies per the joint restricted frequency list.

6. Provide monitoring and defense of tactical and nontactical computer networks.

7. Provide friendly forces' position reporting to the GCCS-M common operational picture (COP).

8. Use common agencies and alternate means of communications to assist in reducing mutual interference and decreasing frequency requirements.

9. Provide access to meteorological and oceanographic forecasts and information impacting amphibious planning and execution.

3.6 JOINT SERVICE OPERATIONS

Integration into the joint environment has become a necessity for Navy and Marine Corps forces involved in amphibious operations. Opportunities to operate without other services have dwindled over the past several years, and as clearly evidenced by recent real world events, there is little question that most future operations will be joint in nature.

3.6.1 Major Planning Considerations

To ensure successful integration of naval communications in a joint environment, terminology and interoperability need to be addressed early in planning:

3.6.1.1 Terminology

Although the Army/Navy designator system has standardized terminology, occasionally different terms are used to describe common procedures. To avoid confusion, C4I officers must coordinate terminology, as the simplest confusion of terms has the potential to disrupt the entire planning process.

3.6.1.2 Interoperability

Generally, most communications equipment used by naval forces is compatible with equipment of other U.S. forces. However, to avoid unnecessary complications and confusion, C4I officers must verify equipment and cryptographic keying material compatibility.

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CHAPTER 4

Planning

4.1 PURPOSE

Planning is the act of envisioning and determining effective ways of achieving a desired end state. It supports the commander in making decisions in a time-constrained and uncertain environment.

Supporting arms coordination planning is the continuous and concurrent mechanism for achieving effectiveness and efficiency in fire support. It must be conducted with the objective of producing fully integrated fire support plans. The AF uses a fire support planning process, developed by the MAGTF, and refined through years of ATF and LF coordination, that involves an interaction between higher and lower echelons (a top-down process).

The purpose of fire support planning is to optimize the employment of supporting fires to achieve the commander's intent by shaping the area of operations and providing the requisite support to maneuver forces. Two primary reasons for supporting arms coordination planning are:

1. To achieve maximum effectiveness and efficiency from fire support assets in meeting fire support requirements of the force.

2. To determine the allocation of fire support.

This chapter elaborates on the purpose for and the steps in the planning process as they relate to amphibious operations and supporting arms coordination. It also discusses the sources of supporting fires and the options planners have available to them to most effectively integrate those assets into the overall AF plan and the scheme of maneuver ashore.

4.2 AMPHIBIOUS PLANNING PROCESS

The amphibious planning process that has become the standard for all AFs is adapted from the Marine Corps planning process (MCPP). This six-step problem solving methodology, discussed in depth in paragraphs 4.2.3 through 4.4.6, is a learning process to promote understanding for success in the execution of all amphibious operations, including supporting arms coordination. It has proven to be an outstanding tool for the ESG, ATF, and LF commanders and their staffs. Planning timetables can vary greatly, sometimes even down to a matter of hours. However, the process is scalable and can be adjusted to fit any timeline.

4.2.1 Tenets of Amphibious Planning

The three tenets of amphibious planning are top-down planning, single-battle concept or unity of effort, and integrated planning. These tenets are derived from the USMC doctrine of maneuver warfare and guide the commander's use of the staff to plan and execute military operations. Top-down planning and the single-battle concept ensure unity of effort, while the commander uses warfighting functions as the building blocks of integrated planning.

4.2.1.1 Top-Down Planning

AF commanders, whether supported or supporting, cannot merely participate in planning, they must drive the process. Commanders' intent and guidance are keys to planning. Commanders use planning to gain knowledge and

situational awareness in support of the decisionmaking process. Their decisions (e.g., amphibious force objectives, landing beaches, CCIRs, and promulgated essential elements of friendly information (EEFIs)) are required before additional steps in the process can proceed. The plan, communicated in oral, graphic, or written form, translates the commanders' guidance into a CONOPS. Subordinate commanders use this guidance and the CONOPS to accomplish the mission.

4.2.1.2 Single-Battle Concept or Unity of Effort

Operations or events in one part of the battlespace or area of operations may have profound and often unintended effects on other areas or events. Therefore, commanders should always view the area of operations as an indivisible entity. The single-battle concept allows the commanders to effectively focus the efforts of all the elements at their disposal toward mission accomplishment.

4.2.1.3 Integrated Planning

Integrated amphibious operations planning is a disciplined, systematic, and coordinated approach with two parts:

1. The first part is the assembly of the AF commanders and their staffs. When such arrangements are not practicable, the exchange of LNOs qualified to perform planning functions and the use of advanced technology, collaborative planning aids, and video teleconferencing (VTC) are necessary. During planning, particularly in crisis action planning (CAP), ESG and AF commanders must ensure that planning efforts are parallel and concurrent with those of higher headquarters. Also, the same degree of integration by ESG and AF commanders and their staffs must be achieved with subordinate units to ensure a coordinated and thorough plan.

2. The second part of integrated planning occurs across functional areas. Using the warfighting functional areas of C2, maneuver, supporting arms and fires, intelligence, logistics, and AT/FP, ESG and AF planners integrate the planning effort and supervise execution of the plan. Planners use integrated planning to consider all relevant factors, reduce omissions, and share information across all the warfighting functions. The key to this part of integrated planning is the assignment of appropriate personnel to represent each functional warfighting area. These representatives must be knowledgeable and experienced in their functional areas. Integrated planning is also facilitated through dynamic OPTs. These teams are ad hoc organizations formed around planners from functional areas, appropriate staff representatives, subordinate and supporting command LNOs, and other subject matter experts (SMEs).

4.2.2 Directives Vital to the Planning Process

Before the amphibious planning process can commence, commanders and their staffs must receive direction and guidance from higher echelon commanders. The two directives key to starting the process are the initiating directive and the planning directive.

4.2.2.1 Initiating Directive

The initiating directive is an order to the AF commanders to conduct an amphibious operation. It is issued by the unified commander, subunified commander, Service component commander, or JFC delegated overall responsibility for the operation. In this directive, the establishing authority specifies the desired support relationship between ESG and AF commanders and other designated commanders, as appropriate.

4.2.2.2 Planning Directive

Following receipt of the initiating directive, the CATF and CLF issue a coordinated planning directive to ensure that independent plans developed by the various AF headquarters elements are thorough, completed in the time allowed, and important aspects are not overlooked.

4.2.3 Six-Step Planning Process

Per JP 3-02, the amphibious planning process establishes procedures for the following:

1. Analyzing a mission
2. Developing and wargaming COAs against the threat
3. Comparing friendly COAs against the commander's criteria and each other
4. Selecting a COA
5. Preparing an order for execution
6. Transitioning the OPLAN, OPORD, operational general matter (OPGEN), and/or OPTASK to those tasked with its execution.

The process organizes these procedures into six manageable and logically intertwined steps. It allows for a concurrent, coordinated effort that maintains flexibility, makes efficient use of time available, and facilitates continuous information sharing (see Figure 4-1).

A more detailed discussion of the steps depicted above, specifically as they relate to supporting arms coordination, is provided in paragraph 4.5 and Appendix B.

4.2.3.1 Mission Analysis

This first step in planning facilitates and drives the organization and progression of the entire amphibious planning process. Its purpose is to review and analyze orders, guidance, and other information provided by the establishing authority in the initiating directive and to produce an AF mission statement(s). Upon completion of this step, the commanders provide planning guidance to focus their staffs during the next step.

4.2.3.2 Course of Action Development

During this step, staff planners use the mission statement(s) (which include the establishing authority's tasking and intent), commander's intent, and commander's planning guidance to develop COA(s). Each prospective COA is examined to ensure that it is suitable, feasible, acceptable, distinguishable, and comprehensive with respect to the current and anticipated situation, mission, and commander's intent. Further, as defined in the Joint Operation Planning and Execution System (JOPES), it is in this phase that military responses are developed.This includes the following:

1. Establishing force and sustainment requirements with actual limits
2. Evaluating force, logistic, and transportation feasibility
3. Identifying and resolving resource shortfalls
4. Recommending resource allocations
5. Producing a COA(s) via a commander's estimate that contains:
   a. CONOPS
   b. Employment concept
   c. Risk assessments

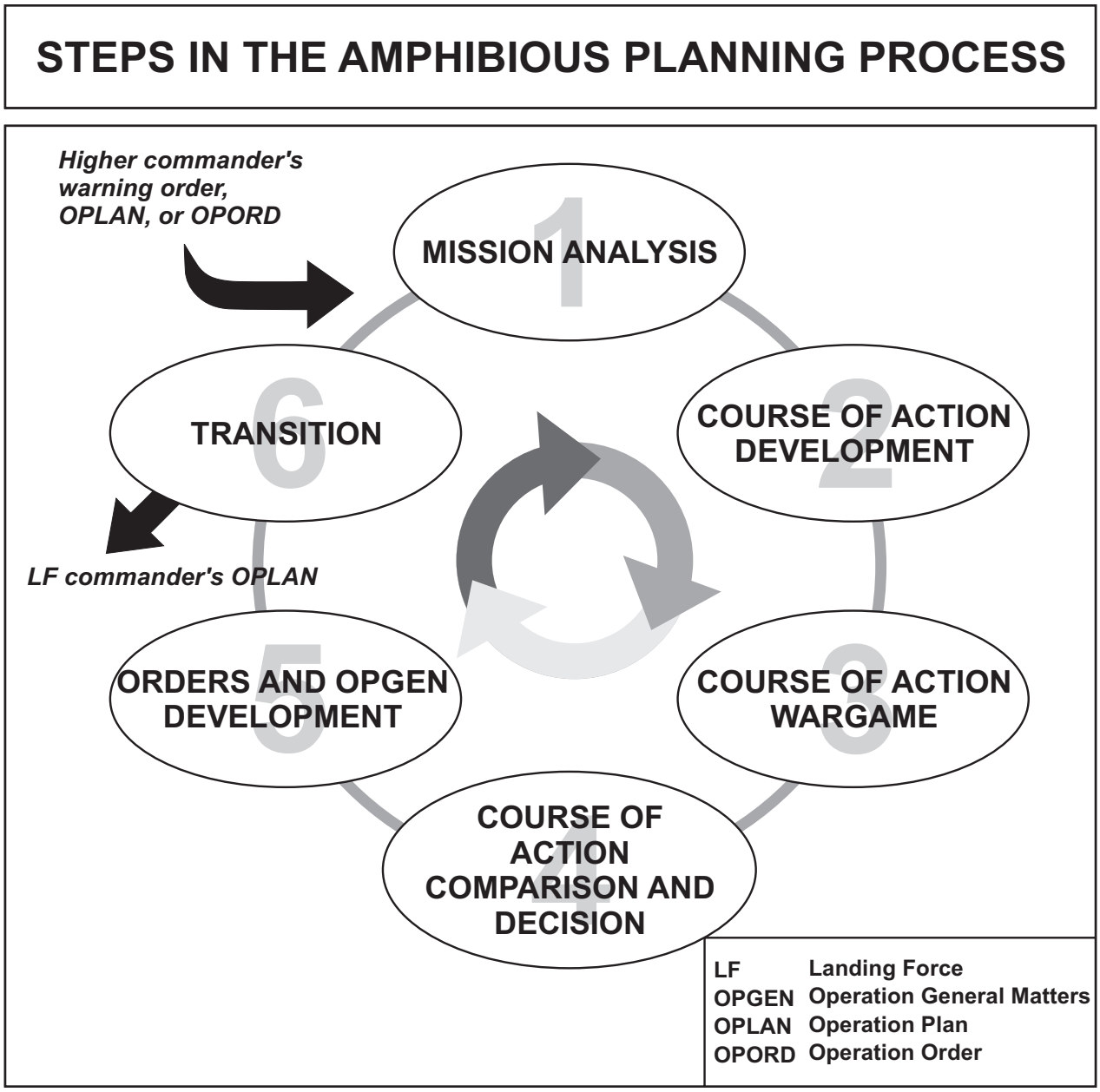

Figure 4-1. Steps in the Amphibious Planning Process

d. Prioritized COA

e. Supporting databases.

4.2.3.3 Course of Action War Game

COA wargaming involves a detailed assessment of each COA as it pertains to the enemy and the battlespace. Each friendly COA is wargamed against selected threat COAs. COA wargaming assists planners in identifying strengths and weaknesses, associated risks, and asset shortfalls for each friendly COA. Short of actually executing the COA, COA wargaming provides the most reliable basis for understanding and improvement. This step also identifies branches and sequels that may require additional planning.

4.2.3.3.1 Branches

These are contingency plans or COAs for changes to the mission, disposition, orientation, or direction of movement of the AF based on anticipated events, opportunities, or disruptions caused by enemy actions.

4.2.3.3.2 Sequels

These are major operations that follow the current major operation based on possible outcomes, such as success or a setback (e.g., the AF may plan a sequel based on a successful landing that requires re-embarkation and another assault).

4.2.3.4 Course of Action Comparison and Decision

In COA comparison and decision, AF commanders evaluate all friendly COAs against established criteria, then against each other. The commanders then select the COA that will best accomplish the mission.

4.2.3.5 Orders and Operational General Matter Development

During orders and OPGEN development, the staffs use command COA decisions, mission statements, and commanders' intent and guidance to write the plan, or develop orders and OPGENs that direct unit actions. Orders and OPGENs are the principal means by which the commanders promulgate decisions, intentions, and guidance.

4.2.3.6 Transition

Transition is the orderly handover of an OPLAN, OPORD, OPGEN, or OPTASK to those tasked with executing the operation. It provides those who will execute the plan or order with the situational awareness and rationale for key decisions, thereby ensuring a coherent shift from planning to execution.

4.2.4 Primary Decisions

As the principal force providers, AF commanders must make certain primary decisions during the planning process before operational planning can proceed. In some cases, these decisions may have been made by the establishing authority and promulgated in the initiating directive. In the case of mutual decisions, both commanders must concur; otherwise, the decision is referred to the establishing authority for resolution. The decisions and who makes them are described in the paragraphs below and Figure 4-2.

4.2.4.1 Mission Analysis

During mission analysis, the following decisions must be made:

1. Determine AF mission(s) — AF commanders may decide on a coordinated mission statement or develop separate but supporting mission statements. The determination of a coordinated mission statement is a mutual (CATF/CLF) decision.

2. Select AF objective(s) — These are physical objectives such as terrain, infrastructure (e.g., ports or airfields), or forces, that must be seized, secured, or destroyed in order to accomplish the mission. The determination of a coordinated mission statement is a mutual (CATF/CLF) decision.

4.2.4.2 Course of Action Development

During COA development, AF planners must further develop COAs based on guidance from the AF commanders. Normally, LF planners will provide an LF COA to the ATF planners, who then build supporting COA(s). The selected COAs are wargamed and compared based on criteria established by the commanders. The selection of AF COAs is a mutual decision.

PRIMARY DECISIONS RESPONSIBILITIES MATRIX

PRIMARY DECISION	May be contained in the order initiating the amphibious operation	Decision	Decision made not later than step
1. Determine Amphibious Force Mission(s)	*X*	MUTUAL	1
2. Select Amphibious Force Objective(s)	*X*	MUTUAL	1
3. Determine Courses of Action for Development	*X*	MUTUAL	2
4. Select Course of Action		MUTUAL	4
5. Select Landing Areas		MUTUAL	4
6. Select Landing Beaches		MUTUAL	4
7. Determine Sea Echelon Plan		CATF	4
8. Select Landing Force Objectives		CLF	4
9. Select Landing Zones and Drops Zones		CLF	4
10. Select Date and Hour of Landing	*X*	MUTUAL	4

CATF — Commander, Amphibious Task Force CLF — Commander, Landing Force

Figure 4-2. Primary Decisions Responsibilities Matrix

No later than during COA comparison and development, the following decisions must be made:

1. Select COA. At this point, a COA is selected and a CONOPS (including fire support planning guidance) is prepared. The CONOPS is usually a written and graphic representation, in broad outline, of the intent of CATF and CLF with respect to their portion of the operation. It provides an overall picture of the operation, including such key elements as the transit, formation for landing, and scheme of maneuver for accomplishing AF objectives. Both commanders prepare mutually supporting CONOPS.

2. Select landing areas. The landing area is that part of the operational area where the landing operations of the AF are conducted. It includes the beach, approaches to that beach, transport areas, FSAs, airspace occupied by close support aircraft, and land included in the advance inland to accomplish initial objectives. Landing area selection is a mutually agreed upon decision.

3. Select landing beaches. A landing beach is the portion of a shoreline usually required for landing a battalion landing team (BLT). Landing beaches are selected from within the selected landing areas. The selection of landing beaches is a mutual decision and principal factors in their selection include:

   a. Suitability for landing craft and assault vehicles

   b. Offshore approaches and tidal conditions

   c. Number, location, and suitability of beach support areas, beach exits, and nearby infrastructure.

4. Determine sea echelon plan. This is the plan that identifies the distribution of amphibious shipping in the transport area. Its purpose is to minimize losses and reduce the area that must be swept for mines. CATF determines this plan.

5. Select LF objectives. LF objectives facilitate the attainment of AF objectives and/or ensure the continuous landing of forces and material. LF objectives are selected by the CLF.

6. Select LZs and drop zones (DZs). An LZ is a specified zone for landing aircraft and may contain one or more landing sites. A DZ is a specific area upon which airborne troops, equipment, or supplies are air dropped. Fixed-wing LZs and DZs are designated when airborne or air-transported forces are employed. The CLF selects LZs and DZs.

7. Select landing date and hour. These factors are selected, unless specified, in the initiating directive. H-hour is the time the first assault elements are scheduled to touch down on the beach or an LZ. L-hour is the time when the first helicopter of the helicopterborne assault wave touches down in the LZ. Depending on the weather, enemy situation, and other pertinent factors, H- and L- hour are confirmed prior to commencement of the operation. If not specified in the initiating directive, they are mutual CATF and CLF decisions.

4.3 SUPPORTING ARMS COORDINATION PLANNING PROCESS

Supporting arms coordination planning is the continuous process of analyzing, allocating, synchronizing, and scheduling fire support to effectively integrate fires in support of the commanders' CONOPS and to generate and maintain combat power. Products of detailed fires planning include the fire plan and various appendices to the OPLAN/OPORD. In paraphrasing the definition of a fire plan found in JP 1-02, it could be said that it is a tactical plan for using the weapons and assets of the ESG so that fire support will be coordinated. Supporting arms coordination planning consists of conceptual, functional, and detailed planning.

4.3.1 Conceptual Planning

This is the highest planning level and establishes the aims, objectives, and intentions of the commanders, and includes developing broad concepts for action. During this stage, fire support planners develop the concept of fires for the operation. The concept of fires is based on the commanders' operational design, including their intent, CONOPS, vision of shaping and decisive actions, and targeting guidance and priorities.

4.3.2 Functional Planning

This is the design of plans for the employment of discrete functional activities. At this level fire support planners design supporting plans for artillery, aviation, and NSFS.

4.3.3 Detailed Planning

At this level the staffs translate the results of conceptual and functional planning into complete and practical plans. Detailed planning doesn't establish objectives; it prescribes the actions or tasks that accomplish objectives. Detailed fires planning entails targeting, scheduling, and combat assessment — the critical steps wherein targets are selected, attack means assigned, and effects are measured to accomplish fire support objectives.

4.3.4 Supporting Arms Coordination Planning

Also called fire support planning for purposes of this publication, this planning must be conducted with the objective of producing fully integrated fire support plans. In order to employ all supporting arms with maximum effectiveness in support of the entire amphibious operation, personnel concerned with coordination of supporting arms must be knowledgeable in the capabilities and limitations of assault forces to be employed, including techniques of employment and assets to be employed.

Upon receipt of the initiating directive, commanders ensure that the SACC and the FFCC are stood up coordinate of fire support planning. Once liaison and coordination are established between those two centers, concurrent planning is initiated. As the commanders' staffs reach decisions, they must quickly and completely notify all affected supporting staffs and units.

4.3.4.1 Fire Support Planning Process

This process involves:

1. Learning and understanding the mission and the LF's scheme of maneuver.

2. Submitting EEFIs and operational intelligence requirements (OIR) for targeting.

3. Accumulating target data and selectively assigning supporting arms to attack targets commensurate with capabilities and the scheme of maneuver. Target analysis and determination of time allocated for destruction or neutralization is necessary to compute the means required for preparation of the objective area.

4. Determining the ships, aircraft, and artillery assets required to support the LF scheme of maneuver is necessary to facilitate their integration with such operations as minehunting and clearance, SEAL operations, screening, and AD.

5. Preparing instructions to ensure coordination of planning should include predetermined measures and techniques required to control and coordinate the fire support means to be employed. Some of the key steps required to ensure coordinated planning include:

   a. Establishing the precedence for target detection and attack

   b. Acquiring and analyzing target data

   c. Determining means required to attack targets

   d. Assigning target classification and priority

   e. Assigning targets to assets commensurate with capability and target priority

   f. Determining supporting arms requirements to support combined ATF and LF operations

   g. Preparing detailed instructions for employing each asset required to support the operation

   h. Preparing coordinating directives for coordination and control of all supporting arms.

4.3.4.2 Principles of Supporting Arms Coordination

To ensure effective coordination of supporting fires, the principles delineated in paragraph 1.4.4 should be observed.

4.3.4.3 Basic Fire Support Tasks

Fire support effectiveness is measured by achieving desired effects on the enemy, setting conditions for decisive operations, supporting operations ashore, and providing support to the entire AF. Achieving the basic fire support tasks delineated in paragraph 1.4.2 significantly enhances the probability of supporting fires effectiveness.

4.4 THE DELIBERATE PLANNING PROCESS AND FIRE SUPPORT

Deliberate supporting arms coordination planning allows commanders and their staffs to organize their thought processes throughout the planning and execution of fire support missions.

Fire support planning starts as soon as a mission, or a probable mission, is identified. Working together, the SAC and the FFC coordinate the preparation of the fire support plan, outline the basic supporting arms coordination plan, and coordinate the preparation of the fire plan for each fire support asset, as well as other plans relating to fire support. Throughout this process the higher echelon fire support planners coordinate the supporting arms planning of lower echelons to ensure integration of planning and reduce duplication of planning efforts. One of the most important tenets during this procedure is to ensure that all fire support planning is an integrated process across all warfighting functions. Achieving these tenets helps ensure information is shared, omissions are reduced, and all relevant factors are considered. This integrated approach reduces the "stove-piping" effect and allows effective communications among all members of the SACC and FFCC as well as their subordinate organizations. (See Chapter 2 for a more detailed discussion of these elements.)

4.4.1 Mission Analysis

During mission analysis, the SAC and the FSC are primarily focused on gathering information and participating in the staffs' analysis of the mission. The higher headquarters' concept of fires, ongoing force-shaping activities, HVTs for each enemy COA, friendly fires assets available, and commanders' initial guidance on the enemy's center(s) of gravity (COG(s)) help frame the thinking of the SAC and FSC. This also allows them and the other supporting arms representatives to begin building the fire support plan.

4.4.1.1 Commander's Initial Planning Guidance

Commander's initial planning guidance provides decisions required to focus planners on the commander's conceptual vision of the operation. It should provide the staffs and subordinate commanders' insight on how the commander views the mission and the resources required to achieve the desired end state. From this guidance, the SACC begins to frame the role fire support will play in the plan. This guidance should address what the commanders want fires to accomplish (e.g., task and purpose, the focus of fire support, what they initially see as high-payoff targets (HPTs) and constraints and restraints.

4.4.1.2 Higher Headquarters Order

The FSC and the SAC must fully understand the mission (task and intent) of the commander who promulgated the initiating directive as well as the CONOPS of their own higher headquarters. They must then identify their staffs' responsibilities and allocated fire support capabilities.

4.4.1.3 Specified and Implied Tasks

The FSC and the SAC identify specified and implied tasks. Input comes from the initiating directive and commanders' guidance. From these tasks the FSC and SAC determine the essential fire support tasks (EFSTs) to be accomplished in support of the commanders' guidance. Normal tasks direct units or assets to attack, defend, or support to achieve a certain purpose. EFSTs are designed to ensure the synchronization of all assets and that those involved understand their role in the execution of the supporting arms plan.

4.4.1.4 Additional Mission Analysis Fire Support Tasks

Other items fire support planners should be mindful of during mission analysis include:

1. Developing a supporting arms concept that clearly specifies what supporting fires are supposed to accomplish during each phase of the operation
2. Tracking the status (e.g., location, mission readiness, and ammunition) of organic fires support assets, and translating the status of those assets into capabilities
3. Analyzing the effects of intelligence preparation of the battlespace (IPB)
4. Designating areas of interest and influence that predict future areas of operations
5. Tracking the status of higher, adjacent, and supporting units that may require or augment existing fires capabilities
6. Maintaining an awareness of known or predicted events or time-driven actions that influence shaping actions and the concept of fires
7. Exploring the use of fires to exploit enemy critical vulnerabilities (CVs) and protect friendly CVs
8. Tracking the weather, especially its effect on aviation operations pertinent to supporting arms coordination
9. Producing a comprehensive fire support mission analysis brief.

4.4.2 Course of Action Development

COA development begins with specific planning guidance from the commanders based on the learning that took place during mission analysis. The commanders' intent, normally expressed as a purpose, method, and end state, is also a form of planning guidance, as it provides vision regarding how they see operations unfolding.

During COA development, AF planners devise CONOPS and supporting concepts, including fires, to form COAs. Fire support planners suggest ways to employ supporting arms as part of any potential COA. The supporting concepts must be coordinated and compliment each other. The scheme of maneuver; the maneuvering, placement, and logistics of afloat or aviation assets; and the concept of intelligence with a collection plan must be synchronized with the concept of fires.

At a minimum, the fire support portion of a COA should allocate target acquisition assets, attack assets, planned target areas, and create the target attack sequence. Other major tasks for which fire support planners are responsible include:

1. Assessing enemy fire capabilities for lethality, range, and ability to engage friendly CVs.
2. Determining where to locate and attack the enemy to best accomplish the EFSTs.
3. Identifying HPTs from the list of HVTs provided by the MAGTF G-2/S-2, quantifying desired effects, and allocating assets to acquire and attack those HPTs.
4. Developing FSCMs that best support the CONOPS.
5. Identifying areas wherein successful HPT engagement causes the enemy to abandon a particular COA, or prevent the enemy from interfering with AF COAs.

6. Synchronizing collection planning with supporting arms coordination planning to ensure targets are detected and tracked prior to execution, and assessed afterwards.

7. Reviewing and providing input to ROE.

8. Planning fires sufficient to protect the entire AF.

9. Coordinating with other planners to determine appropriate maneuver and airspace control measures.

10. Identifying supporting arms C2 issues with higher headquarters, adjacent, and subordinate commands.

11. Identifying target areas of interest (TAIs) where the successful engagement of HPTs will cause the enemy to abandon a particular COA or be prevented from interfering with the AF's COAs.

12. Identifying named areas of interest (NAIs) where enemy activity or lack of activity confirm or deny an enemy COA or may support a friendly commander's decisive point (DP). DPs are points in the area of operations where the commanders must make a decision to commit to a particular COA.

4.4.3 Course of Action War Game

This technique can be accomplished formally or informally. Formal wargaming is a disciplined, structured process that examines the execution of friendly COAs in relation to threat reaction. Informal wargaming may be as simple as a "what if" conversation between commanders and selected staff officers. The SAC, FSC, and other fire support planners address specific considerations during this step. These major tasks include:

1. Validating and refining:

   a. Supporting fires tasks determined during COA development. These are recorded for subsequent use in developing the synchronization matrix and the OPLAN/OPORD/FRAGORD.

   b. Which HPTs should be attacked in each COA.

   c. Coordination of supporting fires procedures with higher headquarters, adjacent, and subordinate units or commands.

   d. Airspace coordination measures and FSCMs in conjunction with the area of operations, major subordinate command (MSC) boundaries, and maneuver control measures.

   e. Counterfire plan.

2. Preparing estimates of supportability.

   a. Estimates of supportability are prepared in detailed planning and FRAGORD planning. These estimates analyze the current capabilities of available assets (i.e., current area of operations, enemy capabilities, and each COA proposed) and identify advantages and disadvantages of each COA.

   b. The estimates are prepared by each supporting arms representative and briefed to the FSC and SAC to assist in the determination of the most supportable and feasible COA.

4.4.4 Course of Action Comparison and Decision

During this step, the SAC, the FSC, and other fire support representatives must be prepared to brief their overall estimate of supportability for each COA to the commanders. Fire support representatives produce estimates (i.e., artillery, aviation, NSFS, and EW) that focus on how effectively each COA allows the detection and attack of HPTs with fires. This effectiveness can be measured in terms of time, terrain, projected loss of friendly assets, and

the certainty of achieving the desired effects on enemy forces or capabilities. The commanders weigh the fire support estimates along with those of the other warfighting functions. Once a COA is selected, the fires planning for that COA serves as a base concept of fires and the fire support annex of the OPLAN/OPORD.

In addition to the duties described above, fire support planners can assist during COA comparison and decision by:

1. Planning the fire support portion of any branch plans

2. Completing the lethal and nonlethal concept of fires for each COA

3. Completing the fires portion of the synchronization matrix to ensure assets are integrated with other warfighting functions in time, space, and purpose.

4.4.4.1 COA Evaluation and Comparison

COA advantages and disadvantages are discussed and recorded. The staffs rate each COA, providing the commanders the information needed to make a sound decision.

4.4.4.2 Commanders' Decision

The commanders compare the COAs and select the best one to accomplish the mission. They may also identify portions of the selected COA for further refinement. Once the COA is selected, warning orders (WARNORDs) may be issued to subordinate commanders and supporting arms agencies.

4.4.4.3 Additional Planning Actions

After COA selection, the following actions occur:

1. The staffs and fire support planners refine NAIs, DPs, and HPTs.

2. Fire support planners and intelligence personnel integrate and refine the collection target acquisition (TA) plans. Collection assets are tasked and integrated to ensure there are no gaps in the coverage of the area of operations.

3. Fire support planners develop fire support tasks, responsibilities, and requirements.

4. The SAC, FSC, and fire support representatives develop the fires employment concept and the supporting arms coordination plan.

4.4.5 Orders Development

Planners develop appropriate orders that communicate the commanders' intent, guidance, and decisions in a clear, useful form that is easily understood by those who must execute the order. The order directs actions and focuses subordinate agencies and commands on mission accomplishment.

4.4.5.1 Final Target Decisions

Final refinements to target decisions are made based on additional guidance specified by the commanders during the COA comparison and decision brief.

Final targeting products should include, at a minimum, the high-payoff target list (HPTL), target selection standards (TSS), and AGM.

4.4.5.2 Finalize Essential Fire Support Tasks

Final refinements to EFSTs should be incorporated into the CONOPS. Schedules of fire for FSCMs and the fire support execution matrix (FSEM) are adjusted as required. The final phase of this step is detailed coordination with all organic and external supporting arms agencies and supported and adjacent AF units or commands. This is communicated via WARNORDs, verbal or written, released at key junctures of the amphibious planning process. Finally, the SAC, FFC, and other fire support planners must coordinate the supporting arms coordination plan with other supporting plans for the operation. Examples include the EW plan and the logistics plan for AF units and commands.

4.4.5.3 Fire Planner Tasks

During this phase, fire support planners' major tasks include:

1. Writing the concept of fires for the basic order.

2. Writing the fire support appendix to the order.

3. Drafting fire support tasks for subordinate units and commands in the order.

4. Completing all fires-related planning and execution tools, such as the decision support matrix (DSM) and TSS. The size of these products may preclude placement in the order itself, but all should be available electronically for local reproduction.

5. Confirming that fire support tasks to subordinates reflect a balance between the best system to achieve asymmetrical advantage and MSC workload.

6. Ensuring proper terminology is used in drafting tasks or establishing goals.

7. Assisting the assessment process, by ensuring that conditions, phases, targeting effects, etc., are understandable, achievable, and measurable.

8. Conducting orders reconciliation with the staffs using the basic order and its annexes to ensure the concept of fires is an integral part of the commanders' single battle or unity of effort. This reconciliation reduces the impact of uncoordinated, stove-piped planning and helps integrate detailed planning conducted by functional planners and subordinate commands and agencies.

9. Conducting an "orders crosswalk" to compare the order with higher and adjacent orders and prevent conflicts.

4.4.6 Transition

The final step in the amphibious planning process, transition, provides a successful shift from planning to execution, ensuring that essential personnel fully understand the plan. Transitions include briefs and rehearsals to increase the situational awareness of all those executing the plan. This step also maintains the intent of the CONOPS, promotes unity of effort, and generates tempo through timely, informed decisions.

The SAC and the FFC must ensure that all personnel fully understand the concept of fire support they are executing. It is critical that the MSCs fully understand their fires-related tasks and that these tasks are synchronized throughout the AF. It is essential to remember that transitioning is made more challenging because the planners conducted event-driven planning, while the SACC and the FFCC (as well as the FSCC) are involved in time-driven execution through the ATO. A solid understanding of the concept of fire support is important so the SAC and FSC and their planners can modify ATOs planned 72 hours in advance to achieve the originally intended and desired effects. Because the battlefield is not static, the SACC and the FFCC must work to continuously update and modify the fire support plan during execution to achieve the desired effect of fires on the enemy.

4.5 RAPID RESPONSE PLANNING PROCESS

The procedures outlined below, while not exactly mirroring the planning steps contained in the MCPP, are based on the same fundamentals. The rapid response planning process (R2P2), similar to joint CAP, follows a compressed timeline that provides commanders with an accelerated planning mechanism to facilitate mission execution within 6 hours of WARNORD or alert order receipt.

4.5.1 Mission Analysis

The time allotted for this step is approximately 30 minutes. Mission analysis commences when the crisis action team (CAT) and other battlestaff members assemble in designated locations. The CAT consists of key members of the CATF (supporting commander) and CLF (supported commander) staffs. The WARNORD or alert order is disseminated and the orientation of the CAT and other battlestaff personnel commences. Other important items covered in this step include:

1. Intelligence, weather, and operations updated.
2. Identification of higher intent and purpose of the operation.
3. Specified and implied tasks identified.
4. Limitations (mission constraints and restraints) identified.
5. Assumptions made and recorded.
6. Preconditions for mission success reviewed.
7. CCIRs determined, approved by the commanders, and recorded.
8. Requests for information (RFIs) identified.
9. Asset and SME shortfalls determined.
10. ROE reviewed.
11. Mission statement developed and approved by the commanders.
12. CLF designates a mission commander.
13. CLF issues initial intent and planning guidance.
14. CATF issues initial planning guidance.
15. Stand-by missions reviewed and activated (e.g., TRAP).
16. Reconnaissance and surveillance (R&S) assets reviewed and guidance provided.

4.5.2 Course of Action Development

The approximate time allowed for this phase is from 30 minutes to 1 hour and 10 minutes after order receipt (approximately 40 minutes total). It normally commences with the CLF and CATF providing guidance to the mission commander, ATF assets, and other members of the CAT and battlestaff.

Other steps in this phase include:

1. Mission planning cell (MPC) convenes.
2. Mission commander reviews the mission analysis and CAT results with the MPC.
3. Relative combat power assessments conducted.
4. COA graphics and narratives developed by the mission commander.
5. R&S plan developed.
6. R&S CONOPS brief to the CAT at plus 50 minutes.
7. Standby mission commanders commence planning.

4.5.3 Course of Action Presentation and Comparison

This phase should last less than 30 minutes (from approximately 1 hour and 10 minutes to 1 hour and 35 minutes after order receipt). The steps in this phase include:

1. Mission commander COA briefs to the CAT and battlestaff.
2. Staff estimates of supportability discussed and recorded.
3. Intelligence estimate from enemy perspective presented.
4. MSE commanders present estimates of supportability.
5. Mission commander's estimate presented.
6. CATF and CLF compare COAs.

4.5.4 Commander's Decision

After the COAs have been discussed and compared, CATF and CLF collaborate to select and modify (if/as necessary) a COA. This very quick step (from approximately 1 hour and 35 minutes to 1 hour and 40 minutes after order receipt) includes the following actions:

1. CLF refines commander's intent and issues additional guidance for detailed planning.
2. CATF issues additional guidance for detailed planning.
3. WARNORD is disseminated.
4. CONOPS is drafted for higher authority (as required).

4.5.5 Detailed Planning

The time allotted for this phase is necessarily greater than previous phases. It is here that the plan takes form and critical interactions and coordination efforts are detailed. The important steps of the detailed planning phase include:

1. At approximately 2 hours and 30 minutes after order receipt, R&S confirmation brief is presented to CAT members.
2. MPC completes the plan based on CATF and CLF commanders' guidance for detailed planning.

3. Confirmation brief prepared.

4.5.6 Confirmation Brief

This detailed presentation of the mission plan brings together (if logistically possible) representatives of all involved commanders. The brief is extremely comprehensive and is normally delivered to CATF and CLF by the mission commander and all subordinate commanders. Other key aspects of this brief are:

1. Mission supporting actions and requirements for all applicable participants.

2. Mission commanders for standby missions not already briefed.

3. CATF and CLF approve the confirmed plan.

4. Execution checklist reviewed.

5. Time check (synchronization) conducted.

4.5.7 Mission Execution

In a time period of no more than 6 hours, the plan is completed and ready for execution. During this final phase, the following actions occur:

1. Rehearsals conducted using the execution checklist as a guide (if/as time permits).

2. Ammunition issued and weapons test fired.

3. Unit and aircrew briefings conducted.

4. Forces launched (R&S or raid force) NLT 6 hours from receipt of mission.

4.6 RAPID RESPONSE PLANNING PROCESS AND FIRE SUPPORT

As discussed in detail in paragraphs 4.4 through 4.4.6, R2P2 is little more than a compressed version of the amphibious deliberate planning process. The steps in the process and the requirements for coordinating fire support planning efforts by the commanders involved remain the same. However, the complex task of fire support planning is exacerbated during R2P2 because there is limited time available to plan and coordinate operations that require rapid execution. Often, time simply does not permit detailed evaluation of targets or coordinated fire support planning by fire support agencies. Thus, while the overall planning process is being conducted more rapidly, so too is fire support planning and supporting arms coordination.

4.6.1 Rapid Fire Support Plan

Rapid fire support planning responds to immediate problems or requests for fire support using whatever assets are available. Authority has already been given for a supported unit to plan fires for one or more supporting arms. The SAC and FSC, using inputs received from the maneuver commanders, identify targets to be engaged, allocate available fire support assets, schedule fires, and determine other pertinent information. They then disseminate the plan to all appropriate supporting arms agencies within the ESG and AF for execution. General preparatory steps include the following:

1. Receive the OPORD and commanders' guidance. The fire support representatives must determine:

   a. Concept of operations

   b. Targets to be engaged

c. Desired effects on targets

d. Duration of fire

e. H-hour

f. Priorities of fire

g. Other required information.

2. Determine available assets. The SAC, FFC, and/or FSC must identify firing units to include:

   a. Artillery battalion in DS

   b. Availability of mortar delivery units

   c. NSFS

   d. Available OAS (e.g., number of sorties, aircraft type and ordnance, time on station, and method of control).

3. Schedule targets. Targets are scheduled in accordance with the scheme of maneuver, commanders' guidance, and allocated assets. This schedule includes:

   a. Designation of assets

   b. Ordnance mix

   c. Duration of fire for each target

   d. Time on target.

4. Disseminate the plan. The plan is disseminated to the participating fire support agencies, higher headquarters, and subordinate/adjacent units and commands as required. It may be transmitted by radio, wire, or digital means.

4.7 NAVAL SURFACE FIRE SUPPORT

Primarily, Navy surface combatants using gun systems, Tomahawk missiles, and EW systems provide naval surface fire in support of amphibious operations and the commander's objectives. Submarines may also provide fire support using Tomahawk missiles.

4.7.1 Naval Surface Fire Support Planning

This support planning begins upon receipt of a directive initiating planning for a forthcoming operation. The commanders provide guidance and instructions to their staffs. This guidance may take a variety of forms, including planning directives, memoranda, or outline plans, or it may be announced at informal staff conferences or briefings.

4.7.1.1 NSFS Responsibilities

The CATF and/or the assigned ESG warfare commander, as the supporting commander, is responsible for the preparation and execution of the overall NSFS plan. The plan is based on LF support requirements, as represented by the CLF, and naval forces support requirements such as mine warfare and SEAL operations. The CLF, as the supported commander, determines LF requirements for NSFS, including the selection of targets to be destroyed in

preassault operations, those to be fired on in support of troops, and the timing of all fires. The CLF presents the LF requirements to the CATF for consolidation with naval requirements.

4.7.1.2 NSFS Requirements

The timely and consistent interchange of information between the commanders is essential if the NSFS plan is to reflect optimum support for the LF. NSFS plans must support the LF scheme of maneuver as well as naval unit operations. The assigned ESG warfare commander, CATF, and CLF submit estimates of overall requirements as soon as practicable after the initiating directive is received. These estimates enable the supporting commander, through the amphibious planning process (COA development), to decide on the adequacy of fire support means provided by higher authority. When NSFS assets have been balanced with naval and LF requirements, the commanders make a tentative allocation of forces so that detailed planning may begin.

4.7.1.3 NSFS Plan Flexibility

The NSFS plan is based on information available during the planning phase and will contain several estimates. Additional information on such things as enemy installations, forces, capabilities, etc., will be provided as it becomes available. Therefore, the plan should be written so that the following changes in schedules of fire may be effected expeditiously:

1. Targets scheduled for destruction
2. Duration of pre–D-day operations
3. Delay of H-hour
4. Other entries that require modification of the plan.

4.7.1.4 Alternate NSFS Plan

In addition to the preferred NSFS plan, the formulation of one or more alternate, or branch, plans is prudent. Such plans are normally based on the use of an alternate landing area and/or a radical change in the order or timing of the amphibious operation. The same considerations are applicable in the preparation of the branch plan as in the preferred plan. The branch plan should follow as closely as possible the preferred NSFS plan in task organization, assignment of fire support platforms and assets, and allocation of radio frequencies.

4.7.2 NSFS Missions and Tasks in Amphibious Operations

The primary mission of naval surface fires is, in conjunction with air and artillery, to support the LF accomplishment of the objective and defense of friendly forces by:

1. Pre–D-day — Destroying or neutralizing shore installations or platforms that oppose the approach of ships and aircraft to the objective area
2. D-day — Destroying or neutralizing defenses that may oppose the landing
3. Post–D-day — Destroying or neutralizing defenses that oppose the advance of the LF.

4.7.2.1 NSFS Tactical Missions

As defined in JP 1-02 and paragraph 1.4.5.1.2 of this publication, the primary tactical missions of NSFS in amphibious operations are DS and GS. Other NSFS tactical missions include:

1. Close supporting fire

2. Deep supporting fire
3. Counterfire
4. Preparation fire
5. Reconnaissance by fire
6. Suppression of enemy air defenses (SEAD)
7. Protective fire
8. Obscuration fire
9. Screening fire
10. Illumination fire.

Definitions for these missions may be found in JP 1-02 and NWP 3-09.1, Navy Strike and Fire Support.

4.7.2.2 NSFS Capabilities

Some of the positive aspects of NSFS include:

1. Mobility. NSFS units can readily move from place to place while retaining the ability to fulfill primary missions. Specifically, they can position or reposition to best support the LF and maneuver to avoid counterbattery fire. Also, they are limited only by hydrographic conditions, are able to select the most favorable gun-target line (GTL), and can support widely separated beaches.

2. High rate of fire. If/when sufficient assets are available, NSFS delivers large volumes of precisely delivered ordnance on target in a relatively short period of time. A high rate of fire is particularly advantageous when delivering neutralization fires.

3. Flat trajectory. This enables an accurate attack of recessed forward slope targets, particularly those presenting a vertical face.

4. Narrow deflection. This allows effective fires on narrow, long-axis targets parallel to the GTL. Narrow deflection can also enhance close support if the GTL is parallel to the front lines of the LF.

5. Ordnance variety. This capability allows the spotter to select the most effective combination for the target being engaged.

6. Computerized gunfire control system (GFCS). These allow ships to fire accurately when underway. They provide a quick reaction time, and ships can observe targets under favorable conditions, thereby permitting direct fire.

7. Ammunition replenishment. NSFS ships' ability to conduct underway replenishment (UNREP) and vertical replenishment (VERTREP) enhances their ability to remain underway and prepared to carry out assigned missions.

8. Prolonged support. The ships are capable of remaining on station for a prolonged period of time to support advanced force operations, the actual landing, and subsequent LF movement to the objective.

4.7.2.3 Limitations of Naval Surface Fires

Potential limitations and methods of mitigating the impact of these limitations associated with NSFS include:

1. Ability to accurately fix ship's position. This is vital to achieving an accurate fire control solution in unobserved fires and initial salvos of observed indirect fires. To compensate for a possibly inaccurate ship's fixed position radar beacons, radar navigation or GPS may be used.

2. Ineffectiveness against defilade targets. High initial velocity and flat trajectory preclude destruction missions on entrenched targets. To compensate, ships reposition for a more favorable GTL or use reduced propellant charges and/or high-angle fire. Also, airbursts may be used to neutralize or interdict the target.

3. Excessive range dispersion. This may occur due to an initial salvo error caused by spotter error in target location and/or the ship's error in navigation. It may also occur if a prohibitive number of rounds are needed to engage point targets on flat terrain. Also, close supporting fires are not always possible, particularly when firing perpendicular to friendly troop lines where greater safety margins are required.

4. Hydrography. Ships require room to maneuver; however, those assigned to provide fire support are often a victim of self-imposed restrictions (e.g., FSAs). Moreover, shallow water and the presence of reefs, sandbars, mines, and other obstacles may force the ships into undesirable firing positions. Compensation techniques include careful chart analysis or conducting minesweeping and other advance operations.

5. Changing GTL. This problem may eventually lead to a masked target situation or firing perpendicular to front lines, which may cause cancellation of the fire mission. Compensation techniques include carefully controlling ships' movements within the FSA or signaling changes in the GTL (every 5 degrees to the SFCP).

6. Weather and visibility. Unfavorable weather may limit a ship's ability to navigate with sufficient accuracy. Also, unfavorable weather or visibility adversely affects the ability of NSFS spotters ashore to acquire targets and adjust fires.

7. Magazine capacity. The Spruance-Class destroyer and the Ticonderoga-Class cruiser have approximately 600 rounds per magazine. The Arleigh Burke–Class destroyer carries between 500 to 550 rounds in a single magazine. As dictated by the Commanding Officer's Standing Orders, a percentage of the ship's total ammunition will be retained for ship's self defense.

8. Communications. All NSFS communications are conducted via voice radio, which is susceptible to degradation. Also, the possibility of communications difficulties exists due to equipment failure, enemy jamming, poor atmospheric conditions, or ship or shore party movement. Techniques used to overcome these problems include having backup equipment available and conducting training in antijamming techniques and frequency management.

4.7.2.4 NSFS Spotting

Despite extensive use of computerized fire control systems, NSFS accuracy relies significantly on human input and corrections. Whether from an individual on the ground, in the air, aboard ship, or in a UAV, corrections are based on the spotter's line of sight and are input relative to the spotter.

4.7.3 Tomahawk Land-Attack Missile in a Supporting Arms Role

The survivability of the TLAM, its extended range, and warhead size make it a viable weapon for the fire support needs of forces in the field and SOF. The use of TLAM can also decrease the risks to TACAIR flying CAS missions. Especially in cases where the enemy retains significant AD artillery, the TLAM may be used in an integrated or coordinated role with TACAIR to neutralize fixed or stationary mobile sites.

The tactical Tomahawk weapon system (TTWS), with the TLAM Block IV or tactical Tomahawk (TACTOM), is the result of upgrades to the current Tomahawk weapon system. The tactical Tomahawk weapon control system (TTWCS) has been developed to handle TACTOM (and Block III) missions and missiles. TTWCS is the element of the TTWS installed in submarines and surface ships.

The TTP for TACTOM are still in development; however, this system is an important asset that must be incorporated into fire support planning in future amphibious operations. TTWS and TACTOM are discussed in greater detail in Appendix D.

4.8 INFORMATION OPERATIONS IN SUPPORTING ARMS

As defined in JP 3-13, Joint Doctrine for Information Operations, IO are actions taken to affect adversary information and information systems while defending one's own comparable systems. IO conducted during a time of crisis or conflict to achieve or promote specific objectives over a specific adversary or adversaries are referred to as IW. IW's primary role in the fire support mission is to disrupt enemy C2 functions to degrade their ability to respond with integrated combat strength. The following paragraphs delineate how special IW equipment suites and communications capabilities contribute to supporting fires.

4.8.1 Operational Information Warfare

Operational IW focuses on denying, disrupting, destroying, or otherwise controlling enemy lines of communication (LOCs), logistics, C2, and the capability to organize, command, deploy, and sustain military forces.

4.8.2 Tactical Information Warfare

Tactical IW focuses on denying, disrupting, destroying, and otherwise controlling enemy C2 and intelligence information and information systems directly related to the conduct of military operations.

4.8.3 Offensive Information Warfare Operations

Offensive IW operations are coordinated operations conducted by the supporting commander using specific theater procedures. Examples of offensive IW operations are discussed below, and additional details are found in NWP 3-13.2, Navy Information Warfare Commander's Manual.

4.8.3.1 Psychological Operations

PSYOP are operations that convey selected information to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of their governments. PSYOP are designed to induce or reinforce foreign attitudes and behaviors favorable to friendly objectives.

4.8.3.2 Electronic Warfare

EW is the use of electromagnetic and directed energy to control the electromagnetic spectrum or attack the enemy. Using nonlethal fires, EW assets augment the lethal firepower of aviation and sea-based fires. Forces can use detectors, direction finders, and jammers to locate hostile emitters and target them for lethal or nonlethal attack. EW attacks aid in the ingress and egress of AF rotary- and fixed-wing aircraft, and limit the enemy's ability to react to air or ground attack by jamming C3 and AD nodes. Three types of EW used in IW are:

1. EA employs electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment to degrade, neutralize, or destroy enemy combat capability. It includes actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum. This includes jamming and electromagnetic deception, and employing weapons that use electromagnetic or directed energy as the primary destructive mechanism (e.g., lasers, radio frequency weapons, and particle beams).

2. Electronic protection (EP) are passive and active measures taken to protect friendly personnel, facilities, and equipment from any effects of friendly or enemy employment of EW.

3. Electronic warfare support (ES) are actions taken to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning, and the conduct of future operations. ES provides information required for decisions involving EW operations and other tactical actions such as threat avoidance, targeting, and homing.

4.9 AVIATION FIRE SUPPORT PLANNING

Air planning for an amphibious operation is based on the following:

1. Mission of the supported forces (including the LF scheme of maneuver)

2. Intelligence estimate

3. Carrier- and land-based air forces available

4. Air support control forces and facilities available

5. Date of the operation.

4.9.1 Procedures

As soon as practicable after receipt of the initiating directive the following aspects of the support plan are developed:

1. Tentative scheme of maneuver prepared.

2. Rough drafts of the task organization prepared.

3. General COA selected by the commanders.

4. Subordinate commanders commence preparing estimates for air support requirements.

In general, these requirements are evaluated in terms of the ESG's or the AF's ability to carry out the mission with air elements organic to the force.

4.9.2 Consolidation of Aviation Requirements

The CATF, or the ESG AREC as the supporting commander, is responsible for consolidating all air support requirements. CLF, as the supported commander, is responsible for coordinating air subordinate unit support requirements and consolidating them into a comprehensive request. This is refined by the AFTB and submitted to the supporting commander.

Based on LF requirements and supplemented by requirements of other AF elements, CATF (through the TACRON or TACGRU) or the ESG AREC prepares an air operations plan that supports the entire AF. This plan is issued as a guide for subordinate commanders and planners.

4.9.3 Preliminary Air Operations

Preliminary air operations may be divided into two phases:

1. Air bombardment and reconnaissance operations conducted by land-based or carrier-based forces and initiated well in advance of the amphibious operation. Air operations are conducted under the direction of higher echelons of command.

2. Preassault operations conducted by carrier-based and/or land-based aviation units assigned to support the AF or ESG. Air operations conducted during this phase are a CATF or ESG AREC responsibility. The task of planning these operations may be given to the advance force commander. Details of preassault air operations are described in an AF air plan appendix.

4.9.4 Assault Air Operations

CATF and CLF will normally have continuing requirements for air operations during the assault phase of operations. The CATF needs OAS for the protection of ships and landing craft, continuous neutralization of enemy airfields, and elimination of enemy anti-aircraft defenses. The LF commander requires pre–H-hour beach neutralization as well as deep support and CAS. The LF must consider requirements for observation, spotting, photography, air transport, smoke, PSYOP, and other special missions.

4.9.5 Offensive Air Support

OAS is generally considered to refer directly to strike warfare (SW).

OAS is defined in MCWP 3-23, Offensive Air Operations, as "those air operations conducted against enemy installations, facilities, and personnel to directly assist the attainment of AF objectives by the destruction of enemy resources or the isolation of his military force." This support may be divided into CAS and deep operations referred to as DAS.

4.9.5.1 Direct Air Support

Per MCWP 3-23, DAS is defined as "air action against enemy ground targets at such a distance from friendly forces that detailed integration of each mission with the fire and movement of LF troops is not required." It should be noted that "fire and movement" implies a maneuver unit. While not always the case, missions where special warfare teams provide terminal guidance generally fall into the "deep" category. Missions requiring detailed coordination between movement of troops on the ground and fires units in the area of operation are considered CAS.

DAS may be further divided into air interdiction (AI) and armed reconnaissance (AR). Per JP 1-02, AI is "air action to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against LF troops." AR is "a mission with the primary purpose of acquiring information by employing visual observation and/or sensors in air vehicles." Unlike AR, AI involves fixed targets, and may not be deliberately targeted. AI involves minimal additional coordination when conducted in support of the scheme of maneuver.

4.9.5.2 Close Air Support

Because sea- and ground-based supporting fires lack the capability to produce heavy indirect fires, the shock and violence associated with CAS provide a significant impact in supporting arms missions.

CAS is defined in JP 1-02 as "air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces." CAS requires strict management of aircraft through Type 1, 2, and 3 terminal attack control (TAC). Even then, specific criteria must be met for clearance to drop or fire, and the LF maneuver commander may prohibit ordnance delivery. The maneuver commander will typically be the person that must answer the questions, "how close is close proximity?" and "does it require detailed integration?" The answers are normally published in the form of OPORD fire support coordination instructions. Additionally, the LF routinely publishes, cancels, and changes FSCMs. These measures depict borders for, and between, friendly units, and establish control criteria for all supporting arms.

4.9.5.2.1 Types of CAS Terminal Attack Control

Recent technological advances in aircraft capabilities, weapons systems, and munitions have provided additional tools to maximize the effects of fires while minimizing the risk of fratricide during CAS missions. As discussed in JTTP 3-09.3, JTTP for Close Air Support (CAS), the following terminal attack control procedures exploit advances in technology. FACs broadcast the type of control in use upon aircraft check-in.

1. Type 1. The type of control used when risk assessment requires the FAC to visually acquire the attacking aircraft and the target. Ability to operate in adverse weather, aircrew capability, troops in contact situations, or language barriers when controlling coalition aircraft are examples when visual TAC is the method of choice. Unless stated otherwise by the FAC, Type 1 is the default method of control.

2. Type 2. The type of control used when the FAC desires control of individual attacks, but assesses that either visual acquisition of the attacking aircraft or the target at weapons release is not possible. It may also be used when attacking aircraft are not in a position to acquire the target prior to weapons release.

3. Type 3. The type of control used when the tactical risk assessment indicates CAS imposes a low risk of fratricide. When commanders authorize Type 3 control, FACs grant a "blanket" weapons release clearance to aircraft attacking targets within parameters imposed by the FAC. Observers may be equipped and in position to provide terminal guidance to attack aircraft, while the FAC monitors radio transmissions and other available digital information to maintain control of the attacks. The FAC maintains abort authority throughout the attack.

Because there is no requirement for the FAC to visually acquire the target or attack aircraft in Type 2 or 3 control, FACs may be required to coordinate CAS attacks using targeting information from an observer. An observer may be a scout, UAV, SOF, or other C4ISR assets with real-time targeting information. The FAC maintains control of the attacks, making clearance or abort calls based on the information provided by other observers or targeting sensors.

4.9.6 Aviation Planning by the Landing Force

The initiating directive designates the aviation forces available for the projected amphibious operation. An estimate as to how these forces may be employed is necessary to determine the initial broad AF COA. This estimate includes whether LF aviation can be pre-positioned and the availability of airfields that might be considered AF objectives. The CLF, as the supported commander, should be provided an estimate of how aviation relates to the proposed COAs. After the CLF has chosen a COA and developed a CONOPS, a detailed estimate of air support requirements must be made. When coordinated and consolidated with a similar NSFS estimate and compared against capabilities, the CLF can determine the overall requirement for preassault bombardment.

4.9.7 Pre–D-day Operations

LF requests for preassault air operations are based on all intelligence available relating to the enemy. This includes dispositions, defenses, terrain, LOCs, and capabilities. The extent of such operations depends on an overall decision on limitations to be imposed in order to achieve surprise. The request submitted to the CATF and/or ESG AREC provides missions to accomplish such as:

1. Destruction of enemy installations

2. Tactical air reconnaissance

3. Harassment

4. Psychological warfare.

4.9.8 D-day Air Operations

LF requirements for D-day air operations include:

1. Pre–H-hour attacks. Executed to neutralize the surface and helicopter landing zones prior to and during ship-to-shore movement. While planning these attacks, attention must be given to coordination with NSFS plans, since both aircraft and NSFS ships may execute the neutralization task. Air attacks are scheduled to fill interruptions in NSFS, and the direction of attacks should be planned to cause minimum interference with shore bombardment.

2. D-day air alert call mission flights. In establishing the requirements for these flights, consideration must be given to airspace limitations, size of helicopter assault operations, capabilities of the control system, nature of the terrain in the beach area, and types of targets located or anticipated immediately after landing.

4.9.9 Post–D-day Air Operations

Post–D-day operations, in general terms, include requirements for CAS, observation, photography, spotting, PSYOP, night harassment, transport, etc.

4.10 GROUND-BASED FIRE SUPPORT PLANNING

Ground-based fire support comes under the cognizance of the MAGTF. The two principal ground-based assets available to the LF commander are field artillery and mortars.

4.10.1 Field Artillery

The mission of artillery is "To furnish close and continuous fire support by neutralizing, destroying, or suppressing targets that threaten the mission accomplishment of the supported command, the MAGTF." The three key tasks performed by the artillery are also detailed in paragraph 1.4.5.3.2.

4.10.2 Artillery Capabilities

Examples of artillery capabilities in supporting arms include:

1. Massing and shifting fires. The ability to concentrate the fires of several batteries or battalions on targets within a large area on a wide front without physically displacing the cannons themselves.

2. All weather conditions employment.

3. Mobility. Artillery can rapidly emplace, fire, and displace to support the maneuver force.

4. Digital C2. AFATDS, a digital artillery and fire support C2 system, is being developed to allow for faster transfer of large volumes of information. AFATDS is discussed further in Appendix D.

5. Ammunition variety. The ability to tailor the application of specific ordnance to specific missions.

6. Defilade. Artillery can occupy defilade positions, which are positions protected from hostile observation and fire by artificial obstacles or natural obstacles such as hills, ridges, or banks. Artillery can also deliver fire into defilade positions that direct fire weapons have difficulty hitting. This capability increases the survivability of the unit by masking the large firing signature.

7. Target acquisition. Field artillery has target acquisition systems organic to the equipment and possesses a state of the art weapons location radar (AN/TPQ-46) with a primary mission to locate enemy mortar, artillery, and rocket firing positions. The radar develops accurate grid locations of enemy indirect fire weapons

that can be turned into targets for counterbattery missions. Artillery also has organic FOs and NSFS spotters acting as collection sensors on the battlefield.

8. Firing without adjustment. Technological advances have improved initial accuracy of fires.

9. Destruction of point targets.

10. Direct fire.

11. Battlefield illumination.

12. SEAD. Artillery routinely marks and suppresses targets for CAS aircraft.

4.10.3 Artillery Limitations

Examples of artillery's limitations regarding supporting arms include:

1. Late participant in the initial phase of the amphibious operation. Normally artillery must wait offshore in on-call waves until the assault forces have advanced far enough inland to uncover adequate firing positions. Typically, until infantry has advanced well inland, artillery units are in exposed positions.

2. Displacements. Artillery is most vulnerable and least responsive when on the move.

3. Vulnerability to air attack and counterfire.

4. Logistic challenge. During high-intensity combat, the logistical capacity of the force may be heavily taxed.

5. Close combat. Firing units engaged in battery defense may not be able to effectively support calls for fire.

6. Mountainous terrain. Observation of fires in mountainous terrain is difficult.

7. Exposed initial positions. During amphibious assaults, exposed initial position areas increase vulnerability to direct and indirect weapons systems.

4.10.4 Field Artillery Tactical Missions

These missions are defined in paragraph 1.4.5.3.2.

4.10.5 Mortars

The primary mission of mortars is "to provide immediately available, responsive, indirect fires in support of the LF scheme of maneuver." Mortars also reinforce direct fire during close combat.

4.10.5.1 Command and Control of 81-mm and 60-mm Mortars

A mortar platoon may be given GS or DS missions, or it may be attached to a subordinate unit. These types of support are generally the same for both types of mortars. GS and DS are defined in paragraph 1.4.5.3.2.

4.10.5.2 Mortar Characteristics

Understanding the mortar characteristics listed below is critical to successful employment.

1. Weapons and ammunition. 81- and 60-mm mortar platoons employ eight and three mortars respectively. Attributes of mortar platoons include:

a. Ability to provide heavy volumes of responsive, accurate fire

b. Ability to employ a variety of ammunition

c. Ability to attack close-in targets, targets on reverse slopes, and targets in areas difficult to reach with low-angle fire

d. Ability to provide white phosphorous and illumination support.

2. Mobility. Units can be transported by wheeled and tracked vehicles, helicopters, or LF personnel in terrain where vehicular support is restricted. However, in a fast-moving operation, the mobility of mortars, coupled with a limited range capability, may be a restrictive factor. Mortars can also be fired from a light armored vehicle (LAV).

3. Massing. Mortar fires can be massed on a target, but due to limited range, massing of mortar fires outside the zone of action of the mortar unit may be difficult.

4. Responsiveness.

5. Vulnerability and continuity. The high angle trajectory and long flight times make mortars vulnerable to enemy counterfire. Active and passive measures are used to increase survivability.

6. Sustainability. Because mortar ammunition may have to be packed by hand, sustainment may be difficult.

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CHAPTER 5

Targeting

5.1 PURPOSE

Targeting is the process of selecting targets and matching the appropriate response to them, taking into account operational requirements and capabilities. It is a continuous decisionmaking process that begins with receipt of a mission and continues through plan development and execution. The purpose of this chapter is to discuss the manner in which the targeting process is integrated into the overall planning and tactical decisionmaking process, identify the agencies charged with integration, and highlight the four-step targeting methodology.

The AF normally forms an integrated targeting board, the amphibious force targeting board (AFTB), to provide broad fire support and targeting oversight. This oversight may include coordinating desired effects, providing targeting guidance and priorities (i.e., targeting objectives, HVTs, and HPTs), identifying no-strike, restricted, or prohibited targets, preparing the AFTL, evaluating the effectiveness of fires, and establishing and shifting FSCMs.

5.2 TARGET DEFINITIONS

As defined in JP 3-60, Joint Doctrine for Targeting, a target is "an area, complex, installation, force, equipment, capability, function, or behavior identified for possible action to support the commander's objectives, guidance, and intent." Targets fall into two general categories: planned and immediate. A target's importance is derived from its potential contribution to achieving the commander's military objective(s). The following paragraphs identify and discuss the most commonly identified targets.

5.2.1 Planned Targets

Planned targets are those known to exist in an operational area and against which effects are scheduled in advance or are on call. Examples range from targets on joint target lists (JTLs) in the applicable OPORD to targets detected in sufficient time to list in the ATO, mission-type orders, or fire support plans. Planned targets have two subcategories: scheduled or on call.

5.2.1.1 Scheduled Targets

Planned targets where fires are scheduled for engagement at a specific time.

5.2.1.2 On-Call Targets

Planned targets known to exist in an operational area that are located in sufficient time to be considered during deliberate planning.

5.2.2 Immediate Targets

Targets that were identified too late or not selected for action in time to be included in the normal targeting process, and therefore have not been scheduled. Immediate targets have two subcategories: unplanned and unanticipated.

5.2.2.1 Unplanned Immediate Targets

Targets that exist in an operational area, but are not detected, located, or selected for action in sufficient time to be included in the normal targeting process.

5.2.2.2 Unanticipated Immediate Targets

Targets that are unknown or not expected to exist in an operational area but, when detected or located, meet criteria specific to campaign objectives.

5.2.3 Time-Sensitive Targets

Time-sensitive targets (TSTs) are those requiring an immediate response because they pose (or will soon pose) danger to friendly forces, or are highly lucrative, fleeting targets of opportunity. TSTs are governed by distinctive ROE to facilitate rapid engagement. The CATF or ESG commander, in consultation with the CLF, determines those situations, if any, where immediate engagement of a TST outweighs other operational considerations. The commander's guidance is dependent on the current situation, phase of the campaign, enemy capabilities, intelligence updates, and potential for friendly casualties, collateral damage, or duplication of effort, etc. The guidance may be changed or updated, as the CATF or ESG commander deems necessary. Component commanders who first acquire specified TSTs may be specifically delegated the authority by the CATF and/or ESG commander for immediate engagement responsibility regardless of their assigned area of operations or mission. Examples of TSTs include:

1. Weapons of mass destruction (WMD) being deployed from known storage areas
2. Known or suspected theater ballistic missiles (TBMs) with WMD payloads
3. Antiship cruise missile (ASCM) batteries during amphibious operations
4. High-threat SAMs
5. A bridge that must be destroyed to trap a retreating enemy force
6. A large tank formation moving toward friendly units.

TSTs are discussed in detail in Appendix C.

5.3 DEFINITION OF TARGETING

For purposes of this publication, targeting is the process of selecting and prioritizing targets within the AF's operational area and matching the appropriate component responses to them, considering operational requirements and capabilities. The targeting process includes the following steps:

1. The integration and coordination of land, sea, air, space, and SOF assets in the target detection and engagement cycle.
2. The integration of intelligence on the threat, target system, and target characteristics with operations data on force posture, capabilities, weapons effects, objectives, ROE, and doctrine.
3. The matching of objectives and guidance with inputs from intelligence, logistics, operations, and communications to identify forces necessary to achieve objectives.
4. The examination of all lethal and nonlethal applications of force. Levels of force can include all applications from nuclear to conventional force as well as EW, space, and special operations.

5. The identification of the best weapon for the intended target with appropriate timing to meet the commanders' established objectives.

The appropriate ESG warfare commander and CATF, in coordination with the CLF, are responsible for preparing and promulgating the target list. All available target data is collected in the AFIC and/or the ESG intelligence center. These centers provide target data to the SAC, who develops the target list. The LF commander and TAO provide lists of targets that should be destroyed or neutralized, and assist the SAC in preparing the target list. The SAC assigns classification and priorities to the targets, and the CATF approves the target list.

5.4 TARGETING PROCESS DOCUMENTS

5.4.1 Air Support Request

The air support request (AIRSUPREQ) is used to request preplanned and immediate CAS, interdiction, reconnaissance, surveillance, escort, helicopter airlift, and other aircraft missions.

5.4.2 Allocation Request

The allocation request (ALLOREQ) is used by air-capable components to provide the JFACC, TAO, or ESG AREC (afloat) with an estimate of the total air effort, identify any excess or force general support aircraft sorties, and identify unfilled air requirements.

5.4.3 Operational Fires and Air Apportionment Message

The operational fires and air apportionment message (OFAAM) provides components of the ESG and AF with special targeting guidance for a particular ATO period. It is recommended by the joint fires element (JFE) and approved by the deputy commander, joint task force (CJTF) at the AFTB. The OFAAM is discussed in greater detail in paragraph 5.5.5.3.

5.4.4 Air Tasking Order

The ATO is produced by the JFACC (when established) or the TAO or ESG AREC (afloat) to:

1. Schedule interdiction assets to attack selected targets, and/or schedule assets to be on alert and prepared to provide fire support and/or attack targets

2. Schedule all other air-space users, such as CAS, reconnaissance, and lift aircraft

3. Provide for airspace deconfliction

4. Promulgate any SPINS necessary for ATO execution.

5.4.5 Sortie Allotment

The sortie allotment message (SORTIEALOT) is used to provide a means by which the JFACC, TAO (afloat), TACRON, or ESG AREC approves the air employment and allocation plans of air-capable components. It is also used to fill air-capable component requests for available sorties identified in ALLOREQs.

5.4.6 Target Bulletin

The TARBUL is produced by the CATF's targeting section. It is used by the AF to provide interested commanders with a continuous update to the list of active or potential targets that may be attacked (or no-strike targets that will not be attacked) by elements of the AF. This bulletin is also used to update the AFTL.

5.4.7 Target Information Report

The target information report (TGTINFOREP) is used by the components to recommend additional targets for the AFTL, nominate new targets for attack coordination or deconfliction, submit post-strike assessment information, and report data changes to existing targets on the JTL. It is normally submitted to the JFE targeting section.

5.5 AMPHIBIOUS FORCE TARGETING BOARD

The AFTB is an assembly of the AF and ESG fire support specialists convened to standardize the target process and information management. Board members are acquisition, delivery, and assessment experts. The chairman is the CATF or a designated representative.

5.5.1 Purpose

During amphibious operations, the targeting board accomplishes actions for the ESG commander, CATF, and CLF through personnel from the AFIC, TIC, ESG intelligence center, SACC, and TACC. The AFTB is normally formed by the JFC, but may be formed by the CATF, CLF, or the ESG commander, to accomplish broad targeting oversight functions. These functions may include, but are not limited to, coordinating targeting guidance and priorities and preparing and/or refining JTLs. The AFTB is normally composed of representatives from the ATF, the LF, the ESG, and all other components participating in the operation, and, if required, component subordinate units. The AFTB meets daily to review each component's plan for the employment of fires, and to act as the integrating center for targeting oversight. The board:

1. Provides guidance to the JFC, CATF, and/or ESG commander
2. Promulgates approved targeting guidance
3. Ensures that component targeting efforts are consistent with the commander's guidance and priorities
4. Ensures that conflicting component requirements are addressed in the prioritization process
5. Recommends approval of the AFTL
6. Submits the apportionment recommendation for operations to the JFC for approval
7. Provides draft targeting guidance for operations to the JFC for approval.

5.5.2 AFTB Organization

5.5.2.1 AFTB Leadership and Membership

The AFTB is normally chaired by the deputy-supported commander, but may be chaired by a designated representative. All components of the ATF, ESG, and LF, and key staff principals (i.e., Intelligence, Operations, Plans, and Staff Judge Advocate (SJA) are represented. Advisors may also represent national agencies (i.e., political advisor (POLAD), DIA, National Security Agency (NSA), Central Intelligence Agency (CIA), etc.) on an as required basis.

5.5.2.2 AFTB Working Group

The AFTB working group (WG) is an optional, subordinate working group normally chaired by the AFTB preparation officer. It is composed of action officers and component representatives and is a forum for the discussion and development of draft products for submission to the AFTB. It is also designed to expedite the AFTB approval processes.

5.5.2.3 AFTB Tasks

Specific tasks, assigned in the establishing guidance, may include, but are not limited to:

1. Reviewing and integrating operational-level targeting efforts
2. Recommending future guidance to the CATF or ESG commander, updating the combat assessment (CA), and advising on ROE and law of armed conflict (LOAC)
3. Reviewing the AFTL, and then recommending the designated commander's approval
4. Disseminating approved targeting guidance and priorities to component commands and staff via the AFTL message or AFTB decision message
5. Recommending approval of the apportionment recommendation for operations
6. Ensuring deconfliction of targeting
7. Recommending approval of (or approving if so designated) the restricted target list (RTL) and no-strike list (NSL)
8. Resolving conflicting components' targeting requirements.

5.5.3 AFTB Agenda

An AFTB agenda typically includes the following steps.

5.5.3.1 Amphibious Force Operations Update

During this initial step, the following actions take place:

1. Review of the targeting effort to date (predicted vs. actual)
2. Review of the operations plan for the current cycle
3. Estimates of enemy and friendly activities
4. Briefs of major changes to the ROE.

5.5.3.2 Component Backbriefs

In this step the components brief the board on the following aspects of their assigned missions:

1. Targeting effort to date
2. Operations plan for the current cycle
3. Future operations
4. Requirements for joint fires
5. Unresolved coordination issues.

5.5.3.3 Amphibious Force Target List Review

Due, in part, to the necessity to continually refine the targeting process, the AFTB reviews the draft AFTL and resolves conflicting requirements.

5.5.3.4 Apportionment Recommendations

To ensure prudent apportionment of assets and sorties, the AFTB agenda includes a review of apportionment recommendations and resolution of conflicting targeting requirements.

5.5.3.5 Coordination

The SAC announces changes to the time-sensitive target lists (TSTLs), RTLs, NSLs, and no-fire area (NFA)/restricted fire area (RFA) list. During this session, board members should raise future operations issues, concerns, and support requirements. This part of the briefing is particularly useful for coordinating upcoming special and information operations, PSYOP themes, FSCM recommendations, etc. This is the portion of the briefing where coordination, deconfliction, and synchronization actually begin.

5.5.3.6 Targeting Guidance

The SAC presents the draft guidance and objectives message to the AFTB for comment.

5.5.3.7 Comments From the Chair

The deputy-supported commander issues guidance and delivers instructions not covered elsewhere in the meeting.

5.5.3.8 AFTB Decision Message

The AFTB chair collates meeting results and provides this information to component and supporting forces via the AFTB decisions message. These results may be combined with the OFAAM.

All AFTB decisions are actually recommendations that require approval. Immediately following the AFTB, the SAC must present an executive summary of the meeting to the CATF or ESG commander and request approval on the following items before preparing the AFTB decision message:

1. AFTL
2. Apportionment recommendation
3. Commander's guidance
4. Changes to the TSTL
5. NSLs and RTLs
6. Changes to FSCMs.

5.5.4 Four-Step Tactical Targeting Methodology

The decide, detect, deliver, and assess (D3A) sequence is used to drive the targeting process. Moreover, the sequence is used to conduct the conceptual planning and make the broad functional decisions necessary to develop a concept of fires. Targeting must be completely integrated into the fire support planning process. Detailed fires planning and coordinating is conducted by functional agencies such as the SACC, LF FFCC, and FSCCs. More detailed explanations of each element of the targeting sequence are available in FMFM 6-18, Techniques and Procedures for Fire Support Coordination, MCWP 3-16, Fire Support Coordination in the Ground Combat Element

(GCE), and Chapter 2. Each step in the sequence must answer the questions contained in the following paragraphs.

5.5.4.1 Decide

Attempts to answer and resolve the following questions and issues:

1. What enemy formations, facilities, and capabilities requireattack with fires?
2. What must be done to these targets to deny them to the enemy?
3. What objectives must be achieved to support the concept of operations?

5.5.4.2 Detect

Attempts to answer and resolve the following questions:

1. How and where will enemy formations, facilities, and capabilities be found?
2. Where can they be best attacked to achieve the required objectives?

5.5.4.3 Deliver

Attempts to answer and resolve the following questions:

1. What assets will be used to attack?
2. What is the best time to attack?

5.5.4.4 Assess

Attempts to answer and resolve the following questions:

1. What defines success?
2. How will success be assessed?
3. If the desired effect is not achieved, what is the best way to reattack the target and evaluate the effectiveness of the reattack?

5.5.5 Targeting Cycle

The targeting cycle is not time dependent, and steps may occur concurrently. However, it provides a helpful mechanism to describe the steps required to conduct successful targeting.

5.5.5.1 Planning, Decision, Execution Cycle

The AFTB operates on this continuous planning, decision, execution (PDE) cycle. Under direction of the AF TIO and the MAGTF TIO, the TIC helps plan future operations by incorporating D3A tactical targeting methodology using the six-step targeting cycle depicted in Figure 5-1.

5.5.5.2 Mission, Intent, Priorities, and Objectives

The CATF's or ESG commander's guidance can be described in the following mission, intent, priorities, and objectives (MIPO) terms:

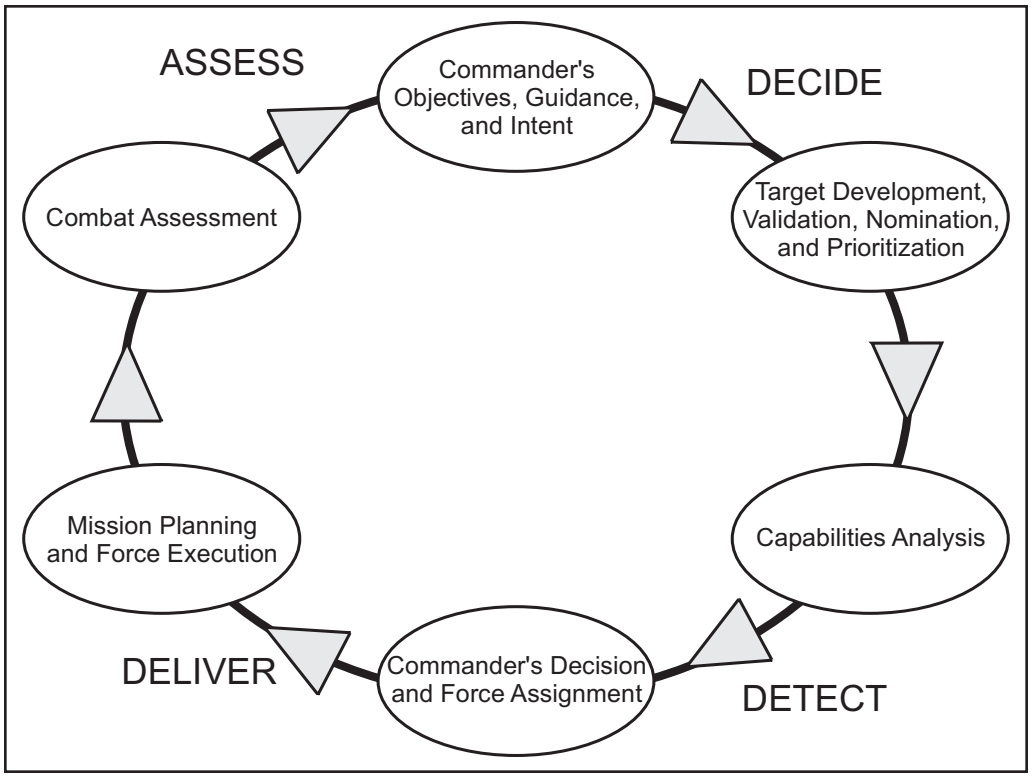


Figure 5-1. Targeting Cycle

1. Mission. Per the OPORD and as subsequently changed in FRAGORDs.

2. Intent. The commander's intent to achieve the mission endstate.

3. Priorities. The main effort, supporting effort, and priority of fires for a specific ATO cycle.

4. Objectives. The specific objectives for the same ATO period addressed in priorities.

5.5.5.3 Operational Fires and Air Apportionment Message

The OFAAM provides AF and ESG components with more specific targeting guidance for a particular ATO cycle and serves as a tool to coordinate the targeting efforts of all AF and ESG elements. This document is composed of six parts: the MIPO; component objectives, priority task and operational targeting categories, guidance for air assets, to include intent, apportionment guidance, long-range ATO guidance, and excess sortie availability; NFAs; RFAs; TARBULs; and supplemental ROE. The AFTB approves the MIPO and the OFAAM, which is derived from the guidance provided by the MIPO to support the CATF's or ESG commander's mission. Certain elements of the OFAAM form the basis for ATO development.

5.5.5.4 Air Tasking Order Cycle

The ATO development cycle is critical to supporting arms coordination because a large proportion of operational fires is delivered by air. The ATO drives the conduct of air operations; therefore, a thorough understanding of the ATO cycle, and the role of the JFACC, the TAO (afloat), or the ESG AREC is essential to effective targeting.

5.5.5.4.1 Phase 1 — Commander, Amphibious Task Force/Expeditionary Strike Group Commander's Mission, Intent, Priorities, and Objectives

The targeting process begins with a statement of the mission, intent, priorities and objectives to focus the targeting effort and clearly define what constitutes military success. This guidance governs the selection of targeting priorities, helps structure maneuver and fire support measures, and guides the apportionment of air support. The TIC also uses this guidance to produce the OFAAM.

5.5.5.4.2 Phase 2 — Target Development

The AFIC, ESG intelligence center, TIC, and AF components use the CATF/ESG commander's guidance (i.e., MIPO), along with component inputs, to focus target development. The TIC then develops the OFAAM and the AF TARBULs. The deputy-supported commander at the daily AFTB approves the OFAAM.

5.5.5.4.3 Phase 3 — Assignment of Targets to Weapons Systems (Weaponeering)

Based on the OFAAM, direct support plans for subordinate air units and air-capable service components, and joint sorties available, the JFACC, TACRON, and/or designated ESG warfare commander's targeting cell identifies, prioritizes, and selects specific targets for incorporation into the MAAP. Specific targets come from the JTL and AIRSUPREQs submitted to the JFACC, TAO (afloat), or ESG AREC.

With input from representatives of each component, the JFACC, TACRON, and/or designated ESG warfare commander's targeting cell selects the specific targets for inclusion in the MAAP. The JFACC, TAO (afloat), and/or designated ESG warfare commander's LNO to the AFTB briefs the targets selected for inclusion on the ATO.

This process is normally accomplished at the AFTB the day prior to ATO execution. The MAAP assigns weapons systems to targets, and provides a tentative attack sequence and time slots for attack.

5.5.5.4.4 Phase 4 — ATO Shell Development

Based on the MAAP, the JFACC's Plans Division, the TACRON, or the ESG AREC develops an ATO shell for final JFACC, TAO (afloat), and designated ESG commander's approval. This is accomplished in conjunction with subordinate air units, LNOs from air-capable components, missile-capable units, SOF, aviation units, EW organizations, PSYOP units, and other assets.

5.5.5.4.5 Phase 5 — ATO Publication (With Special Instructions)

The ATO (with SPINS) provides several levels of detail.

1. Airspace control authority and area air defense commander (AADC) instructions. The airspace control authority and the AADC provide all airspace users with instructions that permit combat operations without undue restrictions. The AADC directs and enforces aircraft identification and engagement TTP appropriate to the nature of the threat, friendly air traffic volume, AD, identification, friend or foe (IFF) technology, weather, and enemy capabilities. Airspace control authority and AADC instructions are published in monthly and weekly SPINS, as well as daily ATOs with SPINS.

2. JFACC schedules and instructions. The JFACC, TAO (afloat), or ESG AREC portion of the ATO with SPINS provides operational tactical direction. Where multibased, multiservice, and/or composite missions are tasked, the JFACC TAO (afloat) or ESG AREC provides all of the operational, and many of the tactical, details of the missions. In the case of single service, single base packages, and surface (ground/naval) forces direct support, LNOs ensure that the details are accurate and complete.

3. ATO scope. The entire air effort is included in the ATO and is transmitted to individual component supporting elements. It provides a formatted tasking.

5.5.5.4.6 Phase 6 — Force Execution

The JFACC, TAO (afloat), or ESG AREC monitors and coordinates ATO execution. The AFTB also monitors ATO execution via the JFE. AF components execute the plan and recommend execution day changes as necessary. The JFACC, TAO (afloat), or ESG AREC, in conjunction with the JFE, implements execution day changes to meet emergent component requirements.

5.5.5.4.7 Phase 7 — Combat Assessment

The amphibious force intelligence officer (AFIO) directs the overall CA effort. Effective campaign planning requires continuous evaluation of the impact of AF operations on the campaign. The CA process begins at the component level. For air operations, the JFACC or TAO (afloat) leads the CA effort and submits a consolidated report to the AFIC for inclusion in the overall analysis of BDA.

1. The JFACC, TAO (afloat), or designated ESG warfare commander has a CA CONOPS that includes BDA, munitions effectiveness assessment (MEA), and restrike recommendations. It considers force assets employed, munitions, and attack timing in relation to the resulting effects against the specific targets attacked, target systems, and remaining enemy capabilities.

2. Future enemy COAs and remaining enemy combat capabilities are weighed against established CATF and/or ESG commander targeting objectives to determine future targeting priorities. These assessments are forwarded to the CATF and/or ESG commander for compilation with the assessment of other component's operations and intelligence officers to determine overall campaign success and recommend COA changes. The AFIC and/or ESG intelligence center develops and executes an ongoing, overall CA program using component and other inputs to provide the JFE targeting section with accurate targeting data.

5.5.5.4.8 Targeting Cycle Without an ATO

Limited air operations may be conducted with a flight schedule issued by the TAO or ESG AREC vice an ATO. The OFAAM becomes the focus of the AFTB when an ATO is not published.

5.5.6 Amphibious Force Target List

The AFTL is a prioritized listing of targets that is developed, maintained, and disseminated by the AFIC, ESG intelligence center, and CATF/JFC targeting cell. It is disseminated via the TARBUL.

In the deliberate planning process, the AF targeting cell (within the AFIC) in conjunction with ESG targeting personnel (within the ESG intelligence center) creates an initial list of targets, which becomes a part of the CATF's OPLAN. This list is developed through analysis of information within available databases as well as the commander's campaign plan.

Development of the initial AFTL is the responsibility of the AFIC in conjunction with the ESG intelligence center. Defining the parameters of the AFTL is a combined effort between the AF operations and intelligence officers. Target lists, such as the RTL, the AFTL, the joint integrated prioritized target list (JIPTL), subordinate target lists, etc., are identified for use by the CATF or the ESG commander. It is imperative that there are responsive and verifiable procedures in place for additions or deletions to the target lists.

5.5.6.1 List of Targets

A generic list, which is a tabulation of all the possible confirmed or suspected targets for a certain plan, is developed first through intelligence analysis of the plan and the area of operations. This list is maintained by any echelon for informational and fire support planning purposes. It encompasses virtually all installations or facilities that could be interpreted to have any military significance.

5.5.6.2 Target List

The target list is maintained and promulgated by the senior echelon of command. It is a list of targets against which military action is planned. The AF and ESG intelligence and operations officers develop the target list from the list of targets after careful review. They determine which targets from the list of targets should be serviced to meet the commander's objectives. This list is the baseline for the development of the AFTL.

5.5.6.3 AFTL Development and Maintenance

The AFIC, ESG intelligence center, and AF targeting cell use the applicable OPLAN/CONPLAN to create the initial AFTL, taking into account the operations area, LOAC, ROE restrictions, and planned COAs. In the unforeseen situation where an OPLAN or CONPLAN does not exist, this process is similar but compressed (e.g., the list of targets is drawn from various databases utilizing available targeting resources). Development of the AFTL requires continuous liaison and coordination with and among the AF and ESG staff components. The AFTL is approved by the CATF or ESG commander, based on CLF and other component input. Once built, changes are made by the TIC, and the list is maintained in coordination with the SACC.

5.5.7 No-Strike List and Restricted Target List

The AFIC, ESG intelligence center, and TIC, in conjunction with other components, develop the AFTL as the basis for all other target lists. The TIC, in coordination with the AF/ESG SJA and components, then develops and maintains the NSL and RTL based on the mission objectives and commander's guidance. Once the target list has been developed (a target list is never finalized; it is a living document), the NSL and RTL can be developed.

5.5.7.1 NSL

The NSL is a list of geographic areas, complexes, or installations not planned for capture or destruction. Attacking these may violate cultural and religious sites or damage friendly relations with indigenous personnel or governments. Criteria for inclusion on the NSL include those installations and facilities, sites, etc., that are protected by the LOAC, international treaties, ROE, etc. Candidates for this list are nominated by AF and ESG components and staff elements, or they are directed by the CATF or ESG commander. Requests for exceptions will be submitted to the CATF or ESG commander, as appropriate, for coordination with higher authority as required.

5.5.7.2 RTL

The RTL is composed of targets nominated by AF and ESG elements or other components, and approved by the CATF, CLF, and/or the ESG commander. This list also includes restricted targets as directed by higher authority. When targets are restricted, nonlethal options should be considered as a means to achieve or support the commander's desired objectives.

5.5.8 High-Value Target List and High-Payoff Target List

The HVTL is a list of targets that are essential to the enemy's success. The HPTL is a subset of the HVTL. The HPTL is a list of targets that, if attacked, will contribute to the AF's success. In some operations, the AF's efforts are directed exclusively against the enemy's forces. For a variety of reasons, attacking the physical structures of installations and facilities may not be necessary or authorized. In these cases, the principal targeting document will be the HPTL. The HVTL is developed by the AFIC with the assistance of the ESG intelligence center during IPB. The HPTL is developed by the TIC during COA wargaming.

5.5.9 Combat Assessment

The CA process should be supported by all components and designed to determine if the required effects on the enemy envisioned by the CATF are being achieved. CA addresses the effectiveness of the operations for tasked or apportioned missions, and directly impacts the CATF's apportionment nominations and decision. CA is composed of three interrelated parts: BDA, MEA, and future targeting, or reattack recommendations.

5.5.9.1 Battle Damage Assessment

BDA is the complementary activity to the selection of targets performed during the target development phase. It is performed in three phases, from microlevel examination of the target to ultimately arriving at the macrolevel conclusions regarding engagement outcomes. To support this analysis, the CATF or ESG warfare commander must establish a baseline set of target system damage criteria and MOE. These criteria and MOE are required to maintain a standard measure of targeting effectiveness. The first phase examines the outcomes at the specific targeted elements, the second phase estimates the functional consequences for the components of the targeted system, and the third phase projects results on the overall functioning of the target system and the consequent changes in the enemy's behavior. The purpose of BDA is to compare what was actually accomplished against a target and what the target development process determined should have been accomplished when the targeting options were being formulated. The goal of BDA is to achieve results at reduced effort, risk, and cost. A critical ingredient for effective BDA is a detailed familiarity with all aspects of the analysis in the target development phase of the targeting cycle shown in Figure 5-1. This analysis justifies the chosen targets and their linkage to the commander's objectives and guidance.

5.5.9.2 Munitions Effectiveness Assessment

MEA is an activity that corresponds to BDA. MEA directs its assessment to poststrike studies of how capabilities were performed and the methods in which they were applied. It complements the estimated analysis of capability assessment by examining the evidence after attacks to determine whether weapons and weapon systems performed as expected. The purpose of MEA is to compare the actual effectiveness of the weapon employed to anticipated effectiveness calculated during the capability assessment phase of the targeting process. The results of MEA support near-term improvement in force employment tactics and techniques (by predicting weapon/target interface) and long-term improvement in lethal and nonlethal capabilities.

5.5.9.3 Future Target Nominations and Reattack Recommendations

Recommendations are generated based on merging the picture of what was done (BDA) with how it was accomplished (MEA) and comparing the result with predetermined MOE that were developed at the start of the targeting process. The purposes of this phase are to determine the degree of success in achieving objectives, formulate any required follow-up actions, or to indicate readiness to move on to new tasks that lead to the achievement of overall CATF objectives.

CHAPTER 6

Execution

6.1 PURPOSE

Amphibious operations above the PHIBRON/MEU level are among the most complex of military operations, and are often conducted by forces that have been assembled shortly before an operation begins. Therefore, effective fires execution and operational success require a thorough, common understanding of standard fire support coordination procedures by all participating forces. Regarding fires execution, AF and ESG staffs may have only hours, minutes, or sometimes seconds to decide and act. Execution is a complex process of analyzing, allocating, and scheduling fire support to effectively integrate fires to support the commander's concept of operation, and to generate and maintain combat power. At the tactical level, execution means firing artillery, conducting NSFS, providing air strikes and CAS, and other such activities. On an operational level, the delivery of fires combines the execution of fire plans with the coordination necessary to accomplish the mission. This chapter discusses Navy, Marine Corps, and joint asset fires execution requirements.

6.2 ELEMENTS OF NAVAL FIRES

6.2.1 Naval Fires

Composed of naval fire support and naval strike, naval fires in support of amphibious operations consist of naval guns, missiles, CAS, and nonlethal fires within defined boundaries and FSCMs.

6.2.2 Naval Surface Fires

Naval surface fires can be categorized as two types, strike and NSFS. Both are routinely used in support of amphibious operations. Initially controlled in the SACC, as the LF is established ashore, NSFS will ultimately be controlled by the SFCP and other ground maneuver FOs.

6.2.3 Close Air Support

As TACPs are established ashore, CAS is controlled by an FAC when possible. Troop commanders at any level may originate requests for immediate CAS. (See MCWP 3-25.5, Direct Air Support Center (DASC) Handbook for additional information.)

6.3 BASIC COORDINATION TASKS REQUIRED DURING EXECUTION

The complex task of successfully executing fire support missions relies not only on proper planning and knowledge of resources by commanders and their staffs, but also continuous coordination of tasks at all levels within the ESG. Below is a list of several tasks vital to the successful execution of SAC:

1. Continually advise the commanders regarding changes in fire support status.

2. Based on the current tactical situation, recommend changes in fire support employment.

3. Deliver fires on targets identified in the targeting process by executing attack guidance.

4. After considering availability, weaponeering, and coordination requirements, select the best asset with which to attack a target.

5. Fill requests for fire using an established approval mode.

6. Integrate fires to support the scheme of maneuver.

7. Coordinate fires between units at all levels.

8. Coordinate fires between the observer, a single asset, and/or multiple firing units.

9. Request additional fire support when needed.

10. Establish and maintain FSCMs to aid the rapid engagement of targets and provide safeguards for friendly forces and installations.

11. Resolve fire support conflicts at the lowest possible level.

12. Disseminate information such as unit locations, FSCMs, target information, and fire support status reports within the FSCC to other COC staff sections, adjacent battalions, supporting artillery units, and higher headquarters.

6.4 EXECUTION OF AIR SUPPORT OPERATIONS

6.4.1 Pre–D-day Operations

Prior to actually landing troops, air operations are generally not hampered by the necessity to identify friendly front lines and installations. Typically there is no artillery fire unless nearby positions have been previously occupied by artillery units. Close coordination among air, NSFS, and artillery (if present) is necessary if the time and supporting arms allotted for fire support are to be used with maximum effectiveness and minimum interference. Familiarity with NSFS and artillery firing schedules and sectors of responsibility assist the advance force Navy TACC in conducting air operations with minimum suspension of other supporting arms. The SACC coordinates missile, gun, and aircraft operations with the TACC.

6.4.2 D-day Operations

D-day events are dynamic and each step involved is a building block that must be accomplished to help ensure the success of the overall amphibious operation.

6.4.2.1 Protection of Amphibious Shipping During the Landing

Operations that take place during the landing and subsequent support of troops leave amphibious shipping vulnerable to air, antiship missiles, and small boat and submarine attacks. As the distance from the ship to the shore increases, greater protection is required for landing craft, amphibious vehicles, and assault aircraft by adequate DCA, antisubmarine patrols, surface screens, and air warning systems.

6.4.2.2 Air Strikes Prior to H-Hour

On D-day prior to H-hour, numerous air strikes will typically be made on the landing beaches and landward approaches to the beaches in order to inflict maximum damage on enemy defensive installations and troops. These strikes may consist of any or all of the following types of attacks:

1. Bombing

2. Strafing

3. Rocket

4. Smoke

5. Incendiary

6. Mine and obstacle breaching systems.

During the attacks, naval gunfire, missiles, and artillery fire may continue, as available, with limitations on the GTL or maximum ordinate for ordnance.

6.4.2.3 Adjustment of Time and Type of Attack

Adjustment may be necessary due to local conditions or variations in speed of landing craft in the first assault wave. Landing craft position in relation to the beach, rather than the time in relation to the scheduled H-hour, is the determining factor in starting and stopping attacks. Increased distance from the ship to the shore amplifies the need to adjust timing accordingly.

6.4.2.4 Post–H-Hour Strikes

Aircraft on station can provide considerable tactical impact by suppressing and destroying enemy positions and maneuver elements that are opposing the friendly troop operations. During the period between landing and establishment of the TACP communication equipment, the controlling agency directing aviation missions must be mindful of endangering friendly troops. Smoke or other markers cannot be relied upon during this early deployment when front lines are very irregular. Increased reliance on electronic friend or foe or blue force tracking is required.

6.4.2.5 Tactical Air Control Parties Functioning Ashore

Once TACPs are established, CAS missions are normally controlled by the FAC. Commanders request immediate CAS missions via the TAR net to the appropriate air support section of the Navy TACC/TADC or the DASC, when the latter is established and operating ashore. (The decision of a unit commander to request a CAS mission includes the assumption of the risk involved to their unit.)

6.4.3 Post–D-day Operations

Post–D-day operations encompass all the missions listed for assault operations, but are primarily focused on air operations in support of the LF.

6.4.4 Sample Immediate Close Air Support Request

Once the operation has begun or has been accomplished, an immediate CAS mission in support of the scheme of maneuver may be required at any time. The paragraphs below discuss the procedures for requesting and carrying out immediate CAS.

6.4.4.1 Status of Aircraft Assigned

Immediate CAS missions are assigned to aircraft that are:

1. In an air-alert status over a designated orbit point

2. In a deck-alert status and available to the Navy or Marine TACC

3. Diverted from other missions.

6.4.4.2 Request Procedures

Troop commanders at any level may originate requests for immediate CAS. Prior to the establishment of the DASC, the TACP transmits the request and all essential information relating to the mission to the appropriate Navy or Marine TACC over the TAR net. This information is given in the standard sequence in which it appears in the JTAR voice format (Figure 6-1). (See JTTP 3-09.3 for additional information.)

The DASC, upon being established ashore, becomes the net control station for the TAR net and receives, coordinates, and processes all immediate air support requests. The request is monitored at all intermediate command levels between the originator and the Navy TACC, Marine TACC, or TADC. If not countermanded or modified at any intermediate level, the tactical TACC or TADC records the request for processing. If the request is countermanded or modified at any intermediate level, the originator and the TACC or TADC are so informed over the TAR net. Once the mission is accepted the TACC, TADC, or DASC (once established ashore), as appropriate, completes the following steps:

1. The appropriate air intelligence officer checks all target information in the JTAR for proximity to front lines, enemy antiaircraft fire, and the best air route to the target.

2. The TACC or TADC ascertains if a mission has already been approved for the target.

3. The DASC, subject to fire support coordination requirements, directs mission execution by aircraft under its control or by requesting aircraft from the Navy TACC, Marine TACC, or TADC.

Prior to final approval as an air mission, the request is referred to the SACC or FSCC for consideration with respect to other supporting fires. NSFS and artillery schedules are checked to ensure aircraft are not endangered. If necessary, and if the mission has a high priority, either or both of these fires may be lifted or restricted by applying an airspace coordination area (ACA). Should enemy ADs dictate, SEAD fire should also be planned at this time.

6.4.4.3 Authorization and Ordering

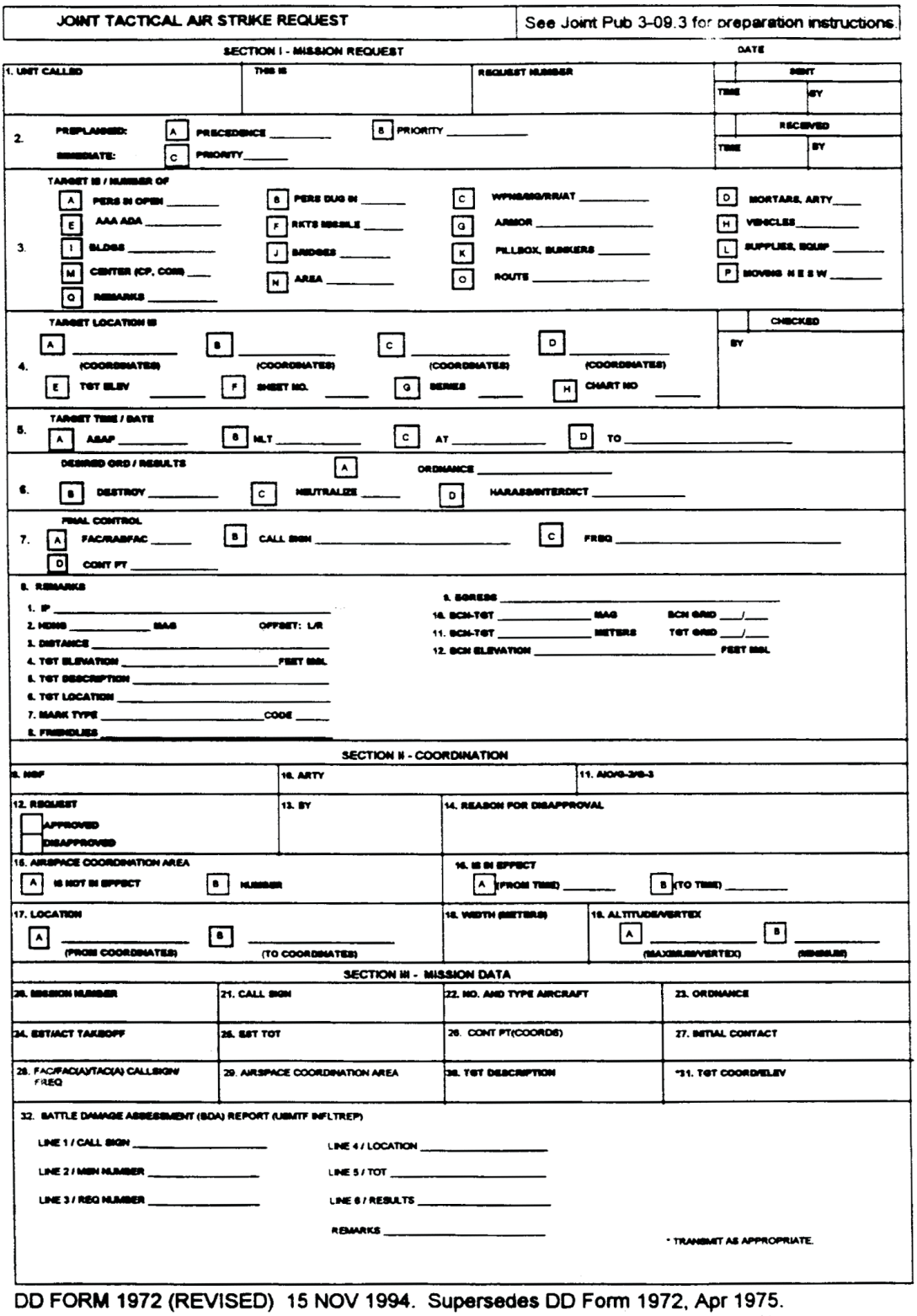
After the target has been determined suitable for air attack and the necessary coordination of the request accomplished, the TACC or TADC grants final approval. A flight of aircraft, sufficient in number and carrying suitable armament for accomplishing the mission, is ordered by the Navy or Marine TACC to report to an appropriate control agency that will direct the execution of the mission. This control agency is normally the TACP of the requesting commander. After the DASC is established ashore, the TACP requests immediate support missions from the DASC. The DASC effects coordination of the mission either by aircraft under DASC control, or by requesting aircraft from the Navy TACC, Marine TACC, or TADC, as appropriate. The TAC(A) may assist in directing the execution of the mission. Once the flight is ordered to report, it is briefed concurrently with the TAC(A). The orders and briefing are given in the standard sequence in which they appear on the JTAR, and are transmitted over the TAD net. If additional instructions are required, they are furnished by the FAC, also over the TAD net.

6.4.4.4 Execution of the Mission

Mission execution is controlled and coordinated by the designated control agency. As appropriate, the methods of control that may be employed are:

1. Visual control by the FAC is the preferred method, especially when close coordination with front-line troops is required. With this method, the FAC directs the aircrew onto the target using the most appropriate approach, attack, and retirement procedures. The aircrew may be required to make a preliminary visual reconnaissance pass to ensure proper identification of the target.

2. The ground maneuver unit or TACP may provide GPS grid coordinates.



JOINT TACTICAL AIR STRIKE REQUEST

See Joint Pub 3-09.3 for preparation instructions.

SECTION I - MISSION REQUEST

DATE

1. UNIT CALLED | THIS IS | REQUEST NUMBER | SENT: TIME / BY

2. PREPLANNED: A PRECEDENCE ____ B PRIORITY ____ | IMMEDIATE: C PRIORITY ____ | RECEIVED: TIME / BY

3. TARGET IS / NUMBER OF
A PERS IN OPEN ____ B PERS DUG IN ____ C WPNS/SIG/RR/AT ____ D MORTARS, ARTY ____
E AAA ADA ____ F RKTS MSBLE ____ G ARMOR ____ H VEHICLES ____
I BLDGS ____ J BNKRS ____ K PILLBOX, BUNKERS ____ L SUPPLIES, EQUIP ____
M CENTER (CP, COM) ____ N AREA ____ O ROUTE ____ P MOVING N E S W ____
Q REMARKS ____

4. TARGET LOCATION IS
A ____ (COORDINATES) B ____ (COORDINATES) C ____ (COORDINATES) D ____ (COORDINATES)
E TGT ELEV ____ F SHEET NO. ____ G SERIES ____ H CHART NO ____
CHECKED BY

5. TARGET TIME / DATE
A ASAP ____ B NLT ____ C AT ____ D TO ____

6. DESIRED ORD / RESULTS
A ORDNANCE ____
B DESTROY ____ C NEUTRALIZE ____ D HARASS/INTERDICT ____

7. FINAL CONTROL
A FAC/RAs/FAC ____ B CALL SIGN ____ C FREQ ____
D CONT PT ____

8. REMARKS
1. IP ____
2. HDNG ____ MAG OFFSET: L/R
3. DISTANCE ____
4. TGT ELEVATION ____ FEET MSL
5. TGT DESCRIPTION ____
6. TGT LOCATION ____
7. MARK TYPE ____ CODE ____
8. FRIENDLIES ____
9. SGREQ ____
10. SCM-TGT ____ MAG SCN GRID ___/___
11. SCM-TGT ____ METERS TGT GRID ___/___
12. SCN ELEVATION ____ FEET MSL

SECTION II - COORDINATION

9. NSF	10. ARTY	11. AIO/S-3/S-3
12. REQUEST: ☐ APPROVED ☐ DISAPPROVED	13. BY	14. REASON FOR DISAPPROVAL
15. AIRSPACE COORDINATION AREA: A IS NOT IN EFFECT B NUMBER		16. IS IN EFFECT: A (FROM TIME) ____ B (TO TIME) ____
17. LOCATION: A ____ (FROM COORDINATES) B ____ (TO COORDINATES)	18. WIDTH (METERS)	19. ALTITUDES/VERTEX: A ____ (MAX/MSL/VERTEX) B ____ (MIN/MSL/R)

SECTION III - MISSION DATA

20. MISSION NUMBER	21. CALL SIGN	22. NO. AND TYPE AIRCRAFT	23. ORDNANCE
24. EST/ACT TAKEOFF	25. EST TOT	26. CONT PT(COORDS)	27. INITIAL CONTACT
28. FAC/FAC(A)/TAC(A) CALLSIGN/ FREQ	29. AIRSPACE COORDINATION AREA	30. TGT DESCRIPTION	*31. TGT COORD/ELEV

32. BATTLE DAMAGE ASSESSMENT (BDA) REPORT (USMTF INFLTREP)
LINE 1 / CALL SIGN ____ LINE 4 / LOCATION ____
LINE 2 / MSN NUMBER ____ LINE 5 / TOT ____
LINE 3 / REQ NUMBER ____ LINE 6 / RESULTS ____
REMARKS ____

* TRANSMIT AS APPROPRIATE.

DD FORM 1972 (REVISED) 15 NOV 1994. Supersedes DD Form 1972, Apr 1975.

Figure 6-1. Joint Tactical Air Strike Request Form

3. The target may be designated by reference to the standard grid coordinates, and the aircrew briefed concerning the nature and appearance of the target and other identifying characteristics. The TAC(A) or the flight leader is responsible for identifying the target and directing the strike under the supervision and control of the Navy or Marine TACC, as appropriate.

4. Fixed-wing aircraft endurance is short and is further reduced when flying at low altitudes. Therefore, when employed in supporting operations, and if practicable, aircrews are briefed on target data while en route to the target in order to be ready to attack on arrival in the target area, or increase time on station. Every effort is made to associate targets with clear landmarks discernible from high altitude.

5. After the mission is completed and strike damage reported via the Joint Air Strike Report (Figure 6-2), the flight is returned to the control of the Navy TACC, Marine TACC, TADC, or DASC, as appropriate. The Navy TACC, Marine TACC, or TADC may retain the flight airborne over an orbit point or return it to base. The DASC's control over the flight is as authorized by the Navy TACC, Marine TACC, or TADC.

6.4.5 Preplanned Mission Procedures

Requirements for preplanned air support missions may be established and scheduled during the planning phase, or at any time during operations.

6.4.5.1 Request Procedures

Requests for preplanned air support missions may be originated at any level of command and are submitted via the chain of command to the Navy or Marine TACC, as appropriate. After approval, the TACC passes the request to the commander providing the air support forces. Requests may be submitted over established command communication circuits or the communication nets of the appropriate control agencies. Positive approval at each intermediate command level is required. Air support control agencies, the SACC, FFCC, and the FSCC, accomplish the required coordination of these requests in a manner similar to that used in coordinating requests for on-call missions. To ensure necessary coordination and proper briefing of the strike group pilots, all available target information must be forwarded with any requests for preplanned missions.

6.4.5.2 Authorization and Ordering

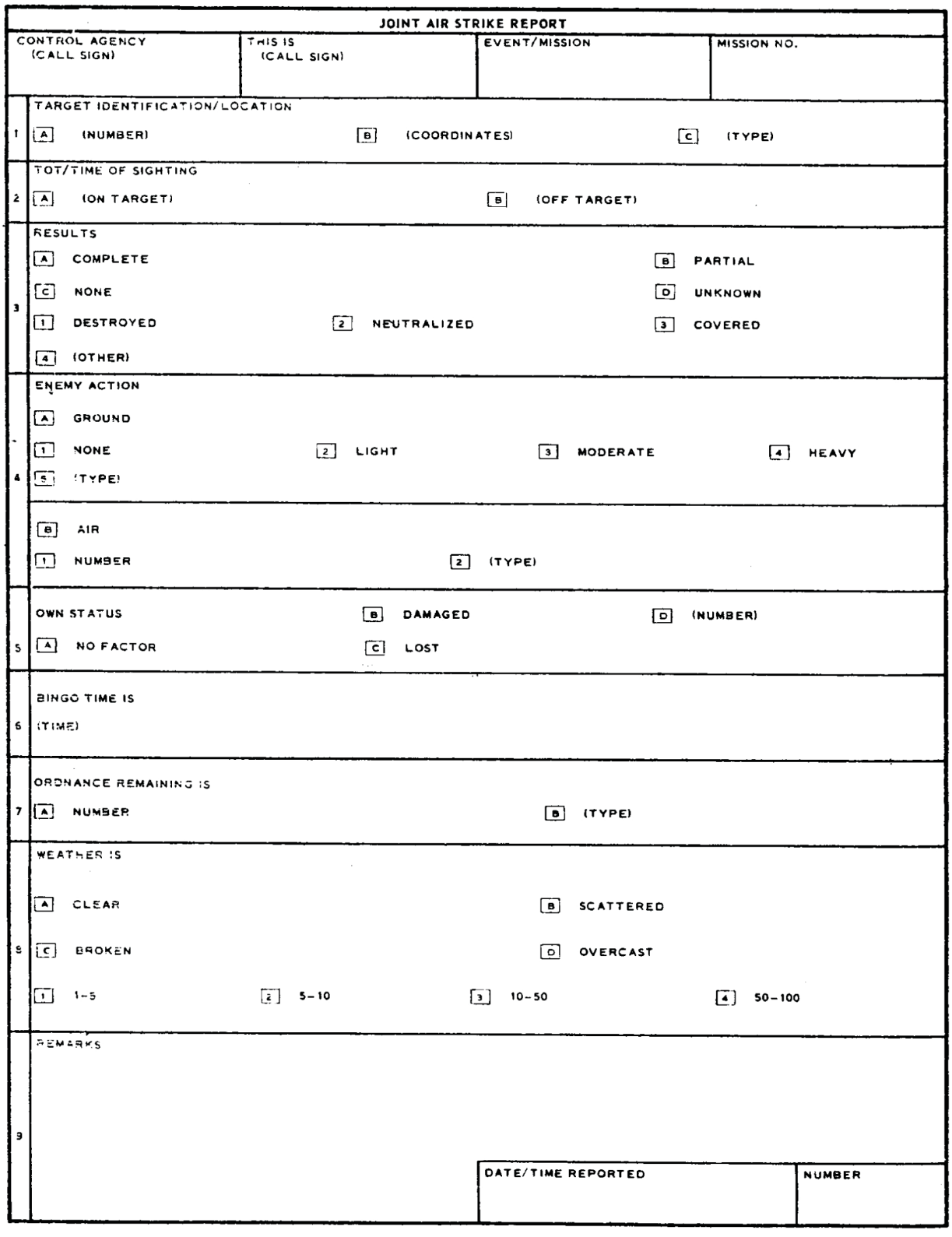
If the requested mission is approved, sufficient aircraft with proper armament are scheduled. Adequate time is allowed for the designated air support forces to be properly briefed for the attack.

6.4.5.3 Execution

The flight leader or the TAC(A) directs the flight. Upon entering the objective area, all flights, including those that have been prebriefed, report in to the Navy TACC, Marine TACC, TADC, the DASC (as appropriate), or FAC when the DASC is not yet ready for operation. They then proceed to carry out assigned missions.

6.4.6 Helicopter Operations

There are three types of helicopters employed by the LF: transport, utility, and attack. Attack helicopters are used during ship-to-shore movement and in subsequent operations ashore to provide tactical transport of troops and supplies, and to evacuate casualties. Utility aircraft are used for reconnaissance and observation missions, front line evacuation, and liaison tasks. Attack helicopters are used for rotary-wing CAS, point target or antiarmor attacks, antihelicopter operations, armed escort, FAC(A) defense from enemy fixed-wing aircraft, and visual reconnaissance.



JOINT AIR STRIKE REPORT

CONTROL AGENCY (CALL SIGN)	THIS IS (CALL SIGN)	EVENT/MISSION	MISSION NO.

1 TARGET IDENTIFICATION/LOCATION

[A] (NUMBER) [B] (COORDINATES) [C] (TYPE)

2 TOT/TIME OF SIGHTING

[A] (ON TARGET) [B] (OFF TARGET)

3 RESULTS

[A] COMPLETE [B] PARTIAL

[C] NONE [D] UNKNOWN

[1] DESTROYED [2] NEUTRALIZED [3] COVERED

[4] (OTHER)

4 ENEMY ACTION

[A] GROUND

[1] NONE [2] LIGHT [3] MODERATE [4] HEAVY

[5] (TYPE)

[B] AIR

[1] NUMBER [2] (TYPE)

5 OWN STATUS [B] DAMAGED [D] (NUMBER)

[A] NO FACTOR [C] LOST

6 BINGO TIME IS

(TIME)

7 ORDNANCE REMAINING IS

[A] NUMBER [B] (TYPE)

8 WEATHER IS

[A] CLEAR [B] SCATTERED

[C] BROKEN [D] OVERCAST

[1] 1-5 [2] 5-10 [3] 10-50 [4] 50-100

9 REMARKS

DATE/TIME REPORTED	NUMBER

Figure 6-2. Joint Air Strike Report Form

6.4.6.1 Ship-to-Shore Movement

Marine helicopter units embarked in or operating from AF ships are organic units of the LF. The CATF is responsible for landing helicopter-lifted units in accordance with LF plans. Tasks assigned to LF helicopter units must be responsive at all times to the plans and decisions of the CLF, who has overall authority as the supported commander. During the ship-to-shore movement, the designated commander exercises movement control over helicopters through the TAO. Provided authority has been granted in the appropriate OPORD(s), mutual decisions to change the scheduled employment of helicopters during ship-to-shore movement may be made by subordinate commanders. Changes not mutually agreed upon are referred to the CATF and CLF for decision.

6.4.7 Processing Air Support Requests

Methods of requesting OAS while the Navy TACC controls air support and the SACC has responsibility for coordination are described in the following paragraphs.

6.4.7.1 Close Air Support

Immediate requests for CAS are transmitted directly to the air support section of the Navy TACC located in SACC on the ATF flagship. These requests may be originated by FACs, the air officers of the LF TACPs at infantry battalion and regimental levels, or by air officers of higher echelons. All TACPs monitor the requests, and higher echelons may cancel, modify, or, through their silence, imply consent to the requests of lower echelons. The processing of air requests within the SACC is shown in Figure 6-3. Whenever possible, the steps displayed are carried out simultaneously by SACC personnel in an attempt to minimize response time. As each request is recorded, the AIO performs the duties discussed in paragraph 2.3.3.6. The support request is also given to the TIO who enters the target on the enemy situation overlay. The LF air officer and the NSFS control officer concurrently check the request for interference with other fires being executed and if not in conflict pass the request to the LF FFC, who coordinates it with other LF requests. It is then passed to the SAC. If the execution involves the imposition of an ACA, FSC concurrence is necessary. After SAC approval, the request passes to the ASC for execution. The TACP is then notified of the request approval and the approximate time of execution. The ASC assigns aircraft, prescribes armament and expenditure, and forwards the plan for support to the TAD net controller. Pilots of assigned aircraft, and the TAC(A), are briefed on details of the mission. This briefing may be conducted while airborne en route to the target. When practicable, the TAC assigns control of the aircraft to an FAC who is in position to assume positive control and has satisfactory communications with all applicable stations. The TAO may be briefed on the operation and requested to observe and assist the aircraft in locating the target. The flight leader reports initiation and completion of attack to the air support section. Target damage assessment is reported by all concerned to the air support section of Navy TACC in the SACC. The information is recorded on the Joint Air Strike Report form (Figure 6-2), along with the ammunition expenditure. The report is returned to the AIO, who enters the information on the target card and enemy situation overlay, if appropriate. Strike results are then disseminated to the interested activities.

6.4.7.2 Air Support Beyond the Fire Support Coordination Line

From JP 1-02, the fire support coordination line (FSCL) is “an FSCM that is established and adjusted by appropriate land or AF commanders within their boundaries in consultation with superior, subordinate, supporting, and supported commanders… An FSCL does not divide an area of operations by defining boundaries between close and deep operations or a zone for CAS. [It] applies to all fires of air, land, and sea-based weapon systems using any type of ammunition…”

The FSCL allows aviation units to expeditiously attack targets of opportunity beyond the FSCL without excessive coordination. When aircraft attack targets beyond the FSCL, the ACE commander must inform all other affected commanders in sufficient time to allow necessary reaction to avoid fratricide. In exceptional circumstances, the inability or failure to inform those commanders will not preclude the attack of targets beyond the FSCL; however, failure to coordinate this type of attack increases the potential wasting of resources through duplicative attacks. Air support tasks involving the use of ACAs are cleared with the LF FFC and, if control of supporting arms has not been transferred ashore, approved by the SAC. Assigning aircraft, briefing air support groups, and assembling damage reports are made in the same manner as in a CAS task.

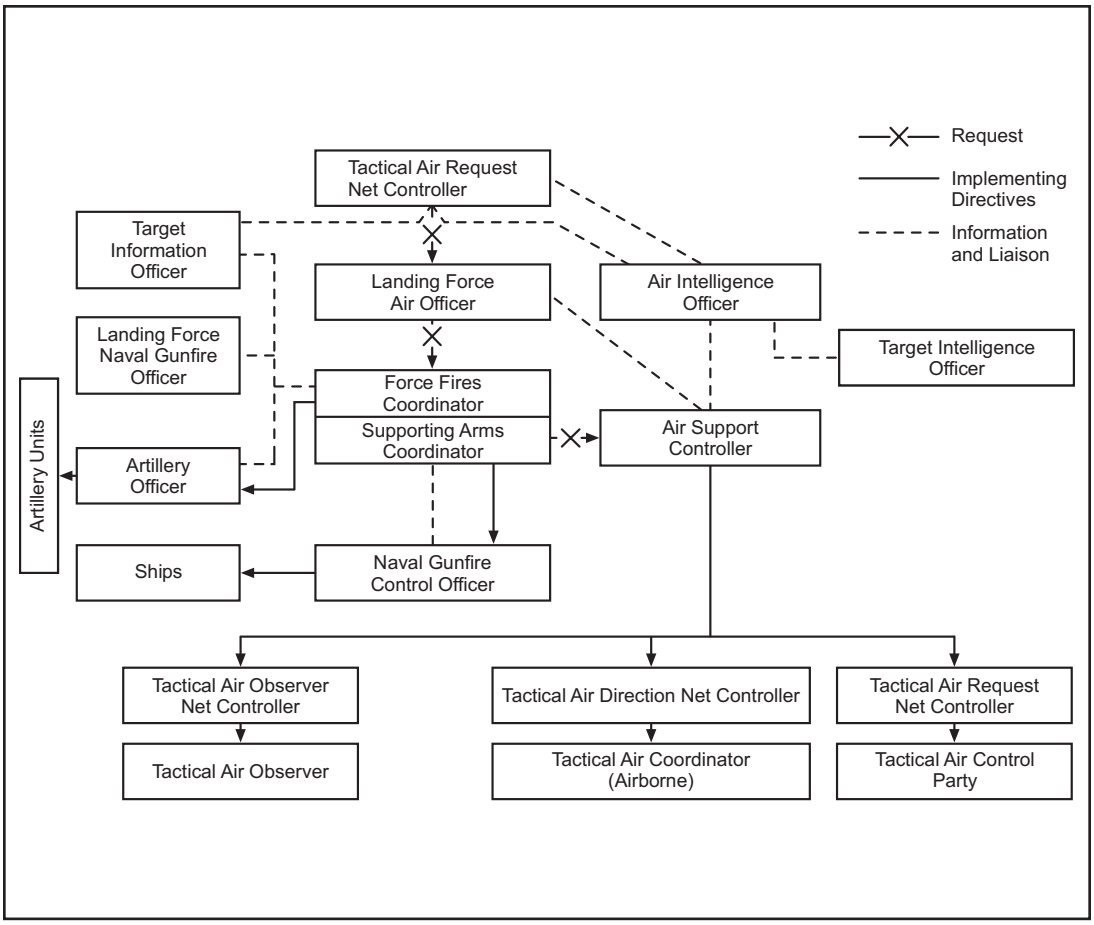


Figure 6-3. Supporting Arms Coordination Center Close Air Support Mission Requests Flow Chart

6.4.7.3 Preplanned Air Support Requirements

These requirements include air strikes coordinated with projected LF operations, support aircraft for the following day's operations, reconnaissance missions, and other special tasks. They originate in the lower echelons of the LF and proceed through the chain of command to the LF air officer. At each command level, the air liaison officer or air officer consolidates the requests for air support and, in consultation with the NSFSLO and the FSC, integrates these requests with those for NSFS and artillery. Undesirable duplication of fire support effort is thereby eliminated, and the consolidated and coordinated fire plan is examined by the G-3 to ensure its adequacy to support projected troop operations of the unit involved. At the LF level, following approval by the LF G-3, the air officer prepares plans and schedules special requirements, which are submitted to the TAC for approval and coordination with other projected air operations. Should troop air support requirements exceed the means available, CLF recommends which requests will be given priority.

6.5 EXECUTION OF NAVAL SURFACE FIRE SUPPORT OPERATIONS

Coordination of NSFS operations with the overall fire support plan is accomplished by the supported maneuver commander who issues the order to fire to the surface combatant. With the introduction of new land attack weapons with enhanced ranges, surface combatants are able to deliver longer-range NSFS in support of maneuver forces. Coordination with the JFACC/TAO (ashore) and land and maritime components whose airspace these fires will traverse is particularly important, especially for nonballistic flight profiles.

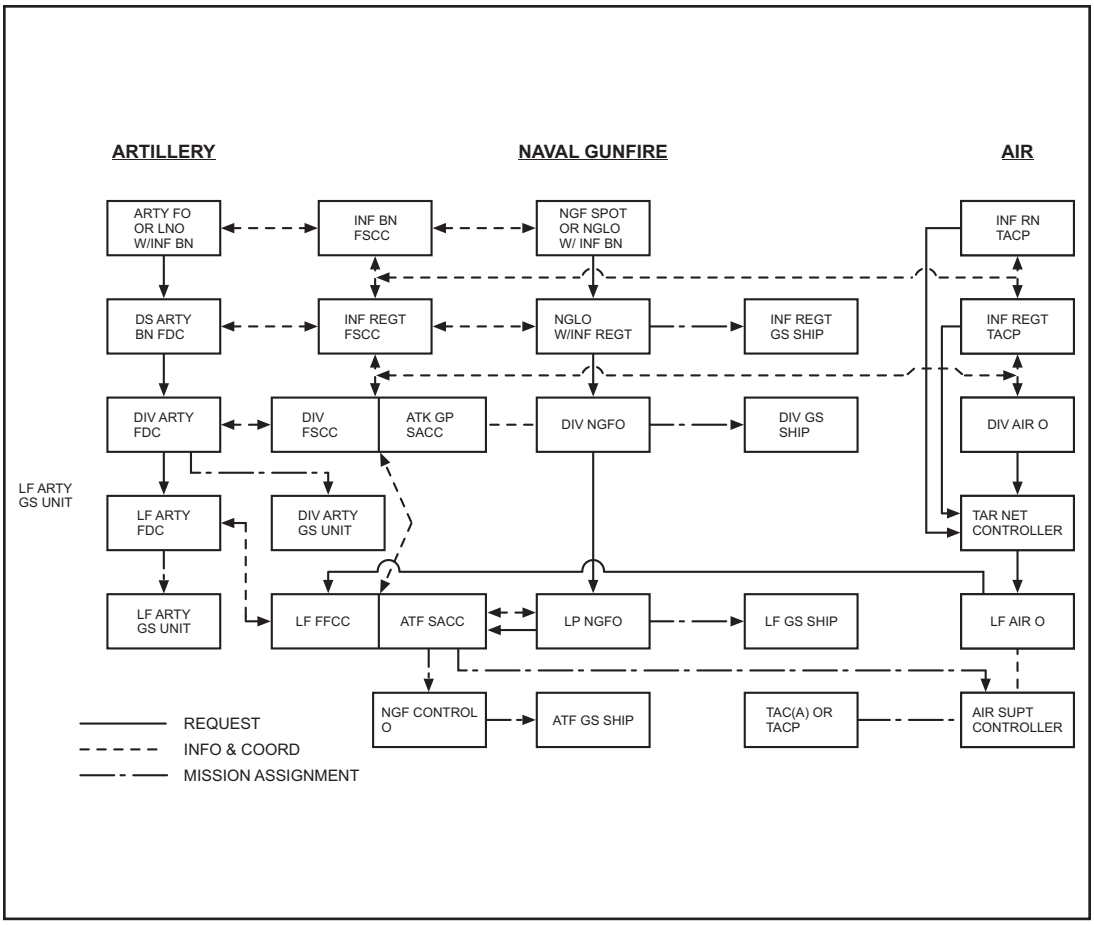


Figure 6-4. Request Flow Chart for General Support Naval Surface Fire Support, Artillery, and Close Air Support Missions

The LF's NSFS requirements are submitted to the CATF as the supporting commander, and after examining overall Navy and MAGTF requirements, the CATF allocates NSFS assets to support the LF. In amphibious operations, the LF NSFSLO provides information on the LF CONOPS (e.g., scheme of maneuver) that allows AF planners to coordinate NSFS employment to meet LF requirements (e.g., positioning of FSAs and stations). The use of NSFS depends to a large degree on hydrography, number, and type of ships available, and on the commander's priorities and guidance. The MAGTF NSFS plan contains pertinent information and instructions taken from the AF NSFS plan. Subordinate echelons may refer to higher echelon plans and not issue separate plans. NSFS plans normally include specific instructions on the tactical use of NSFS, an NSFS operations overlay, a schedule of fires, and instructions on communications and reports. Upon deployment, much of the planning between the supported unit and the supporting ship occurs via radio or message traffic.

6.5.1 Processing NSFS Requests

NSFS requests are considered in terms of assigned tasks. The following paragraphs explain the origin of the requests and the units responsible for providing support.

6.5.1.1 Direct NSFS Support

Requests for DS originate at the LF infantry battalion level and are transmitted to the DS ship assigned to that unit (Figure 6-4). Requests may be originated by:

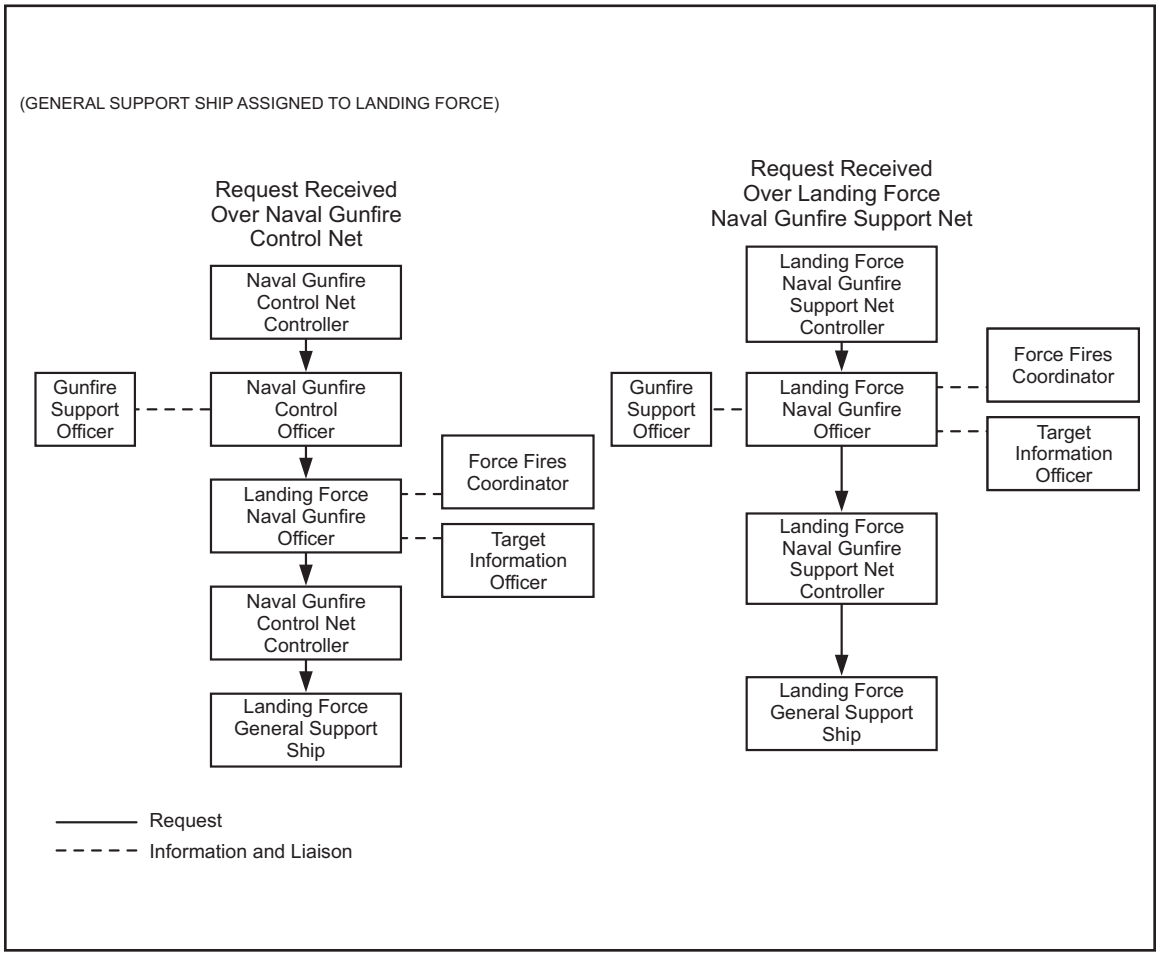


Figure 6-5. Flow Chart for Naval Surface Fire Support Mission Requests in the Supporting Arms Coordination Center with General Support Naval Surface Fire Support Ships

1. The NSFS spotter over the assigned NSFS ground spot net, or the air spotter over the NSFS air spot net. The battalion NSFSLO monitors these nets and may disapprove or modify requests if/as necessary.

2. The battalion NSFSLO over the assigned NSFS ground spot net to the DS ship.

3. The artillery FO can pass fire requests directly to the ship or send them via the battalion FSCC. Prior to the landing of the artillery unit in DS, and if the ship cannot enter the artillery conduct of fire net, fire requests may be passed from the FO to the DS ship via the artillery officers and NSFSLOs at the infantry battalion headquarters.

4. A ground scout or sniper can pass fire requests via HF radio to the DS ship.

The DS ship carries out the requested task(s) with the ground or air spotter adjusting the NSFS. As soon as practical, the firing ship reports the commencement and completion of nonscheduled missions to the NSFS controlling agency.

6.5.1.2 General NSFS Support

The NSFS representative of the unit to which the NSFS ship is assigned (i.e., infantry regiment, division, or LF) requests this type of support. Requests are made via the division NSFS support net. Requests for NSFS support by subordinate LF echelons are made by LF communications circuits, the division NSFS net, or both. Requests are

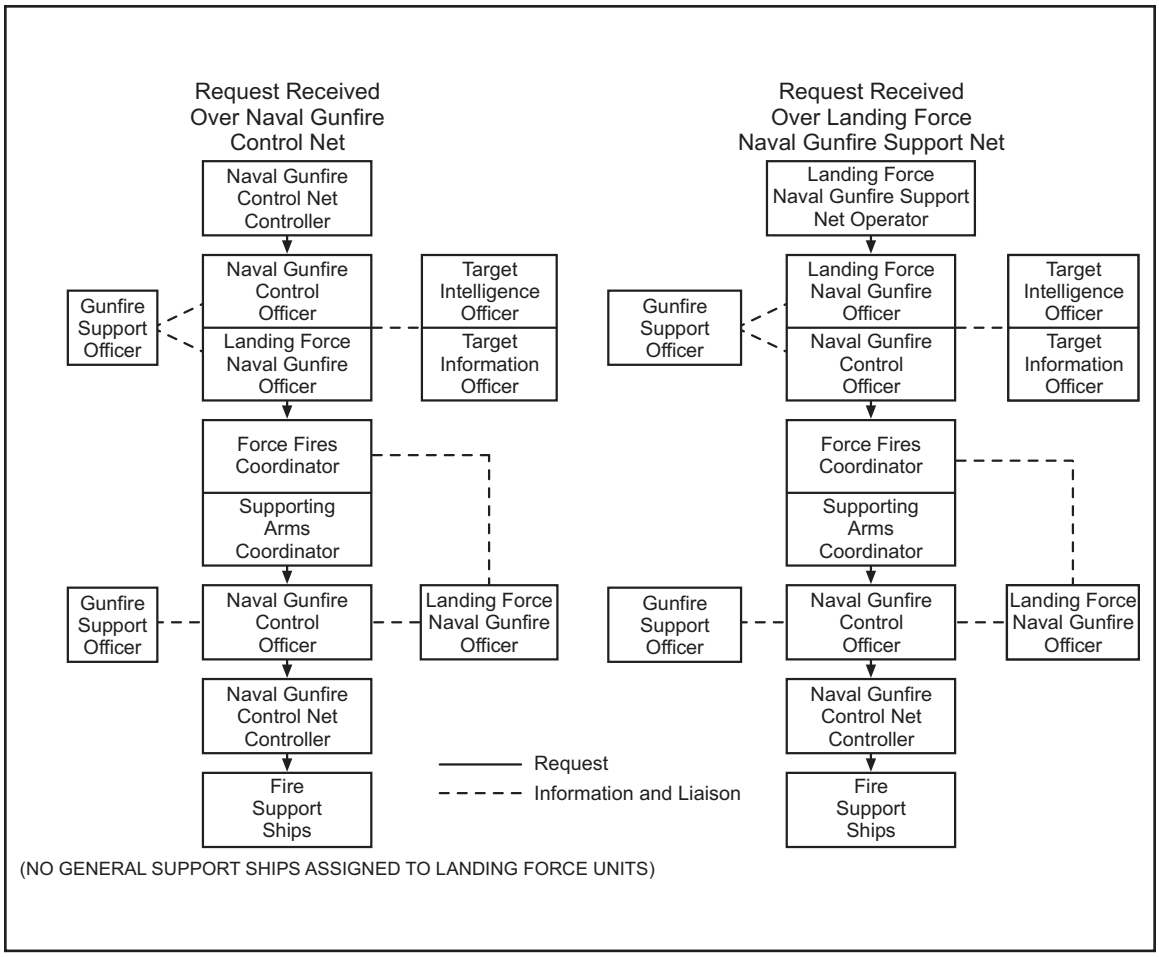


Figure 6-6. Flow Chart for Naval Surface Fire Support Mission Requests in the Supporting Arms Coordination Center Without General Support Naval Surface Fire Support Ships

passed to each successive higher echelon for fulfillment at a level at which an NSFS ship is available. If NSFS ships are not available or have not been assigned prior to the passing of control of NSFS ashore, the FFC submits a request to the SAC for assignment of a ship or assignment of the specific task. The processing of such requests in the SACC is shown in Figures 6-5 and 6-6.

6.5.1.3 Consolidated Future Support Requirements

Requests of this type, resulting from the development of integrated fire plans that have been coordinated with projected LF operations, include NSFS requirements that cannot be filled by assigned DS ships. They also include special requirements, such as types and amounts of ammunition necessary to provide desired support during the night or on the following day. Requests originate with the lower echelons of the LF. At each command level, the naval gunfire liaison officer (NGLO) consolidates the requests for NSFS and, in consultation with the air liaison officer and artillery liaison officer, integrates the requests with those for air and artillery support. Any conflicts are resolved by the FFC. In the process of integration, undesirable duplication of fire support effort is eliminated, and the maneuver unit operations officer (S-3 or G-3 as appropriate) at each echelon ensures that requirements are adequate to support the scheme of maneuver.

The LF FFC presents the final consolidated fire support requirements to the CLF to ensure that they are adequate to support the planned LF scheme of maneuver. When the fire plan is approved, the consolidated requirements are submitted to the SAC for approval. If the NSFS assets available fall short of requirements, the CLF must be notified so that they may render a decision relative to the priority of fire for subordinate elements of the LF. After

differences between requests for and availability of NSFS have been adjusted, requests approved by the SAC are passed to the NSFS control officer for preparation of detailed instructions to fire support units and ships. The instructions are promulgated over the NSFS control nets.

6.6 EXECUTION OF ARTILLERY OPERATIONS

The artillery fire plan is normally formulated in FDCs. These centers are the elements of a command post, consisting of gunnery and communications personnel and equipment, which the commander uses to exercise fire direction and/or fire control. The FDC receives target intelligence and requests for fire and translates them into timely and effective tactical and technical fire control in support of ongoing operations.

Some planning tasks such as counterfire procedures and scheduling of fires, may occur in the supported unit's FSCC (division or regiment) when multiple supporting arms are being integrated into the fire support plan. Remaining artillery fire planning tasks such as fire direction, resupply, and positioning to meet the fire support requirements are then performed at the appropriate FDC.

If it is not possible to coordinate artillery support at lower echelons, the requisite coordination with air and NSFS assets is accomplished in the SACC.

6.6.1 Processing Artillery Support Requests

Processing support requests is an LF function and the following paragraphs delineate one method of handling artillery requests.

6.6.2 Direct Support

Requests for DS originate at the maneuver company, battalion, or regimental level and are transmitted to the artillery FDC assigned to provide DS for the requesting unit. These requests may be originated by and transmitted via the following:

1. Artillery FO over the artillery conduct of fire (COF) nets.

2. Maneuver battalion artillery LNO over the COF net or the battalion fire direction (FD) net. This LNO monitors both nets and may cancel, modify, or initiate requests as necessary.

3. Maneuver regiment artillery LNO over the battalion command net. This LNO monitors the command net and may cancel, modify, or initiate requests as necessary.

4. Artillery air observer over the artillery air spot net to the FDC of the DS artillery.

Coordination of DS artillery fire is accomplished at the battalion and/or regimental headquarters of the supported unit. The DS artillery executes the mission(s) requested by the FO or air observer. Upon mission completion, the observer reports the results to the DS artillery's FDC.

When a maneuver regiment is in reserve or otherwise not committed to action, the artillery battalion that would normally be in DS may be assigned a reinforcing or General Support-Reinforcing (GS-R) mission, reinforcing the fire of another artillery battalion. In either case, the reinforced battalion may make requests for fire directly to the reinforcing battalion.

6.6.3 Reinforcing, General Support-Reinforcing, and General Support

The three types of fires associated with artillery support are as follows:

1. Requests for reinforcing fires are made directly from the reinforced artillery unit to the artillery unit providing reinforcement. Requests are normally made on the reinforced artillery unit's FD net.

2. Requests for GS-R are processed by the artillery unit assigned the mission in the following priority order: from the LF artillery headquarters, the reinforced artillery unit, and own observers.

3. Requests for general support artillery fire are made directly to the LF artillery headquarters, which then directs those fires over the artillery FD net.

6.6.4 Consolidated Future Support Requirements

These requests result from the development of integrated fire plans that have been coordinated with projected troop operations. They may include:

1. Requests for artillery support of a maneuver regiment that cannot be filled by DS artillery. Unfillable requests are forwarded to the division artillery's FDC by the DS artillery unit.

2. Requests for artillery support of a division that cannot be filled by its own artillery or artillery units assigned to reinforce the requesting division. Such requests are submitted by division artillery's FDC to the LF artillery headquarters.

Requests for future support by artillery units, such as night harassing or interdiction fire, illumination fire, and preparatory fires for futureattack, are consolidated and coordinated with future support requests for air and NSFS at each infantry echelon from battalion upward. At each LF echelon, the consolidated and coordinated fire plan is examined by the G-3/S-3 to ensure adequacy of support for the scheme of maneuver of the unit involved. At the LF level, requests of major subordinate units are consolidated, coordinated, and presented by the LF FFC to the CLF via the G-3/S-3, who again examines the fire plan to ensure it adequately supports projected troop operations. Following approval by the CLF, necessary coordination of air, NSFS, and artillery fire support is accomplished in the SACC while such responsibility is still being exercised afloat. Plans are then prepared and orders issued to the participating artillery, NSFS, and aircraft units.

6.7 PASSAGE OF FIRE SUPPORT COMMAND AND CONTROL AND COORDINATION

In an amphibious operation, combat power is built up ashore as rapidly as possible. As various units land, command posts and communications architectures required for commanders to exercise C2 over their units are established as a top priority.

The rapid buildup of combat power ashore results in some LF staff agencies achieving functional readiness before others. The senior FSCC is usually one of the first organizations to become operational. However, if this is not the case, the SACC and subordinate FSCCs must be ready and able to coordinate with each other. Once FSCCs are established ashore, the CATF may pass control (delegate authority) over certain functions to the CLF. The CLF may exercise authority through the LF staff rather than requesting that the CATF direct actions that are LF functions. For example, in transferring control of NSFS to the CLF, CATF delegates authority to work directly with the NSFS group commander and coordinate which LF units have DS and GS ships.

To achieve the most effective fire support coordination, the commander responsible for overall coordination of supporting fires should also have control of all supporting fires. When control of DAS is passed from CATF to CLF, the situation normally permits a concurrent shift in responsibility for NSFS control and the overall coordination of supporting fires. When responsibility for control of supporting fires is passed to the CLF, the appropriate supporting arms circuits continue to be monitored in SACC. If, after the shift of responsibility, returning control of one function or another to the SACC becomes necessary, the difficulties in the separation of responsibility for supporting arms must be accepted on a temporary basis.

6.7.1 Control of Pre–D-day Air Operations

During advance force operations, the advance force commander is responsible for pre–D-Day NSFS and air operations in the assigned area. Control of air operations is exercised through the TADC established in the flagship of the advance force commander, while NSFS control is normally exercised through the advance force SACC. The

CATF, through the TACC, assumes control of all air operations and NSFS upon arrival in the operating area. Subordinate TADCs, as designated in advance, monitor air control circuits, and remain ready to assume all, or part of, the duties of the TACC. Control of NSFS is transferred to the ATF SACC.

6.7.2 Control Afloat

Until the CLF is established ashore, control of supporting arms normally rests with the CATF in support of the initial landing. Control of artillery landed with the LF is the CLF's responsibility. The CATF can pass control of air, NSFS, and artillery used in support of the initial landing to CLF after the required C2 agencies are established ashore.

When subordinate ATFs are formed for operations in widely separated landing areas, the CATF normally delegates authority over air support to each ATF commander. Each commander exercises control through respective flagship TADCs. Overall control, including daily planning and execution of air operations, is exercised by the CATF through the CATF's TACC.

6.7.3 Transfer of Control Ashore

The CATF begins passing control of supporting arms to the CLF once coordination agencies are established ashore; when reliable communications are established between the DASC, TACC (afloat), FSCC ashore, and the SACC; and when all other conditions warrant.

6.7.3.1 Air Control Agencies Established Ashore

As soon as conditions permit, air control agencies are established ashore that parallel the Navy control agencies afloat. The control agencies ashore are initially in a standby status, monitoring all air control circuits. At the discretion of the CATF and upon the request and recommendation of CLF, control of air operations in the operating area is passed to the CLF ashore. The passage of control may be incremental (e.g., control of DAS may be passed ashore before control of other aspects of air operations). After passage of any or all control to the CLF, the Navy control centers afloat continue to monitor appropriate circuits, ready to assume control if necessary.

6.7.3.2 Air Support Control Agencies Not Yet Established Ashore

Until the TACPs landed with assault units are established ashore, CAS is executed under the direction of the TAC(A) or FAC(A). Once TACPs are established ashore, CAS is requested from the TAC(A), DASC, or the TADC afloat. As operations ashore progress, air control elements land and prepare to operate shore-based facilities.

6.7.3.3 Air Support Control Agencies Established Ashore

While establishing ashore, air support control agencies initially function under the TACC (afloat). These agencies subsequently operate under the designated authority when control of CAS has been passed ashore by CATF. In any case, requests are sent by the TACP directly to the air control agency, which assigns aircraft to CAS missions. The SACC, FSCC, and/or fire support element (FSE) monitors TACP requests. When the CATF passes control of air operations to the CLF, the CLF exercises control of all air operations through the TACC. Concurrently, the DASC assumes control of helicopter operations.

6.7.3.4 Naval Surface Fire

On order of the CLF (or appropriate subordinate commander), the FSCC displaces ashore, leaving sufficient personnel in the SACC to provide continuity of coordination until the LF fire support agency is established and functioning ashore. When the necessary control facilities are established ashore, control of NSFS may be passed to the CLF. The CLF then has the authority to assign NSFS missions directly to the fire support ships. The CATF, or a designated subordinate, retains responsibility for the allocation of available fire support ships, their logistical support, and TACON of the ships for functions other than fire support.

6.7.3.5 Shift of Airspace Control Upon Termination of Amphibious Operations

Air support planning must provide for an orderly transition of airspace control from the ATF TACC upon termination of the amphibious operation. At this point, the assigned airspace is disestablished and the JFACC (through a joint air operations arrangement) normally exercises responsibility for airspace control (defined as coordination, integration, and regulation of airspace) for the establishing authority. The initiating directive indicates whether airspace control is to be reassumed by the unified commander, assigned to a JFC exercising airspace control in an adjacent area, or established by a JFC engaged in subsequent operations.

APPENDIX A

Planning Guidelines and Considerations

A.1 INTRODUCTION

The MCPP establishes procedures for analyzing a mission as follows:

1. Developing and wargaming COAs against the threat
2. Comparing friendly COAs against the commanders' criteria and each other
3. Selecting a COA
4. Preparing an OPORD or OPLAN for execution
5. Transitioning the order or plan to those tasked with its execution.

The MCPP organizes these procedures into six manageable, logical steps that are identified in Figure 4-1. These steps provide the commanders and their staffs, at all levels, a means to organize their planning activities, transmit plans to subordinate commands, and share a common understanding of the mission and the commanders' intent. Interactions among various planning steps allow a concurrent, coordinated effort that maintains flexibility, makes efficient use of time available, and facilitates continuous information sharing.

The amphibious planning process is derived from the MCPP, and the supporting arms coordination planning process is a logical extension of the amphibious planning process.

A.2 PURPOSE

The purpose of this appendix is to provide guidelines and outline supporting arms planning considerations in amphibious operations for Navy and USMC commanders and their staff planners. It should be used as a guide, and is not intended to restrict or inhibit initiative or innovative thought and actions.

A.3 BASIC FIRE SUPPORT TASKS

The supporting arms coordination planning process is thoroughly covered in Chapter 4 and Appendix E. However, below are the four basic fire support tasks considered essential for mission success. These tasks are discussed in greater detail in paragraph 1.6.2.

Commanders and planners must keep these tasks in mind throughout the supporting arms planning process:

1. Provide responsive fire support to forces in contact with the enemy.
2. Support the specified concept of operations (CONOPS).
3. Synchronize fire support with the scheme of maneuver and all other operations.
4. Sustain fire support operations from mission start to completion.

A.4 FIRE SUPPORT COORDINATION PRINCIPLES

Extensions of the four basic fire support tasks listed in paragraph A.3 are a number of fire support coordination principles. These principles must remain foremost in the thought processes and considerations of Navy and USMC commanders and their supporting fires planners. The principles are discussed in greater detail in paragraph 1.6.4.

A.4.1 Fifteen Principles

These 15 principles are considered vital to mission success:

1. All echelons must know and understand the commander's intent.
2. Plan early and continuously.
3. Know the capabilities of targeting assets and exploit all that are available.
4. Whether organic to the force, or assigned or attached units, know the capabilities of all fire support assets and consider ways to employ all of them.
5. Use the lowest echelon capable of furnishing effective fire support.
6. Use the means and assets that can deliver the most effective fire.
7. Listen carefully to the requesting agency and provide the type of support requested.
8. Avoid unnecessary duplication of effort and waste of resources.
9. Coordinate and deconflict airspace in the area of operations.
10. Provide adequate support, and if unable to do so, inform the commanders immediately.
11. Establish and practice rapid coordination procedures.
12. Provide for flexibility and expect the unexpected.
13. Provide safeguards and survivability to friendly forces and installations.
14. Establish FSCMs and make sure the entire force is fully aware of them.
15. Establish and maintain reliable communications support.

A.5 FOLLOWING THE SIX STEPS IN PLANNING

The six steps of the amphibious planning process, as detailed in Chapter 4, are also critical to successful supporting arms coordination planning. Using these six steps, the following provides a guideline to assist in the generation of key considerations and actions by the commanders, personnel manning the SACC and/or the FFCC, and other fire support planners.

A.5.1 Mission Analysis

This first step is the impetus behind the organization and progression of the entire planning process. Upon receipt of the initiating directive from the establishing authority, an extensive and continuous process in coordination and cooperation begins within the ESG and AF. The commanders' guidance provides preliminary decisions required

to focus planners on the commanders' conceptual vision of the operation and missions. Planners should consider several items during mission analysis:

1. Defining, learning, and understanding all ESG and AF missions, whether identified in the initiating directive, commanders' guidance, or as a result of mission analysis

2. Designating areas of interest and influencing and identifying the operations area

3. Identifying existing boundaries, maneuverability on sea and land, and establishing FSCMs that depict the current and future area of operations

4. Determining the status of higher, adjacent, coalition, and supporting units or assets that may require or augment AF fires capabilities

5. Identifying or refining friendly and enemy COGs to exploit friendly strengths and defeat enemy strengths

6. Exploring the employment of fires to exploit enemy CVs and protect friendly CVs

7. Determining specified and implied tasks that could involve fire support

8. Identifying known or predicted events or actions that will influence shaping actions and the fires plan

9. Determining the status (location, mission readiness, munitions) of organic fire support systems and assets

10. Requesting IPB products, including EEFIs and OIRs for targeting and other operations

11. Conducting target value analysis (TVA) based on HVTs identified by intelligence personnel

12. Predicting weather, especially its impact on flight operations

13. Seizing, securing, or destroying selected AF objectives

14. Identifying specified and implied tasks and using them to determine EFSTs to be accomplished in support of the commanders' guidance

15. Producing a comprehensive fire support mission analysis brief.

A.5.2 Course of Action Development

COA development is the creative step in the process where potential solutions are developed that satisfy the commander's intent and guidance and accomplish the mission determined during mission analysis. This step generates options for follow-on wargaming. It begins with planning guidance from the commander based on the learning that took place in mission analysis. This guidance is usually specific, and can include guidance on each of the warfighting functions including the desired effects of fires and an initial concept of fires to achieve those effects.

During this step, the AF planners devise CONOPS and supporting concepts, including fires. Fires planners are involved by suggesting ways to employ fires as part of any potential COA. The concepts of maneuvering the ESG and/or ATF, maneuvering ashore, and gathering intelligence must be coordinated and synchronized with the fires concept. The OPT and AF planners identify targeting objectives designed to disrupt, delay, limit, and divert specific enemy formations and functions.

Other major tasks for which fire support planners are responsible include:

1. Assessing enemy fire capabilities for lethality, range, and ability to hit friendly CVs

2. Determining where to locate and attack the enemy to best accomplish the EFSTs

3. Identifying HPTs from the HVT list, quantifying desired effects, and allocating assets to acquire and attack the HPTs

4. Developing FSCMs that best support the CONOPS

5. Identifying TAIs wherein successful HPT engagement causes the enemy to abandon a particular COA, or be prevented from interfering with AF COAs

6. Synchronizing collection planning with supporting arms coordination planning to ensure targets are detected and tracked prior to execution, and assessed afterwards

7. Reviewing and providing ROE input

8. Planning fires sufficient to protect the entire AF

9. Coordinating with other planners to determine appropriate maneuver and artillery coordination measures (ACMs)

10. Identifying supporting arms C2 issues with higher headquarters and adjacent and subordinate commands

11. Identifying NAIs where enemy activity or lack of activity confirm or deny an enemy COA or may support a friendly commander's DP.

A.5.3 Course of Action Wargaming

COA wargaming involves a detailed assessment of each COA as it pertains to the enemy and the battlespace. Each friendly COA is wargamed against selected threat COAs. The purpose of COA wargaming is to assist planners in identifying strengths and weaknesses, associated risks, and asset shortfalls for each friendly COA. Short of actually executing the COA, COA wargaming provides the most reliable basis for all echelons to understand and improve each COA. Specifically, COA wargaming can lead to:

1. A better understanding of the AF's battlespace and all its elements

2. Advantages and disadvantages of each friendly COA

3. Validation of the commander's decisive action

4. Validation and friendly and enemy COGs

5. Identification of branches and sequels.

A.5.3.1 Specific Major Tasks

The SAC, FFC, and other fire support planners address specific considerations during this step. These include:

1. Validating and refining:

   a. Fire support tasks determined during COA development and recording for later use in developing the OPLAN/OPORD/FRAGORD

   b. Which HPTs should be attacked in each COA

c. Coordination of supporting fires procedures with higher headquarters and adjacent and subordinate units or commands

d. ACMs and FSCMs in conjunction with the operations area, MSC boundaries, and maneuver control measures

e. Counterfire plan.

2. Preparing estimates of supportability. (See paragraph 4.4.3 for more details.)

3. Helping to develop the decision support template (DST) by identifying fires-related NAIs and TAIs associated with DPs. The DST is a key tool in the execution phase of the operation.

A.5.4 Course of Action Comparison and Decision

The purpose of this step is to allow the commanders to select the COA that will be executed to accomplish the mission. The commanders establish criteria such as risk, simplicity, supportability, etc., and evaluate each friendly COA against those criteria and each other. Once a COA is selected, the fires planning for that COA serves as the base concept of fires and the fire support annex of the OPLAN/OPORD. This step requires the participation of the commanders, their subordinate commanders, and their staffs. During this step:

1. The SAC, FFC, and other fire support planners must be prepared to brief their overall estimates of supportability for each COA.

2. Fire support representatives produce artillery, NSFS, aviation, and electronic warfare (EW) estimates that focus on how effectively each COA allows the detection and attack of HPTs with fires.

3. Effectiveness is measured in terms of time, terrain, projected loss of friendly assets, and the certainty of achieving the desired effects on enemy forces or capabilities.

4. Fire support representatives plan the support portion of any branch plans.

5. Lethal and nonlethal concepts of fires are completed for each COA.

6. The fires portion of the synchronization matrix is completed to ensure assets are integrated with other warfighting functions in time, space, and purpose.

7. The staffs and fire support planners refine NAIs, DPs, and HPTs.

8. Fire support planners and intelligence personnel integrate collection assets and refine the collection plan and TA plan.

9. Fire support planners develop fire support tasks, responsibilities, and requirements.

10. The SAC, FFC, and fire support representatives develop the fires employment concept and supporting arms coordination plan.

A.5.5 Orders Development

This step allows planners to communicate the commanders' intent, guidance, and decisions in a clear, useful form that is easily understood by those executing the orders. Orders direct actions and focus subordinate activities toward accomplishing the mission. During this step:

1. Final refinements to target decisions are made based on additional guidance from the commanders provided during the previous step.

2. Final refinements to EFSTs are incorporated into the CONOPS.

3. Schedules of fire for FSCMs and the FSEM are adjusted.

4. Detailed coordination is conducted with all external and organic supporting arms agencies and supported/adjacent AF units or commands. The results of this coordination are promulgated via WARNORDs.

5. The supporting arms coordination plan is coordinated with other supporting plans pertinent to the operation by the SAC, FFC, and other fire support planners.

A.5.5.1 Fire Support Planners' Major Tasks

Tasks included during this step are as follows:

1. Writing the concept of fires for the basic OPORD

2. Writing the OPORD's fire support annex

3. Drafting support tasks for the OPORD for subordinate units and commands

4. Completing all fires-related planning and execution tools, such as the DSM and TSS

5. Confirming that fire support tasks to subordinates are balanced

6. Ensuring proper terminology is used in drafting tasks or establishing goals

7. Assisting in the assessment process; ensuring the conditions, phases, targeting effects, etc., are understandable, achievable, and measurable

8. Conducting orders reconciliation with staffs using the basic OPORD and its annexes to ensure the concept of fires is an integral part of the unity of effort

9. Conducting an "orders crosswalk" to compare the order with higher and adjacent orders to prevent conflicts.

A.5.6 Transition

The final step in planning is transition. Transition ensures a successful shift from planning to execution. It enhances the SA of those executing the plan, maintains the intent of the CONOPS, promotes unity of effort, and generates tempo through timely, informed decisions. During this important final step:

1. The commanders and their staffs conduct briefs and rehearsal drills to enhance the situational awareness (SA) of those executing the OPORD.

2. Fires representatives to the OPT ensure the current fires section fully understands the concept of fires about to be executed.

3. MSCs must fully understand their fire-related tasks, and those tasks must be synchronized with the MAGTF scheme of maneuver and the other MSCs.

4. Fire support planners:

   a. Participate in the targeting boards

   b. Transition fire plans to the current fires section through briefs, drills, and fire support rehearsals.

5. The current fires section:

   a. Sets up appropriate maps, screens, monitors, and the journal

   b. Verifies communications nets and connectivity

   c. Verifies the availability of essential C2 support equipment.

6. The target information section:

   a. Prioritizes target nominations based on targeting priorities and designation of main effort

   b. Requests additional assets or capabilities to strike targets that cannot be attacked with existing AF assets

   c. Coordinates and conducts the MAGTF targeting board and prepares briefing slides and map graphics for that board

   d. Reviews published ATOs to verify that targets match targeting board deliberations

   e. Provides a detailed brief to the targeting board to ensure the rationale behind targets and their linkage to the CONOPS is fully understood.

A.5.7 Rapid Response Planning Process

Similar to the CAP process, R2P2 is a compressed timeline that provides commanders with an accelerated planning mechanism to facilitate mission execution within 6 hours of WARNORD receipt. The steps in this process and its important considerations are thoroughly delineated in paragraph 4.5.

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APPENDIX B

Coordination Tasks in Fire Support Execution

B.1 INTRODUCTION

Chapter 6 discusses Navy, Marine Corps, and joint asset fires execution requirements. Effective execution of supporting fires missions is predicated on detailed planning, a thorough knowledge of available ESG resources and assets, and a comprehensive understanding of the capabilities of those assets and resources. A myriad of tasks and considerations are vital to each step leading to the execution of artillery fire, NSFS, air strikes and CAS, and all other aspects of supporting arms coordination. However, the key to successful fires execution is the continuous coordination of tasks at all echelons of the ESG.

B.2 PURPOSE

The purpose of this appendix is to provide a listing of the most important coordination tasks required for the successful execution of supporting fires in amphibious operations.

B.3 ESSENTIAL COORDINATION TASKS

These tasks are basic and vital to successful supporting arms coordination execution. ESG fire support planners must ensure the following tasks are carried out:

1. Continually advise the commanders regarding changes in fire support status.
2. Based on the current and updated tactical situation, recommend changes to fire support employment.
3. Deliver fires on targets identified in the targeting process by executing specified attack guidance.
4. Select the best asset for attacking a target after considering availability, weaponeering, and coordination requirements.
5. Establish and use an approval process to clear fire requests.
6. Ensure fires are integrated to support the scheme of maneuver.
7. Coordinate fires between units at all levels.
8. Coordinate fires between the observer, a single asset, and/or multiple firing units.
9. Recognize when organic or available assets are not sufficient, and request additional fire support when needed.
10. Establish and maintain FSCMs to aid the rapid engagement of targets and provide safeguards for friendly forces and installations.

11. Attempt to resolve fire support conflicts at the lowest level, but most importantly, if conflicts arise, ensure a resolution is achieved.

12. Disseminate information such as unit locations, FSCMs, target information, and fire support status reports throughout the AF, within the FSCC, to other ESG and LF staff sections, and to adjacent battalions, NSFS ships, supporting artillery units, and higher headquarters.

APPENDIX C

Joint Fires

C.1 INTRODUCTION

Recent real world events have clearly demonstrated that all Services are involved in nearly every amphibious operation. As the ability to expand the size and scope of the battlefield increases through the introduction of new systems, equipment, and tactics, the delivery of joint fires by Navy, Air Force, Army, Marine Corps, and SOF assets in support of amphibious operations is certain to become key to the success of many future operations.

C.2 PURPOSE

The purpose of this appendix is to describe procedures for integrating and synchronizing ESG fires in support of the JFC's objectives. These procedures are intended to be adaptable to the full range of contingencies an ESG might face throughout the spectrum of conflict while acting as, or in support of, a joint task force (JTF). Fires are the effects of lethal or nonlethal weapons. This appendix will consider joint fires as those employed by functional and Service components. Implicit in the employment of fires is a logical process to select appropriate targets to gain control of a joint operations area (JOA).

C.2.1 General

The supported commander during the period where targets are attacked in amphibious operations has final authority over the fire support plan and target list. Those targets to be attacked by assets organic to the force are passed to the appropriate agencies for servicing. Targets identified for servicing by assets not organic to the force are forwarded to the next higher-level targeting board for consideration. At a minimum, the ESG and/or AF will provide LNOs to the JFC's joint targeting coordination board (JTCB). The keys to effective integration and synchronization of joint fires are a thorough and continuous planning process and vigorous execution of the plan through a coordinated effort. To improve the efficiency of the overall JTF planning process, component objectives and CONOPS will normally be completed in parallel with those of the JFC.

C.2.2 Types of Fires

Fires are classified as tactical, operational, or strategic, based on intended effect and are described as follows:

1. Tactical fires. The primary purpose of tactical fires is to directly and immediately support tactical operations of the joint force against appropriate tactical decisive points. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives. Therefore, maneuver commanders exercise control over tactical fires that support the scheme of maneuver.

2. Operational fires. Operational fires may be joint or multinational and are planned to achieve a decisive impact on the campaign or operation. They are a separate element of the JFC's CONOPS (addressed separately from operational maneuver), but must be closely integrated and synchronized with the concept for maneuver. Operational fires are classified by their intended effect and are conducted to accomplish operational-level objectives. Synchronizing operational fires helps sequence events and initiating actions, thereby applying resources necessary to bring about and sustain events supporting those operational objectives. In that regard, operational fires are integrated with operational maneuver for synergistic effect, staying power, and more rapid achievement of strategic aims. Operational fires are not the same as fire support

fires, nor is operational maneuver necessarily dependent upon them. However, operational maneuver can be affected by, and exploit, opportunities created or developed by operational fires.

3. Strategic fires. Strategic fires are intended to achieve a major impact at the strategic level, and therefore impact on the course of the theater campaign or war as a whole. Activities at the strategic level establish national and multinational military objectives, sequence initiatives, define limits, and assess risks associated with the use of military and other instruments of national power. They also develop global or theater war plans to achieve those objectives. Strategic fires include the selection and assignment of strategic targets to attack-capable forces. The combatant commander makes the forces and resources available for attacking those targets according to the theater strategy, campaign, or war as a whole.

More detailed information is available in JP 3-09, Doctrine for Joint Fire Support.

C.3 CONCEPT OF FIRES

The concept of fires describes the manner in which tactical, operational, and strategic fires are integrated and synchronized with the overall operation. The concept of fires should be task oriented, measurable, and linked to component tasks as assigned in the CONOPS.

C.4 SITUATIONAL AWARENESS

The degree of detail required to execute joint fires missions varies with the situation, but, as a rule, the JTF commander needs more general information pertaining to trends and capabilities that may affect present and future operations. Additionally, the commander must know the location and status of all joint fire support assets. This information must be disseminated to higher headquarters and laterally within the JTF.

C.5 EXECUTION OF FIRES

The execution of joint fires in support of CJTF objectives is accomplished through the various components. The JTF's Chief, JFE is responsible for monitoring the effects and integration of joint fires among the components.

C.5.1 Joint Task Force Targeting Process

The efficient functioning of the targeting process is critical for synchronizing joint fires. Coordination between the components and JTF staff elements is essential for successful mission accomplishment. A detailed discussion of joint targeting is found in JP 3-60, Joint Doctrine for Targeting.

C.5.2 Joint Time-Sensitive Targets

A joint TST is one that requires cooperation and/or coordination by two or more Services or components to successfully engage. Examples of joint TSTs include those cases when one component fires into or through another component's area of operations, or when the effects of attacking a TST could cause fratricide or other collateral effects impacting on another component's mission. Components must inform all affected agencies when attacking joint TSTs, because another component may be able to engage that target more quickly and effectively. In some cases, as specified by the JFC, because of the nature of the target, the engaging component will not delay the attack waiting for coordination with other affected components. The following procedures are for targets detected and verified as TSTs per JFC guidance, as well as those requiring immediate action by functional components:

1. The JFC prioritizes TSTs for immediate response. Additionally, the commander establishes guidance for coordination and deconfliction between components in a theater and/or JOA. The JFC normally defines those situations where immediate destruction of an imminent TST threat outweighs the potential for duplication of effort and fratricide.

2. Once guidance is provided, the components establish procedures for attacking planned and immediate TSTs. A key to effectively engaging TST in a timely manner is to complete as much of the coordination

and decisionmaking as possible ahead of time. Also, the reaction time between the sensor and shooter can be greatly reduced if the on-scene commander knows exactly what the JFC desires when time compression precludes thoroughly coordinating all decisions and actions.

3. The JFC may designate the JFACC as the TST coordinator within the JOA.

4. To increase the efficiency of prosecuting TSTs and monitoring TST identification and execution, the JFE should assist in preplanned coordination between components.

C.6 RESPONSIBILITIES

The paragraphs below delineate the duties and responsibilities of the JTF commander and key staff members.

C.6.1 Commander, Joint Task Force

For purposes of this appendix, the terms CJTF and JFC are used interchangeably. The CJTF, with staff assistance, synchronizes fires in time, space, and purpose to increase the total effectiveness of the joint force effort. The CJTF also:

1. Retains authority and responsibility to direct priorities, relative levels of effort, and the sequence of those efforts to the components. This authority may be delegated to the deputy commander, joint task force (DCJTF).

2. Provides and approves guidance and objectives for operational planning and targeting.

3. Approves the air apportionment recommendation and draft JIPTL. The CJTF may also delegate approval authority for these items to the DCJTF.

4. When required, directs the formation, composition, and specific responsibilities of the JTCB.

C.6.2 Deputy Commander, Joint Task Force

When delegated authority, the DCJTF, with staff assistance, directs priorities, related levels of effort, and the sequence of those efforts to the components. The DCJTF normally chairs the JTCB.

C.6.3 Joint Task Force Operations Officer

The joint task force operations officer is the principal staff advisor to the CJTF for the coordination, integration, and synchronization of joint fires with other major elements of the operation, e.g., maneuver, IO, special operations, and logistics. The J3 also:

1. Develops mission-type orders and guidance for CJTF approval

2. Develops theater/JOA-wide joint targeting guidance, objectives, and priorities for CJTF approval

3. Coordinates ROE between subordinates and higher authority

4. Recommends, reviews, designates, and disseminates JTF-level FSCM

5. Coordinates closely with the J2 to ensure that the commander's priority intelligence requirements to support targeting are fully integrated into the intelligence collection plan. Ensures priorities are disseminated to components

6. Organizes the JFE

7. Ensures IO is integrated and synchronized with other elements of the operation

8. Develops the JTCB roles, functions, and agenda for DCJTF/CJTF approval.

C.6.4 Joint Task Force Intelligence Officer

The joint task force intelligence officer performs the following tasks:

1. Gathers intelligence information and oversees the analysis and interpretation of such data

2. Participates in the development of the JTL

3. In conjunction with the JFE, participates in the development of the RTL, NSL, an HVTL, and the HPTL

4. Coordinates intelligence resources, reporting, products, and services to support the CJTF's targeting process

5. Recommends collection priorities for theater and national collection, and itelligence, surveillance, and reconnaissance (ISR) taskings and works with the J3 and Chief, JFE for organic ISR collection requirements

6. Conducts BDA and supports the JFE in the CA process

7. At the direction of the J3, manages the overall joint force collection requirements in support of the CJTF's targeting effort.

C.6.5 Chief, Joint Fires Element

Upon establishment of the JFE, the Chief becomes the principal staff advisor to the J3 for the coordination, integration, and synchronization of joint fires with other major elements of the operation such as maneuver, IO, special operations, and logistics. Also, the Chief, JFE may be responsible for hosting and providing administrative and technical support to the JTCB.

C.6.6 Liaison Officer Functions

LNOs are charged with four major functions:

1. Monitor. LNOs monitor the development of plans and current operations. They are responsible for knowing the current situation and planned operations and understanding issues pertinent to the components they represent.

2. Coordinate. LNOs facilitate the synchronization and integration of current operations and future plans between the JTF, components, and allies. They should also anticipate information requirements.

3. Advise. LNOs advise the JFE regarding the capabilities and limitations of the components they represent.

4. Assist. First, an LNO acts as the conduit for information between headquarters. Second, by integrating into the JFE as a participant in the daily operations cycle, LNOs provide invaluable insight into the best utilization of component assets.

C.6.7 Liaison Officer Tasks

The following are key LNO tasks:

1. Understand the mission of the component they represent, their commander's expectations, specific responsibilities of the sending and receiving organizations, and the command relationship that exists or will exist between the sending and receiving organizations.

2. Be familiar with potential issues that may arise between the component represented and the JFE.

3. Know the current situation, to include their commander's intent, CCIRs, and CONOPS.

Components provide LNOs to the JFE based on resources, mission, enemy, terrain and weather, troops and support available—time available (METT-T), and command requirements. The JTF headquarters provides communications access, workspace, quarters, and sustenance for all LNOs. However, LNOs provide their own mission-specific equipment.

C.7 ORGANIZATION

The paragraphs below provide an overview of the organization of the elements that facilitate the joint fires and targeting process.

C.7.1 Joint Targeting Coordination Board

The JTCB is a group formed by the JFC to accomplish broad targeting oversight functions that may include, but are not limited to, coordinating targeting guidance and priorities, and preparing or refining the JTL. The board is normally composed of representatives from the JFC staff, all components, and component subordinate units, if required. The JTCB meets daily to review each component's plan for employing joint fires. Additionally the JTCB:

1. Recommends approval of the JIPTL to the CJTF

2. Submits the air apportionment recommendation to the CJTF for approval

3. Provides draft operations targeting guidance to the CJTF for approval.

C.7.2 Joint Fires Element

The JFE provides recommendations to accomplish fires planning and synchronization. This optional organization is made up of SME representatives from all components, both functional and Service. It captures the CJTF's intent for fires and ensures unity of effort among components. The JFE also:

1. Provides guidance to integrate and synchronize joint lethal and nonlethal fires

2. Monitors higher headquarters, JTF staff, and component target nominations

3. Recommends targeting guidance and priorities to the CJTF

4. In coordination with the component commanders, reviews and recommends the establishment of joint-level battlefield geometry relating to joint fires

5. Plans, coordinates, and facilitates the daily JTCB

6. Coordinates the establishment, adjustments, and dissemination of all FSCMs throughout the JOA

7. Maintains a journal for recording significant fires-related events such as HPT/HVT executed, component and assets used in execution, and BDA

8. Provides administrative and technical support to the CJTF.

C.7.3 Joint Fires Element Composition

The JFE is composed of three subelements, or cells, described below.

C.7.3.1 Current Fires Cell

This cell is the focal point for operations in the execution of fire plans. All current supporting arms issues are coordinated through this cell. The Current Fires Cell also:

1. Monitors the current overall situation
2. In coordination with component commanders, advises the DCJTF on FSCMs
3. Serves as principal representative body to the joint operations center (JOC) for all matters pertaining to current joint fires operations
4. Produces and disseminates all immediate updates to current fires
5. Recommends immediate updates to joint FSCMs
6. Facilitates the prosecution of immediate TST attacks
7. Coordinates with the joint intelligence, surveillance, and reconnaissance (JISR) cell for immediate ISR requirements.

C.7.3.2 Fires Plans Cell

This cell is the focal point for the supporting arms planning effort. The fires portions of JTF plans, orders, and various fire support tools used in the execution of JTF operations are prepared in this cell. The Fires Plans Cell also:

1. Provides representation to the future operations officer (FOPS) and the joint planning group (JPG)
2. Coordinates directly with the FOPS within the JPG to support order and plans development
3. Provides the fire planning linkage between the FOPS, JFE, and JTCB
4. Develops fires tools and matrices.

C.7.3.3 Targeting Cell

This cell is the focal point for the targeting effort between the JTF staff elements and components. The Targeting Cell:

1. Monitors target intelligence as it pertains to current and future fires
2. Maintains:
   a. The JTL
   b. The HPTL and assists the joint intelligence support element (JISE) in developing HVTs
   c. The RTLs and NSLs
3. Facilitates the JTCB's targeting working group

4. Ensures CJTF targeting priorities are fully integrated into the intelligence collection plan

5. Provides administrative and logistical support to the JTCB.

C.7.4 Components

The components execute fires per CJTF guidance. While JTF staff personnel possess experience and expertise required by billets, specific and detailed knowledge of component capabilities and assets may not be resident among those staff members. Therefore, the JFC and the staff rely on the components to provide the following:

1. Cross-component coordination to facilitate fires. JTF notification is necessary only when the effects of fires occur outside component areas of operation

2. Input to the JFACC for the daily air apportionment recommendation

3. Identification of requirements and nomination of targets to the JTF or the appropriate component commander

4. Assets, as directed, for employment against immediate targets and targets on the JIPTL

5. BDA and CA products to the JTF and other components.

C.7.5 Joint Force Air Component Commander

The JFACC is normally designated by and thus derives their authority from the JFC. The JFACC's responsibilities normally include, but are not limited to, planning, coordinating, allocating, and tasking based on the JFC's apportionment decision. Also, the JFACC:

1. In coordination with other component commanders and the Chief, JFE recommends apportionment of air sorties to various missions or geographic areas

2. Establishes a timeline for the air tasking cycle

3. Generates and publishes the joint ATO

4. Coordinates, deconflicts, integrates, and synchronizes joint air operations assets made available for tasking with other elements of the JTF operation.

C.7.6 Joint Force Land Component Commander

Normally designated by the JFC. As defined in JP 1-02, the joint force land component commander (JFLCC) is responsible to the JFC for making recommendations on the proper employment of land forces, planning and coordinating land operations, and/or accomplishing such operational missions as may be assigned. Provided with the authority necessary to accomplish missions and tasks assigned by the JFC or establishing commander, the JFLCC is normally the commander with the preponderance of land forces and the requisite C2 capabilities. On some occasions the CLF may be designated as the JFLCC.

C.7.7 Joint Force Maritime Component Commander

Normally designated by the JFC. As defined in JP 1-02, the joint force maritime component commander (JFMCC) is responsible to the JFC or establishing commander for making recommendations on the proper employment of maritime forces and assets, planning and coordinating maritime operations, and/or accomplishing such operational missions as may be assigned. Provided with the authority necessary to accomplish missions and tasks assigned by the JFC or establishing commander, the JFMCC is normally the commander with the

preponderance of maritime forces and the requisite C2 capabilities. On some occasions the CATF may be designated the JFMCC.

C.7.8 Joint Force Special Operations Component Commander

As defined in JP 1-02, the Joint Force Special Operations Component Commander (JFSOCC) is responsible to the JFC or establishing commander for making recommendations on the proper employment of SOF personnel and assets, planning and coordinating special operations, and/or accomplishing such operational missions as may be assigned. Given the authority necessary to accomplish missions and tasks assigned by the JFC or establishing commander, the JFSOCC will normally be the commander with the preponderance of SOF assets and the requisite C2 capabilities. Depending on the size and complexity of the operation, the AF SEAL platoon leader may be designated the JFSOCC.

C.8 CONCLUSION

Joint fires are the synergistic products of three subsystems: target acquisition, C2, and attack (lethal and nonlethal) resources. Rarely are multiple, redundant, and interoperable C2 systems and optimum attack and acquisition assets available simultaneously. Therefore, the successful application of joint fires depends on the close coordination and optimization of these limited subsystems. The function of joint fires binds supporting arms resources together so that the multiple effects and capabilities of each asset are synchronized to support the commander's intent and the CONOPS.

APPENDIX D

Emerging Technologies and Capabilities

D.1 INTRODUCTION

Recent significant advancements in computers, information technologies (IT), and equipment have contributed to advancements in Navy and Marine Corps strike and fire support capability. Enhancements in AF information access and equipment hardware offer new options for mission planning and execution management. As even more advanced weapons systems, C2 architectures, mission planning, and intelligence-gathering tools are developed, strike and fire support tactics and procedures must evolve and allow AFs to more rapidly and effectively employ these advancements.

Evolving joint and coalition amphibious and expeditionary operations and the dynamics of worldwide political-military relations are changing the required operational capabilities and projected operating environments of Navy and Marine Corps forces. With increased frequency, naval units charged with providing supporting fires will operate in close proximity to the shore and across a broader range of missions. Emerging technologies designed to increase the responsiveness, accuracy, and lethality of sea-based strike and fire support will drive the need to revise warfighting doctrine.

For example, future warships will employ systems and tactics delivering lethal and responsive assets equal to or better than those available from any other fires providers in the littoral battlespace, against any type of target. In particular, the surface fleet will be capable of providing a scalable set of lethal and nonlethal effects on the land battle, ranging from a single precision missile strike to a sustained barrage. Affordable smart weapons and warheads will be effective against a wide range of targets, day or night, in any weather or terrain, and with control measures suitable for ROE from small-scale contingencies to general war. As demonstrated in recent conflicts, aircraft and surface combatants are capable of delivering powerful precision-guided fast attack missiles hundreds of miles inland. This has decreased the need for local air superiority and SEAD. Tomorrow's LF will have even more options, including calling in precision fires from a sea-launched loitering Tomahawk or UAV.

Future supporting fires will be deployed against targets that are mobile and better protected by cover, camouflage, and deception. Military leaders, influenced by an institutionalized aversion to collateral damage and unintended civilian casualties, will push for greater precision in attack and greater control over impact effects. Networked sensors and longer-range weapons will provide opportunities for a shift in the preponderance of strike fires from aviation assets to a broader balance of air, surface, and subsurface platforms. Response to demand for strike and fire support will be unconstrained by weather, yet increasingly challenged by a smaller force structure. These expanded expectations will present new challenges for battlespace deconfliction and fires synchronization. They will also require greater levels of responsiveness and lethality from platforms that are multimission capable.

D.2 PURPOSE

The purpose of this appendix is to provide a description of some of the emerging technologies, equipment, and capabilities involved in supporting arms that are being introduced now, or will be assets available to AF and ESG fire support planners and operators in the near future. Additionally, many of the newest supporting arms capabilities, concepts, and systems are discussed in Appendix E.

D.3 JOINT FIRES NETWORK

The emerging C2 CONOPS for distributed and networked fires capability includes the joint fires network (JFN). The "JFN converged architecture" is composed of three primary systems already in the fleet, or in the process of being introduced. These systems are the GCCS-M, the tactical exploitation system-Navy (TES-N), and the joint service imagery processing system-Navy (JSIPS-N). Much like the information network that uses each platform and its sensors as nodes for surveillance, reconnaissance, and targeting, the JFN treats each platform as a node in a network of potential fires providers. Instead of having dedicated fires providers matched to parts of the target set for scheduled and on-call fires, forces requiring Navy fires will be "serviced" by the asset best able to meet specific needs of the strike or fire support request. This approach will result in minimal impact on the commander's total fires capability.

In the near future, through "transparency of fires," it is envisioned that streamlined targeting and tasking, enabled by new, improved, and all-encompassing communications and surveillance networks, coupled with high weapon effectiveness independent of range and environmental conditions, will eliminate the distinctions now applied to the ordnance delivery from different platforms. The LF commander (supported commander) should see no difference in results, regardless of the origin of the fire, whether from ship, aircraft, or artillery battery.

The JFN is also discussed in Appendix E and in NWDC TACMEMO 2-01.1-02, Naval/Joint Fires Network (N/JFN).

D.3.1 JFN Requirements and Future Development

Fleet representatives, centers of excellence (COEs), applicable systems commands, program offices, and Marine Corps representatives are working diligently to develop JFN requirements as well as a comprehensive plan for future design and development of the system and its components. As of spring 2003, these representatives had detailed some of the critical requirements for and issues that should be considered in the development of the JFN as follows:

1. Joint interoperability. The network must be capable of operating seamlessly with other Service components in a joint operational environment. For example, Navy afloat JFACCs must be designed and outfitted in concert with the JFACCs ashore. The JFACC afloat and ashore must strive to establish a common configuration or baseline for JFACCs that will allow shore-based personnel to work within an afloat JFACC without the need for additional training. Also, the architecture should be designed to allow future allied participation and interoperability.

2. Continued capabilities. Because fleet users rely heavily on currently fielded systems, JFN development and architecture convergence efforts (e.g., merging funding lines for GCCS-M, JSIPS-N, and TES-N) should not result in any loss of current capability.

3. Spiral development. JFN should be fielded utilizing spiral development, with each successive spiral delivering additional capabilities and functionalities. In this step-by-step plan, subsequent spiral fielding should not take place until the majority of the objectives of the preceding spiral are achieved.

4. User requirements. Using inputs from commands already outfitted with the JFN, representatives from the fleet, systems commands, and program offices have developed a prioritized list of JFN requirements. While not all-inclusive, it identifies the highest-priority fixes to currently fielded configurations and provides a JFN development roadmap and helps lead system convergence efforts.

5. Digital linkage. An important capability is joint digital linkage between the targeting node and tactical strike aircraft. This includes the capability to nominate and designate emerging targets, and the transmission of aim points and imagery data to airborne strike aircraft.

6. Geopositioning. These capabilities must be tied to the national imagery database. Naval systems must produce geolocational data that meets or exceeds accuracy requirements for current and future precision munitions using data products from a variety of joint and national sensors and sources.

7. Capability to receive, store, exploit, and manipulate data. The JFN must be able to handle the receipt of data from a wide range of sensors and sources. This includes national, theater, and tactical sensors as well as a seamless link to digital intelligence product libraries and imagery products. Inherent in this capability is a cross-cueing functionality that automates the correlation and display of overlaid data from various joint sources across different security levels. This also includes the ability to produce targeting products, including, but not limited to, precision aim points, annotated imagery, target acquisition products, and the ability to nominate emerging targets.

8. Automated target-weapon pairing tool set. This will aid the decision maker in matching available strike assets with emerging targets. Inclusive in this targeting capability is a weapons effects estimator that encompasses collateral damage assessment.

9. Capability to operate in a shipboard environment. This includes integration with existing and future joint communications infrastructures.

D.4 TACTICAL TOMAHAWK

The TLAM Block IV and its associated supporting systems have been designed to further enhance Tomahawk weapon system responsiveness and tactical utility. New capabilities include missile redirection in flight, missile status messages, imagery, and launch platform mission planning (LPMP). TACTOMs can be placed in an extended mission flightpath, such as a loiter area, allowing for time-critical targets to emerge, which can then be struck by redirecting the missile from its default target. Using these new planning tools, "GPS only" missions can be planned on the launch platform in less than 10 minutes. Low-quality black and white imagery can be taken from the missile's camera and transmitted to the firing unit (FRU) or designated missile monitors. However, a limitation exists in that a request for imagery must be preplanned into the missile's mission, rather than generating it while the missile is in flight. These images can be used for cursory BDA or target identification. Timelines for "GPS only" missions in TLAM Block III and TLAM Block IV missiles are shortened considerably by using the LPMP capability to generate a firing mission aboard the FRU. This removes the costly mission distribution waiting period sometimes experienced when using traditional planning procedures and assets.

D.4.1 Tactical Tomahawk Weapon System

The TTWS Baseline IV provides enhanced flexibility and responsiveness over the previous system. This flexibility is provided by the use of UHF satellite communications (SATCOM) connectivity with the missiles and participants through the Tomahawk strike network (TSN). The TSN allows C2 nodes as well as FRUs to communicate requests and updates to each other. The TSN also allows missile controllers to receive imagery from the missile, request and receive missile status messages, and redirect the missile in flight. Responsiveness is enhanced through reduction in mission-planning timelines and missile prelaunch requirements. In addition, missile lethality is improved through greater accuracy, the anti-GPS jammer, and steeper dive angles. Ships and submarines with the improved TTWS can provide better NSFS to forces ashore far beyond the range of the 5-inch guns available in the fleet, and can substitute for TACAIR support when not available or at risk.

D.4.2 Tactical Tomahawk Weapon Control System

The TTWCS is the element of the TTWS installed in surface ships and submarines. It is the version of the Tomahawk weapon control system developed to handle TACTOM (and TLAM Block III) missions and missiles.

D.4.3 Tomahawk Land Attack Missile Strike Coordinator

The Tomahawk land attack missile strike coordinator (TSC), typically the numbered fleet commander or a designated agent, is responsible for all TLAM planning, coordination, and reporting in a strike or series of strikes. The

TSC can task the FRU verbally or through the use of electronic strike packages. A voice call for fire (CFF) may come from a FO or FAC via radio on a designated channel. The TSC ensures that the proper coordination is maintained between supported/supporting commanders, ground units, and FRUs to effectively integrate the TLAM into the strike or scenario. Equally critical to the entire process is the LAC, who is responsible for coordinating missiles launched by the various FRUs. The TSC can also order the launch of another missile to replace a missile in loiter as appropriate, or in accordance with pre-established supported force munitions allocations. NTTP 3-03.1, TLAM Employment Manual; NTTP 3-03.2, TLAM Launch Platform Weapon Systems and Tactics; NSAWC TM 3-03.1-03, TACTOM Employment Procedures; and SWDG TM 3-03.2-03, Tactical Tomahawk Launch Platform Weapon Systems and Tactics provide further guidance.

D.4.4 Operational Policies and Constraints

FOs or FACs will have the capability and authority to request TACTOM direct from the FRU. However, all requests will be forwarded through a fires coordination agency: The SACC/FFCC, FSCC, or TSC. When a fires coordination agency is not present, the FRU's combat information center (CIC) will perform this function.

D.4.4.1 Supporting Arms Coordination Center Role in TACTOM Utilization

The existing amphibious warfare planning process, strike planning, and fire support coordination doctrine remain valid for the purpose of requesting and using TACTOM assets. The SACC (or possibly the FFCC) remains responsible for coordinating fire support, and must coordinate with the TSC and CWC to determine the expected level of support from the Tomahawk FRUs. This coordination *must* occur prior to the time that fire support is required, and the TSC or CWC must commit to a definitive number of missiles during a particular period of time from specifically identified FRUs.

As described in Chapter 2, the FSCC performs similar functions ashore as the SACC does afloat. The FSCC's major limitation in TLAM and TACTOM employment is the availability of over the horizon (OTH) communications assets.

D.4.4.2 Using Tomahawks in Loiter

For deep strike missions, the extended time of flight (TOF) of the subsonic Tomahawk missile is a planning consideration maneuver forces must be aware of and assess carefully. A method that significantly decreases TOF is to have the missile (or missiles) loitering on station awaiting an in-flight mission modification message (IMMM) from the missile controller. It is anticipated that missile loitering will be the best option for approaching the Marine Corps' desired response time for CFF of less than 10 minutes.

Since the missile cannot intentionally return to the launch platform, loitering missiles must have preplanned missions loaded in case they are not required for CFF or if onboard fuel gets too low. This requires additional planning and coordination. First, non-CFF missions must be planned prior to launch from an alternate set of targets. Second, airspace management and coordination must be accomplished for the loiter area and along the missile flightpath.

D.5 SUMMARY OF TACTICAL TOMAHAWK IMPACTS

It is anticipated that the introduction of TACTOM as an asset and force multiplier in planning and conducting fire support in amphibious operations will yield primarily positive results and impacts. The paragraphs below discuss some of these impacts.

D.5.1 Operational Impacts

The survivability of the Tomahawk missile, extended range, and warhead size make it an ideal weapon to meet the fire support needs for ground forces. The missile also provides excellent support for SOF for the following reasons:

1. No aircraft or aircraft carriers are needed in the area of the strike to give away the presence of SOF. Additionally, a submarine launch may preclude the presence of a surface ship, and a Tomahawk launch from a submerged submarine can minimize the possibility of alerting an adversary to an impending strike.

2. The fly-in heading of the missile can be predetermined or requested, thus protecting the SOF while disguising the exact source of the weapon.

3. The small radar profile makes the missile less detectable, thereby offering an element of surprise prior to impact.

TACTOM can lessen the risk to TACAIR assets when used in areas with an integrated AD system where TACAIR is more vulnerable. Further, TLAM can eliminate these ADs and allow TACAIR to safely conduct supporting fires.

D.5.2 Mitigate Limited Availability of Naval Surface Fire Support Ships

There may be occasions when other supporting arms are not available or NSFS ship support is inadequate. In such cases, the AF may place increased emphasis on air support for prelanding bombardment and preplanned fire support. TACTOM may be used to augment TACAIR.

D.5.3 Supplement Limited Early Artillery Employment

In situations where artillery can be emplaced on offshore islands or inserted with helicopter assault forces within effective range of the objective area, TACTOM can assume an important role in providing long range fires for the LF. This increases the effectiveness of combined arms in concert with air and other NSFS requirements.

D.5.4 Facilitate Over-the-Horizon Assaults

The OTH assault is an operational concept for positioning the ESG and AF farther offshore in the execution of the ship-to-shore phase of an amphibious operation. It is intended to enhance the survivability of the ESG and AF. TACTOM employment can increase the likelihood of achieving tactical surprise while projecting power ashore. In these situations, planners must be attentive to the ability to establish and maintain communications between ESG and AF elements. The availability of strike, aviation, CAS, and fire support assets for the assault must be considered. TACAIR will likely be available initially to support the assault element. Additionally, TACTOM may be used as long-range fires, thereby facilitating ship movement to within gun range. Once artillery is ashore, it too becomes available as a force multiplier for combined arms.

D.5.5 Streamlining Organizational Structure

The availability of TACTOM in the CFF role will not require the addition of any new organizations to the OOB. However, it will increase the options available to the coordinating agency (SACC/FFCC, FSCC, TSC). Also, the workload on the TSC and/or FRU may increase, as those elements will have to support emergent CFF in addition to preplanned missions and managing missiles in flight.

D.6 TACTICAL TOMAHAWK AND SEA POWER 21

The introduction of TACTOM will enhance the AF's ability to comply with two of the three main tenets advocated in Sea Power 21: Sea Strike and Sea Basing.

D.6.1 Sea Strike

This tenet, by definition, is the projection of responsive, precise, and persistent offensive power. TACTOM, in the near term, provides a weapon system that facilitates coastal maneuver by the ESG and ATF and initial maneuver ashore by the LF and reduces sensor-to-shooter time from hours to minutes. As a longer-term goal, TACTOM will facilitate the LF's ability to carry out deep inland maneuver and, particularly in the loiter mode, could

decrease the sensor-to-shooter timeline from minutes to seconds. Further, it is a system that will enhance the TST capability with increased reach, speed, persistence, and lethality.

D.6.2 Sea Basing

This tenet is the projection of joint operational independence and power from the sea. For sea basing to fully mature, several capabilities and subcapabilities must be realized. One of these is the projection of firepower for the support of forces ashore. TACTOM is the epitome of sea-based firepower projection. In fact, missile fire from surface combatants and submarines, along with NSFS, is identified in Sea Power 21 as one of the legs of the complementary triad of fires considered integral parts of sea basing. Along with OAS and artillery, rockets, and mortars, these complementary sea-based systems provide operational fires and fire support to maneuver forces (particularly, those forces operating at the extended ranges of ship to objective maneuver (STOM), where they are likely to have less organic firepower available). Increased accuracy, responsiveness, and volley capability, such as that provided by TACTOM, will enable sea-based fires to increasingly satisfy maneuver fire support requirements and enhance the overall AF combat power.

D.6.3 FORCEnet

This concept, as another aspect of Sea Power 21, focuses on the integration of the power of warriors, sensors, weapons, networks, and platforms. TACTOM readily fits into one of this concept's goals, to provide a plan to establish a COP (air, surface, and subsurface) to achieve advances in tactical engagement speed, accuracy, and range.

D.7 EXTENDED RANGE GUIDED MUNITIONS

In addition to precision-strike capability through TACTOM, in the future, cruisers and destroyers may be fitted with the Mk 45 Mod 4 long-range gun and the 155-mm advanced gun system (AGS). Surface guns, currently limited in range, will play an increasing role in battlefield interdiction and direct fire support by offering GPS-guided munitions (GGM) fires at ranges up to 100 nm. AGS will extend ranges of surface guns, making them capable of firing from 12 to 60 nm, and eventually up to 100 nm. The extended range guided munitions (ERGM) adds the GGM level of accuracy to strike and fire support from surface platforms.

D.7.1 ERGM Characteristics

The ERGM is a 5-inch/127-mm projectile fired from the 5-inch/62-caliber Mk 45 Mod 4 gun. It will carry 72 submunitions, containing a primary impact fuze and a self-destruct backup fuze to reduce the hazard of duds on the battlefield. Each round will be guided by a GPS with an inertial navigation system (INS) for backup. This guidance capability will provide a resulting circular error probable (CEP) of 20 meters.

ERGM is expected to achieve ranges in excess of 41 miles, with a maximum objective range of 63 nm. Target coordinates will be generated by friendly surface forces in the proximity of the target using handheld target-locating devices or by targeting sensors carried on other platforms, such as manned or unmanned aircraft. Target coordinates are provided to the surface combatant either digitally or via voice circuits.

In contrast to the flat trajectory of conventional NSFS munitions, the ERGM has a much higher trajectory and a near-vertical attack angle. This makes it well suited for attacking targets in defilade, which, due to terrain features, would render conventional munitions ineffective. Due to the steep trajectory, a restricted operations zone may be required around the firing ships and target area.

A single Mk 45 gun mount is installed in Aegis destroyers (DDG 81 and subsequent). Two Mk 45 mounts are also backfitted on some Aegis vertical launching system (VLS) cruisers. The gun mount loader drum contains ready-service autoloader capacity for up to 20 ballistic rounds or 10 ERGM rounds, or a mix of ballistic and ERGM rounds in ready service. The gun mount can fire at a continuous rate of 20 rounds per minute for conventional length projectiles. The longer ERGM rounds have a firing rate limited to approximately 10 rounds per minute. The sustained rate of fire is about 10 to 12 rounds per minute for ballistic ammunition, depending on the

magazine crew's proficiency. For ERGM, the magazine will have a handling assist system that allows loading of ERGM rounds at a sustained rate of about two to four rounds per minute.

D.8 ARMY TACTICAL MISSILE SYSTEM

This U.S. Army system has proven effective in development, and consequently, the Marine Corps is considering adding this enhanced anti-armor capability to its inventory.

D.8.1 ATACMS Block II

ATACMS Block II is a semiballistic, surface-to-surface guided missile that carries 13 brilliant anti-tank (munitions) (BAT) or BAT P3I submunitions that can achieve ranges out to 140 kilometers. The primary target set for the missile is large battalion-size concentrations of moving armor. Once dispensed, the BAT submunition can autonomously seek and destroy moving armored targets through acoustic and infrared sensors. BAT P3I munitions will expand the target set to include hot or cold, stationary or moving, hard or soft targets.

D.8.2 ATACMS Block IIA

ATACMS Block IIA is a semiballistic, surface-to-surface guided missile that carries six BAT P3I submunitions with ranges from 100 to 300 kilometers. It will have a GPS-augmented inertial guidance and off-axis launch capability. Once fired, the missile can autonomously detect and destroy moving or stationary targets through acoustic, millimeter wave, or infrared sensors. The submunition has increased performance over the basic BAT submunition in adverse weather and countermeasure environments.

D.9 TARGET LOCATION DESIGNATION AND HANDOFF SYSTEM

The target location designation and handoff system (TLDHS) is a modular, man-portable (43 pounds), automated target acquisition, location, and designation system that will give FOs, FACs, NSFS spot teams, and reconnaissance teams the ability to quickly locate, acquire, laser designate, and digitally transmit (handoff) target data to fire support coordination and direction agencies or weapon delivery platforms. It has the capability of designating moving targets at up to 3,000 meters and stationary targets at up to 5,000 meters. The maximum rangefinding capability is 10,000 meters. The TLDHS is composed of two independent subsystems — the lightweight laser designator rangefinder (LLDR) and the digital automated communications terminal (DACT).

D.9.1 Lightweight Laser Designator Rangefinder

The LLDR provides a precision target location and designation capability through the integration of the following:

1. Day and thermal optics
2. Eye-safe laser rangefinder
3. Angle and vertical angle
4. GPS receiver
5. Laser designator for laser-guided weapons (LGWs) and spot trackers.

D.9.2 Digital Automated Communications Terminal

The DACT is a tactical input/output battlefield situational awareness system and communications terminal. DACT will receive, store, create, modify, transmit, and display map overlays, operational messages and reports, and position information via tactical radios, networks, and wire lines. DACT is scheduled to replace the digital

communication terminal (DCT) and will serve as the Marine Corps' primary data entry system into the AFATDS.

D.10 NAVAL FIRE CONTROL SYSTEM

The AN/SYQ-27 Mission Planning System, Naval Fires Control, commonly known as the naval fire control system (NFCS), is a naval surface fires mission planning system that will effectively employ NSFS weapons and munitions (ERGM and conventional ballistic munitions) from Arleigh Burke Class destroyers and Ticonderoga Class cruisers in the joint littoral environment. It provides a critical link between Navy surface combatants and Marine Corps and Army FCEs ashore. It will enable the Navy to support the digital ground battle and enhance its input to the COP. NFCS consists of the system interfaces, computer resources, software, and human-computer interfaces (HCIs) required to conduct fire support operations. It is a node of the digital fires network that utilizes AFATDS as its primary data distribution system. Note: This is *not* a fire control system.

D.10.1 NFCS Advantages

NFCS allows fire support planners and operators to realize several advantages and improvements when used with existing and advanced gun munitions. Some of these advantages include:

1. Manpower Reductions. NFCS, which can be operated from any of the ship's advanced Tomahawk weapons control system (ATWCS) advanced tactical data consoles (ATDCs), will reduce the current shipboard NSFS manning requirement from 10 to 13 people to 3 to 5 people. This system will change the response time to support fire missions from 1 minute or greater to 10 to 45 seconds. The system also provides the ability to reduce the manning of the NSFS team by automating many functions such as the following:

   a. Plotting

   b. Verifying:

      (1) Target engageability

      (2) Target elevation

      (3) GTL and range concurrence

      (4) Fire missions against the Protected Target List.

   c. Maintaining awareness of ammunition expenditure

   d. Performing terrain analysis to avoid terrain clobber.

2. Digital data exchange. NFCS has tactical modems that will provide the capability to exchange digital data between shipboard and off-ship command elements (e.g., SACC, Army FSE, FFCC, FSCC, and other tasking agencies).

3. Multiple digital tasking execution. For the first time the NSFS team will be able to perform the following:

   a. Receive and execute tasking (CFF and fire plan) from up to 11 tasking sources

   b. Exchange free text messages with a command element and/or tasking source

   c. Automatically conduct fire mission 4-D deconfliction (verify that projectile trajectory and impact point will not cause fratricide)

   d. Verify that targets meet commanders' guidance criteria

e. Exchange messages and tasking with other NFCS units.

f. Transmit own-ship guns up ready-to-fire (GURF) Reports and ammo status to the tasking authority.

4. Command summary display. While conducting NSFS, NFCS will also present a command summary display providing current fire mission information to the ship's CO and TAO.

D.10.2 NFCS Interfaces

NFCS has interfaces with several on- and off-ship systems.

D.10.2.1 On-Ship Interfaces

Two critical shipboard systems NFCS interfaces with are:

1. Gun weapon system (GWS). NFCS provides mission data and execution orders to the GWS. NFCS also receives:

   a. Mission-firing reports

   b. Own-ship positional data

   c. Ammunition data from the GWS

   d. Trajectory information that is used for fire mission deconfliction checks.

2. GCCS-M. Interface with GCCS-M improves the NSFS team's situational awareness of the battlefield. NFCS provides friendly positional reports, spotter and reference point information, and overlays to GCCS-M. NFCS also receives and displays track, overlay, and ATO or ACOs from GCCS-M. ACAs and the ACO are used in deconflicting fire missions.

D.10.2.2 Off-Ship Interfaces

Three critical off-ship systems with which NFCS interfaces are:

1. AFATDS. NFCS provides mission firing reports, own-ship ammunition updates, and own-ship positional updates, and sends operator-to-operator free text messages to AFATDS units. AFATDS provides fire mission tasking orders, target lists, fire plans, FSCM, and free text messages to NFCS units.

2. DCT and TLDHS (future). NFCS will provide mission firing reports and operator-to-operator free text messaging. DCT and TLDHS will provide digital fire mission tasking requests (CFF), spotter location information, and operator-to-operator free text messages to NFCS units.

3. Other NFCS units. NFCS units will be able to exchange schedule of fires and free text messages.

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APPENDIX E

Supporting Arms Coordination Center Nonautomated Recommended Operating Procedures

E.1 PURPOSE

The purpose of this ROP is to document SACC procedures in support of amphibious warfare operations and troop maneuver ashore. It is intended to supplement existing Navy, Marine Corps, and Army doctrinal publications.

E.2 MISSION

The SACC has two primary missions:

1. The SACC keeps supported and supporting commanders advised of supporting arms availability, capabilities, and activities within the AF. Higher authority will always designate supported and supporting commanders. Typically they will be PHIBRON/PHIBGRU/MEU/MEB/MEF commanders depending on the size of the operation.

2. The SACC plans, coordinates, and executes all organic and nonorganic lethal and nonlethal fires within the area of operations in support of the LF, until responsibilities for coordination and control of supporting arms are passed ashore.

E.3 OVERVIEW

NSFS, OAS, and artillery/mortar fires are coordinated and approved or denied through the SACC. The SACC maintains control until a time designated by the supporting and supported commanders, when control and coordination of supporting arms is passed ashore to the LF FSCC. This requirement applies to all calls for fire missions originating from FACs, NSFS ground spotters, and artillery/mortar FOs for the various supporting arms agencies.

E.4 ORGANIZATION

SACC organization is generally consistent; however, depending on the mission, personnel available, or equipment installed, the organization may be adjusted to meet specific operational requirements. SACC organization and the duties of key personnel are described in detail in Chapter 2.

E.4.1 Personnel

Per JP 3-02, the designated commander may assign either the SAC or the FFC to supervise the SACC. In either case, fire support personnel from the ATF and LF operate the SACC.

Once designated as a SACC member, individuals should not be assigned additional duties that will conflict with required SACC assignments.

E.4.2 Supporting Arms Coordination Center Configuration

Depending on the platform, the SACC layout and equipment locations differ. Figures E-1 and E-2 show the basic manning stations and maps and status board locations aboard LHA- and LHD-class amphibious assault ships respectively. The locations of communications terminals and net operators are discussed in Chapter 3 and paragraph E.16.

E.5 GENERAL SUPPORTING ARMS COORDINATION CENTER OPERATING PROCEDURES

As emphasized in this publication, supporting arms coordination is a dynamic and complex series of events with many key participants. To be carried out efficiently and effectively, specific steps and procedures must be established and adhered to. The paragraphs below discuss general SACC operating procedures.

E.5.1 Request for Fire Forms and Call for Fire Cards

1. Request for Fire Forms and Call for Fire Cards are used to relay pertinent information from the radiotelephone (RT) operators to the designated SACC principals. These cards provide the SAC and other SACC principals with the information needed to approve or deny fire missions.

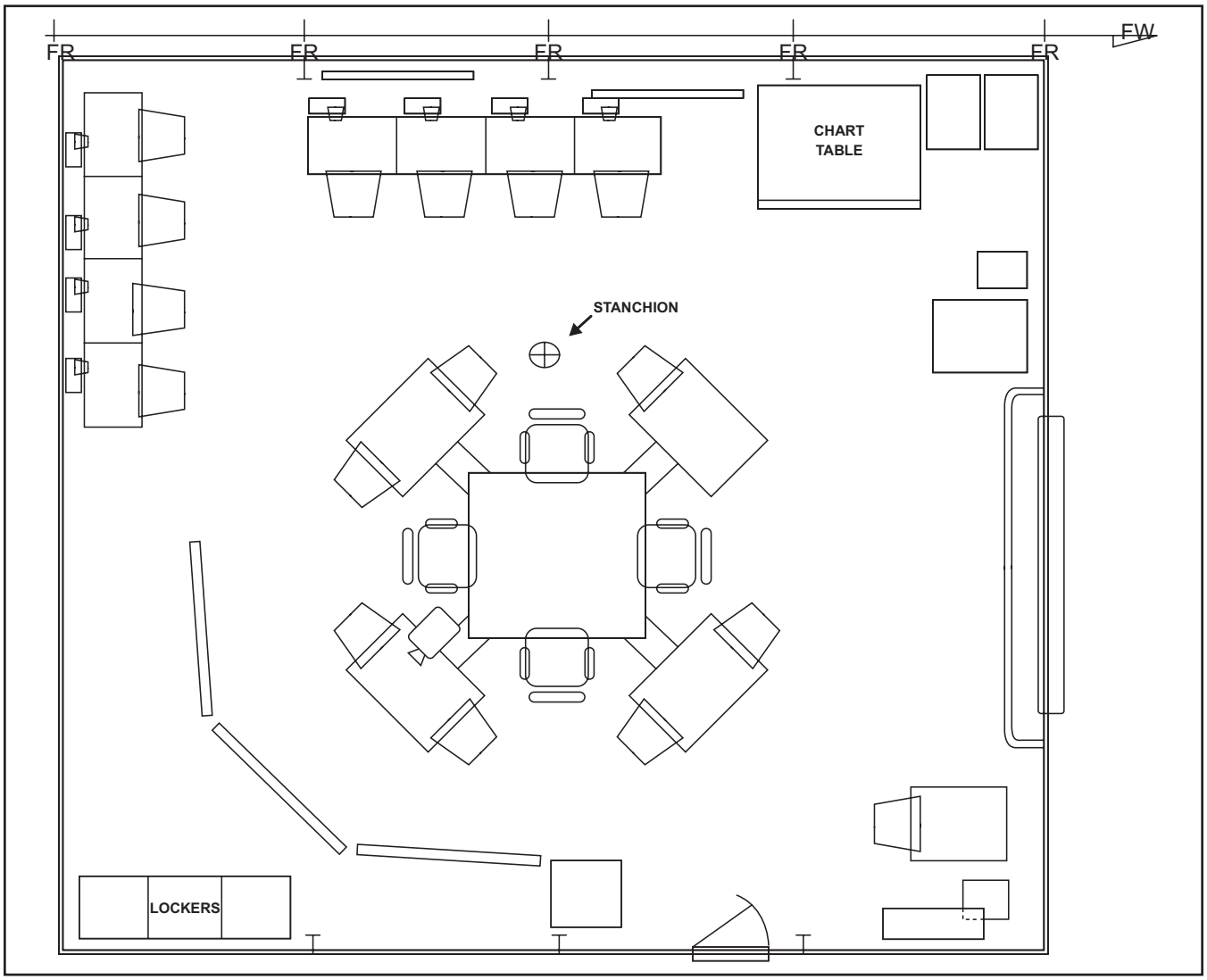

Figure E-1. Amphibious Assault Ship (General Purpose) Class Supporting Arms Coordination Center Layout

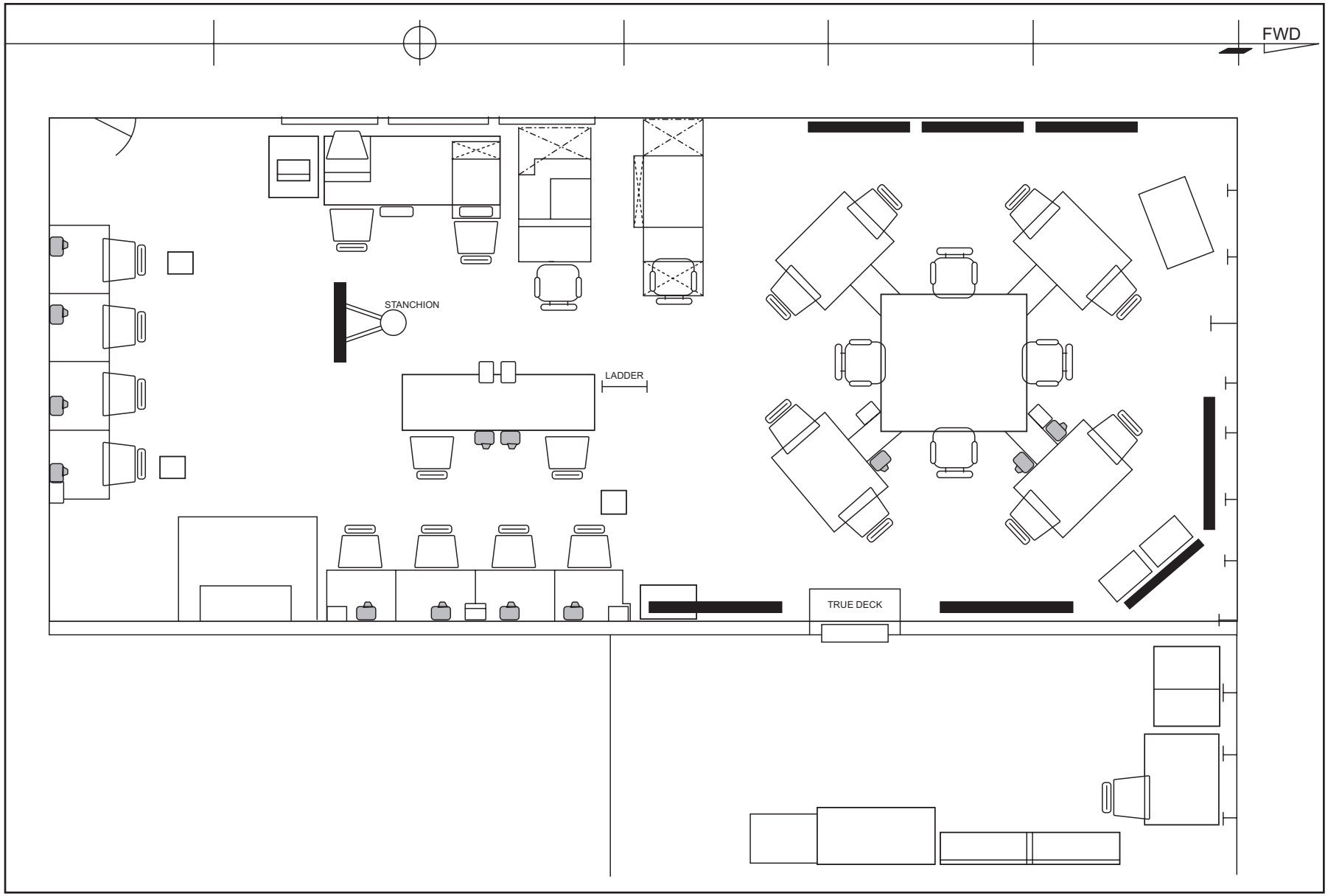

Figure E-2. Amphibious Assault Ship (Multi-Purpose) Class Supporting Arms Coordination Center Layout

2. Call for Fire Cards are laminated and color coded for easy reference. The following color designations should be used in the SACC for these cards as well as matching pins and strings on the master situation map.

   a. Blue: NSFS missions

   b. Yellow: CAS missions (fixed- and rotary-wing)

   c. Red: artillery missions

   d. Green: mortar missions.

E.5.2 Status Boards, Map Overlays, and Worksheets

1. Status boards and map overlays serve as the primary means for ensuring safe and timely coordination of supporting fires.

2. The following status boards and map overlays should be maintained in the SACC at all times:

   a. Fire Support Status Board (Figure E-3)

   b. Fire Support Execution Matrix (Figure E-4)

   c. Artillery and NSFS Schedule of Fires Matrix (Figure E-5)

   d. Air Support Status Matrices (Figures E-6 and E-7)

   e. HPTL/TSS/AGM Worksheet (Figure E-8)

   f. Target List Worksheet (Figure E-9)

   g. Master Situation Map

      (1) Operations overlay

         (a) Scheme of maneuver

         (b) FSCMs

         (c) Location of friendly units.

      (2) Countermechanized overlay

      (3) Helicopter assault overlay

      (4) Preplanned targets overlay.

   h. Targeting Map.

      (1) Enemy situation overlay

      (2) Littoral area air defense (LAAD) overlay.

1. NSFS

SHIP	CALL SIGN	DTG	# GUNS	FSA/FSS	HE/CVT	HE/PD	ME/MT	ILLUM	WP	TOTAL AMMO

ARTILLERY

ORG/ CAL	CALL SIGN	DTG	# GUNS	LOCATION	HE	ILL	WP	M825	DPICM	FASCAM	CPHD	FUZES

MORTARS

ORG/ CAL	CALL SIGN	DTG	# TUBES	LOCATION	HE	ILL	WP	RP	FUZES

Figure E-3. Fire Support Status Board

OPORD: _____ DTG:_____

COMMANDER'S INTENT FOR FIRES:

PHASE→						
EVENT→						
UNIT						

Figure E-4. Fire Support Execution Matrix

( ) **SCHEDULE OF FIRES**

SHEET _____ of _____

LINE	ORGANIZATION/ CALIBER	FIRING UNIT																REMARKS
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		

Figure E-5. Artillery and Naval Surface Fire Support Schedule of Fires Matrix

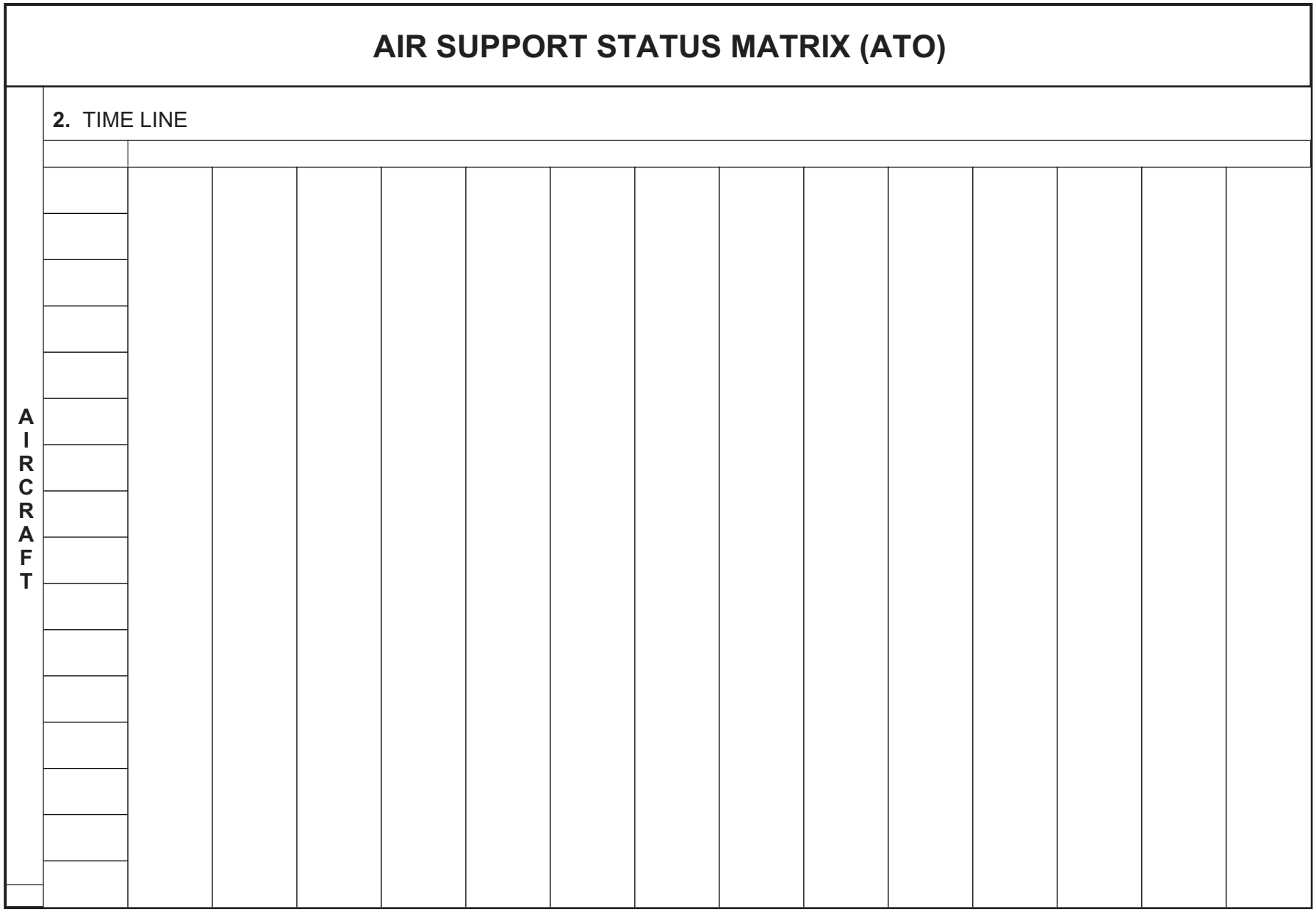

Figure E-6. Air Support Status Matrix (ATO)

AIR SUPPORT STATUS MATRIX						
CALL **SIGN**	**MISSION NUMBER**	**TYPE & NUMBER A/C**	**TOS**	**ORDNANCE**	**BDA**	**REMARKS**

Figure E-7. Air Support Status Matrix

E.5.3 SACC Manning Procedures

AF supporting and supported commanders maintain overall responsibility for coordinating SACC manning.

1. Full manning situations:

   a. As determined by the SAC and FFC, SACC will maintain a fully manned status (Condition I) during periods of peak operational activity.

   b. Figures E-1 and E-2 display full SACC manning status.

2. Reduced manning situations:

   a. During extended operations or periods of reduced operational activity, SACC may assume a reduced manning posture at the discretion of the SAC/FFC.

   b. When in a reduced manning status, minimum recommended SACC manning requirements are as follows:

      (1) All SACC communications nets are manned.

      (2) Other SACC personnel are on station as deemed appropriate by the SAC or FFC.

      (3) Assignment of all SACC reduced manning duty officers is approved by the SAC/FFC.

      (4) The SAC/FFC designates one SACC OIC per watch.

Attack Guidance Matrix
Phase 3: Attack to Secure LF Objectives 1, 2, & 3

HPTL	When	How	Effect	Remarks
Mechanized CP	A	Artillery	N	≥Company
MRL Battery	I	Artillery	D	
Artillery/MTR	A	Artillery	N	≥120mm
ADA	A	MTR	S	Radar-guided
Tank Co	A	CAS	N	
Ammo Dump	P	NSFS	N	Prep

Legend:

When:	Effect:
(I) = Immediate	(S) = Suppress
(A) = As acquired	(N) = Neutralize (10%)
(P) = Planned	(D) = Destroy (30%)
(EW) = EW (Jamming or other offensive EW)	

Figure E-8. High-Payoff Target List/Target Selection Standards/Attack Guidance Matrix Worksheet (Sheet 1 of 4)

EXAMPLE:

ATTACK GUIDANCE MATRIX
Phase 1 Landing

ATTACK PRIORITY		1		2		3		4		5		6		7		8	
HPT LIST: SYSTEMS: UNITS:		ADA S-60 ZSU 23-4		FS 120MM MTR 152MM ARTY		ARMOR T-54/55		MECH INF		RSTA ARMORED RECON		C2 MECH CO CP		LOG		RES	
ATTACK SYSTEMS	FA	100 M SEC	2	200 M BTRY	1	50 M PLT	4	50 M PLT	4	100 M SEC	1	100 M CO	3	100 M BN	3	50 M CO	3
		STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	D	STAT 30 MIN	S	STAT 30 MIN	D	STAT 10 MIN	N
	FW CAS	1 KM SEC	3	1 KM BTRY	3	1 KM PLT	1	1 KM PLT	2	500 M SEC	2	500 M CO	5	1 KM BN	1	1 KM CO	2
		STAT/ MOV 2 HR	N	STAT/ MOV 2 HR	N	STAT/ MOV 1 HR	N	STAT/ MOV 1 HR	N	STAT/ MOV 30 MIN	D	STAT/ MOV 2 HR	S	STAT/ MOV 2 HR	D	STAT/ MOV 1 HR	N
	RW CAS	1 KM SEC	4	1 KM BTRY	4	1 KM PLT	2	1 KM PLT	3	500 M SEC	5	500 M CO	6	1 KM BN	5	1 KM CO	5
		STAT/ MOV 2 HR	N	STAT/ MOV 2 HR	N	STAT/ MOV 1 HR	N	STAT/ MOV 1 HR	N	STAT/ MOV 30 MIN	N	STAT/ MOV 2 HR	N	STAT/ MOV 2 HR	D	STAT/ MOV 1 HR	N
	NSFS	100 M SEC	5	200 M BTRY	2	50 M PLT	3	50 M PLT	1	100 M SEC	3	100 M CO	1	100 M BN	2	50 M CO	1
		STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	D	STAT 30 MIN	S	STAT 30 MIN	D	STAT 10 MIN	N
	EW	500 M CO	6	500 M CO	6	500M CO	6	500 M CO	6	500 M CO	6	500 M CO	2	500 M CO	6	500M CO	6
		STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S	STAT 30 MIN	S
	81mm MTR	100 M SEC	1	200 M BTRY	5	50 M PLT	5	50 M PLT	5	100 M SEC	4	100 M CO	4	100 M BN	3	50 M CO	4
		STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	N	STAT 10 MIN	D	STAT 30 MIN	S	STAT 30 MIN	D	STAT 10 MIN	N

Figure E-8. High-Payoff Target List/Target Selection Standards/Attack Guidance Matrix Worksheet (Sheet 2 of 4)

ATTACK GUIDANCE MATRIX
Phase 1 Landing

ATTACK PRIORITY	1	2	3	4	5	6	7	8
HPT LIST: SYSTEMS: UNITS:								
ATTACK SYSTEMS								

Figure E-8. High-Payoff Target List/Target Selection Standards/Attack Guidance Matrix Worksheet (Sheet 3 of 4)

Target Precedence List (HTPL)	
Priority	**Target**
1	122mm How (SP), 120mm Mortar
2	ATGMs—AT-5
3	ADA—ZSU 23-4, SA-9
4	Man—T-72, BMPs
5	Engineering—Mobile Obstacle Det
6	RISTA—BRDM-2 Scout Vehicle

Figure E-8. High-Payoff Target List/Target Selection Standards/Attack Guidance Matrix Worksheet (Sheet 4 of 4)

(5) All SACC members not on duty are in a 10-minute standby status to assume SACC full-manning status.

3. Due to the requirement for 24-hour communications upon SACC activation (EMCON condition permitting), watch schedules for net controllers/radio operators are coordinated with the appropriate communications officers by the SAC and FFC.

E.6 SUPPORTING ARMS PROCEDURES

The paragraphs below discuss procedures in the SACC that are specific to supporting arms.

E.6.1 Messages and Documents

The SACC at a minimum should promulgate the following messages and documents prior to an amphibious operation:

1. Sections of the OPORD that involve fire support

2. An AFTL message that provides:

   a. A prioritized list of AF targets, identifying the phase of the operation in which the targets are to be engaged

   b. Free text commanders' fire support guidance

   c. Some scheduling information

   d. Group and series plans, if known.

E.6.2 Methodology

The following methodology should be used by the FFC/SAC for EFST development:

1. Step 1: Review how the enemy is expected to fight, and review and apply the commanders' HPTs and attack guidance.

( ) TARGET LIST WORKSHEET

SHEET_____OF_____

LINE NO.	TARGET NO.	DESCRIPTION	LOCATION	ALTITUDE	ATTITUDE	SIZE		SOURCE a/o ACCURACY	REMARKS						
						L	W								
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															

Figure E-9. Target List Worksheet

2. Step 2: Review the commanders' planning guidance, and list purpose, priority, allocation, and restrictions (PPAR):

   a. Purpose: Determine what the enemy is expected to want to do.

   b. Priority: Determine enemy assets accomplish these tasks.

   c. Allocation: Determine which friendly assets should be used to counter the enemy.

   d. Restrictions: Identify any restrictions.

3. Step 3: Designate requirements. Consider these the specified and implied fire support tasks.

4. Step 4: Define EFSTs based on the requirements.

5. Step 5: Take the operational phases designated by the S-3, and based on the EFSTs and concept of fires, determine who will decide, detect, deliver, and assess (D3A) for each phase of the operation.

6. Step 6: Review the D3A. Meet the PPAR and EFSTs, provide depth to the battlefield, security for the fire support assets and reserve, and determine supportability. Designate TAIs, DPs, and tentative triggers to support fires.

7. Step 7: Designate the plan's remaining communication requirements.

E.6.3 Briefing

The FFC should be prepared to brief the supporting/supported commanders on the intent for fires, fire support plan, assets available, fire support locations, allocation, and FSCMs. The ASC should be prepared to brief the supporting/supported commanders on the assets available, allocation, LZs, and battle positions.

E.7 NAVAL SURFACE FIRE SUPPORT

The SAC, with assistance from the NSFS control officer, is responsible for the planning, coordination, and execution of NSFS. Prior to the assumption of a DS or GS mission, all NSFS ships are controlled and coordinated by the SAC. Close and continuous coordination between the SAC and FFC is imperative to ensure the safe and timely execution of surface fires in support of the LF.

E.7.1 Force Fires Coordinator and Supporting Arms Coordinator Responsibilities

The FFC shall:

1. Request overall NSFS requirements from the GCE FSC, GCE NGLO, LF G-3/S-3, Marine expeditionary unit service support group (MSSG), ACE operations officer, maritime special purpose force (MSPF) detachment OIC, etc.

2. Consolidate requests received from subordinate commands with LF level requirements.

3. Provide the SAC with the consolidated LF overall NSFS requirements.

4. Provide the GCE FSC, GCE NGLO, ACE operations, MSSG, and MSPF detachment OIC with a list of tentative NSFS assets.

5. Request detailed NSFS requirements from the GCE FSC, GCE NGLO, ACE operations officer, MSSG, and MSPF detachment OIC.

6. Upon approval by the LF commander, forward detailed LF requirements to the SAC.

The SAC shall:

1. Consolidate overall LF NSFS requirements with the overall known NSFS requirements of other AF assets.

2. Request the NSFS assets necessary to support overall AF requirements and objectives.

3. Provide the FFC with a tentative list of NSFS ship assets available to support the LF.

4. Request detailed LF NSFS requirements from the FSCO.

5. Request overall NSFS requirements from the FSO, AF N-3, SEAL team, etc.

After detailed LF NSFS requirements are received, the SAC consolidates them with all other NSFS requirements and develops the overall AF NSFS plan. The plan is then submitted to the supporting and supported commanders for approval and promulgation. Once in receipt of the overall AF NSFS plan, the FFC extracts and forwards the LF NSFS plan to the supported and supporting commanders for publication.

E.7.2 Assignment of NSFS Ships

Whenever possible, ships capable of performing simultaneous missions are assigned DS missions for maneuver battalions to allow for maximum NSFS for forward LF units.

E.7.3 Requests for NSFS on Targets of Opportunity

Prior to phasing control ashore, all NSFS requests are forwarded to the NSFS control officer. The detailed procedures normally followed are:

1. DS or GS ships receive calls for fire over the NSFS ground Spot Net or Air Spot Net. The SACC NSFS RT operator monitors calls for fire and completes the NSFS Request Form (blue laminated fire mission cards).

2. The LF fire support chief passes the request card from the RT operator to the NSFS control officer.

3. The NSFS control officer plots and analyzes the mission and recommends approval or denial by initialing the request form.

4. The form is then passed to the other principals at the main planning and plotting table for coordination, the ASC for aircraft safety, the FFC for troop safety, and the LF TIO to verify, update, and/or input target information (target analysis). The principals recommend approval or denial by initialing the form. The LF TIO compares all requested missions against the HPTL and AFTL to determine the priority (if any) of the target.

5. The SAC receives the request form, but takes no definitive action until receipt of the NSFS ship's Prefire Report.

6. The NSFS RT operator receives the ship's Prefire Report over the NSFS Ground Spot Net. The report is copied onto another laminated blue fire mission card. The LF fire support chief passes the new laminated request card to the NSFS control officer.

7. The NSFS control officer receives the laminated card with the Prefire Report and verifies the given GTL. Upon verification, the NSFS control officer initials the laminated card and passes it to the SAC.

8. The SAC also initials the laminated card and announces the final mission decision to the table, LF fire support chief, LF TIO, and RT operator. The NSFS Request Form is then annotated with an "A" for approved,

a “D” for denied, or an “M” for modified, and initialed by the SAC. For approved missions, the initial NSFS Request Form is displayed in SACC where all active missions are tracked. The Prefire Report card is handed to the SACC journal keeper. NSFS fire missions may be denied for violating an FSCM or ACM, undesirable weaponeering, danger of fratricide, or other tactically significant reasons.

Note

If the SAC denies a mission, all efforts should be made to accommodate the call for fire, either by assigning an alternate asset to the target or delaying the mission.

9. The NSFS RT operator immediately informs the NSFS ship of the SAC’s decision by stating “Mission Approved, Target Number AW XXXX” or “Mission Denied, Target Number AW XXXX” via the NSFS Control Net or other designated net. **Silence is not consent.**

10. The refinement, record as target, end of mission, surveillance (RREMS) report and any other amplifying information passed over the NSFS nets is recorded using another laminated blue fire mission card. The SAC always initials the card and returns it to the SACC journal keeper. The card with the RREMS report is always delivered to the LF TIO.

11. Upon receiving the RREMS report, the mission plot (pins and strings) are removed from the Master Situation Map, and the NSFS Request Form is taken down and given to the SACC journal keeper.

E.7.4 Supporting Arms Coordination Center After Control Is Phased Ashore

After phasing control ashore the BLT FSCC handles all requests for fire ashore. The SACC continues to monitor all NSFS missions, plotting and verifying deconfliction.

E.7.5 NSFS Countermechanized Plan

When the LF is made up of two or more GCEs, the NSFS Countermechanized Plan is developed by the FFC in close coordination with the LF G-3/S-3. When the LF has only one GCE, the Countermechanized Plan is developed, coordinated, and executed by the GCE FSC. After the NSFS Countermechanized Plan is developed, the following SACC officers are responsible for the approval, promulgation, and execution of the plan:

1. Approval: SAC/FFC

2. Promulgation:

   a. SAC, via the OPTASK AMPHIB

   b. FFC, via the Countermechanized Plan enclosure of the NSFS Tab of the AF OPORD.

3. Execution: FFC executes upon approval of the SAC and in close coordination with the ASC via the designated voice and/or digital net.

Countermechanized groups of targets are based on worst case NSFS availability and assigned by FSA, not by fire support ship.

E.8 TOMAHAWK LAND-ATTACK MISSILE COORDINATION

SACC coordination with the TSC and the LAC is vital to the efficient execution of NSFS. The naval service fire support officer (NSFSO) must ensure that FSA and prelaunch position (PLP) locations are coordinated so all FRUs can meet any taskings for missiles and/or guns. Additionally, the SACC, TACC, and TSC must coordinate and deconflict all airspace within the area of operations for TLAM flightpaths. This coordination is conducted via SIPRNET chat and specified UHF/extremely high frequency (EHF) satellite voice circuits.

E.8.1 TLAM Requests

The supported or supporting commander, through the JFC at a JTB, must request TLAM apportionment for SACC/AF/ESG mission tasking. Once TLAMs are apportioned for SACC/AF/ESG use, mission planning request forms (MPRFs) can be completed and transmitted via SIPRNET to the local theater afloat planning system (TLAM) (APS) detachment for completion. Once the MPRF is completed, the APS detachment uses SIPRNET to email mission details to the SACC and distribute details to the FRUs via mission data updates (MDUs).

E.9 FIELD ARTILLERY SUPPORT

The assignment of artillery in the LF organization for combat is based on the number of GCEs, scheme of maneuver, and tactical situation. The FFC makes recommendations concerning the need for LF artillery. The decision to organize an LF artillery unit in support of an exercise or operation is made by the LF commander.

E.9.1 Responsibilities

The following are responsibilities of key personnel involved with artillery in support of amphibious operations:

1. When there is no field artillery organized within the LF, but it is organized externally, the FFC is responsible for the planning, coordination, and execution of field artillery support.

2. When field artillery is part of the LF organization for combat, responsibility for artillery planning, coordination, and execution belongs to the GCE FSCC.

3. In all cases, the FFC is responsible for keeping the SAC advised of the location, tactical mission assignment, and capabilities of all field artillery units within the LF.

E.9.2 Planning

Regardless of the level of field artillery support, all planning is done in close and continuous coordination with NSFS planning.

E.9.3 Missions

The GCE commander assigns field artillery units within the GCE task organization. These missions are reported to the FFC.

E.9.4 Requests for Landing Force Artillery Support

All requests for LF field artillery support are forwarded to the FFC and the following process begins:

1. The FFC will coordinate the request with:

   a. The ASC for airspace coordination, if required

   b. The GCE FSCC for troop safety, if required.

2. The ATF and/or ESG target intelligence representative:

   a. Determines the target's validity for engagement by field artillery

   b. Assigns target numbers, if SACC generated.

3. After coordination is accomplished, the FFC:

a. Recommends approval or disapproval or assignment of an alternate asset to the SAC

b. Initiates or terminates requests as directed by the SAC

c. Passes or records end of mission data, as required.

E.10 OFFENSIVE AIR SUPPORT

Through the TACC, the ASC is responsible for the overall planning, coordination, and execution of OAS in support for the AF commander's objectives.

E.10.1 OAS Request Processing Procedures

All requests for OAS, whether immediate, on call, or preplanned, are forwarded to the ASC (TACC). Requests for support from the GCE are transmitted via the TAR net. Requests for OAS generated within the SACC are initiated by the LF air officer, who performs the following:

1. Fills out the JTAR or the nine-line brief

2. Assigns a JTAR Request Number

3. Submits the JTAR to the ASC.

E.10.2 Conduct and Coordination of OAS

All scheduled fires will be monitored and under the control of the SAC in close coordination with the ASC (TACC).

E.10.3 Requests for OAS on Targets of Opportunity

Prior to phasing control ashore, all requests are forwarded to the ASC (TACC). The detailed procedure for targets of opportunity called in by a FAC when scheduled air sections (delineated in the ATO) are available is as follows:

1. The SACC RT operator receives the nine-line brief over the TAR net and completes the OAS Request Form (yellow laminated fire mission card).

2. The LF fire support chief passes the request to the ASC (TACC).

3. The ASC plots and analyzes the mission and recommends approval or denial by initialing the yellow laminated card. The ASC also writes any amendments to the nine-line brief on the yellow laminated card before passing it to the other principals.

4. The yellow card is then passed to the other principals at the main planning and plotting table for coordination, to the NSFS control officer for NSFS deconfliction, to the FFC for troop safety, and to the LF TIO who verifies, updates, and/or inputs target information (target analysis). All requested missions are compared against the HPTL and the AFTL to determine the priority (if any) of the target. The principals recommend approval or denial by initialing the request form.

5. The SAC receives the request form and announces the final decision concerning the mission to the table, LF fire support chief, LF TIO, and RT operator. The form is then annotated "A" for approved or "D" for denied, and is initialed by the SAC. The form is then handed back to the ASC who gives it to the TACC messenger who delivers it to a designated console operator in the TACC.

Note

If the SAC denies a mission, all efforts should be made to accommodate the call for fire, either by assigning an alternate asset or delaying the mission.

6. The SACC RT operator informs the FAC who requested the mission of the SAC's decision by stating "Mission Approved, Target Number AW XXXX" or "Mission Denied, Target Number AW XXXX." **Silence is not consent.**

7. The console operator in TACC transmits the approved nine-line mission to the on-station aircraft via the TAD net. The TACC messenger then delivers the main copy of the OAS Call for Fire Form back to the SACC where it is posted as an active mission.

8. Any amplifying information (e.g., TOT) passed over the TAR net is copied on another yellow laminated card. The SAC must initial the card and return it to the SACC journal keeper. The assigned aircraft, upon checking back into TACC, transmits the RREMS report. This report is received over the TAD net in TACC, copied on a yellow laminated card, and delivered to the appropriate supporting arms participants in the SACC.

9. Upon receiving the RREMS report, the mission plot (pins and strings) is pulled from the Master Situation Map, and the yellow laminated OAS Call for Fire Form is taken down and given to the SACC journal keeper.

After phasing control ashore, all requests for fire are handled by the air support element collocated with the FSCC ashore. The SACC monitors all OAS missions, plotting and verifying deconfliction.

E.10.4 Helicopter Assault Coordination

Planning and executing the helicopter assault portion of an amphibious operation involves the following actions:

1. Planning.

   a. Helicopter assault plans (i.e., helicopter lanes/schedules) are prepared by the GCE and submitted to the LF air officer.

   b. The LF air officer approves or modifies plans and submits them to the FFC.

   c. The FFC coordinates helicopter assault plans within the SACC and forwards the plans, via the LF air officer, to the HCS, which forwards them to the HDC.

2. Execution. During the execution of a planned helicopter assault, the LF air officer:

   a. Closely monitors the progress of the operation.

   b. Keeps the FFC and SAC advised on the status of the helicopter assault.

3. Nonscheduled ship-to-shore helicopter flights are forwarded from the TACC to the ASC for SACC coordination.

E.11 TARGETING

The TIC is responsible for acquiring, analyzing, and processing all targeting information and is composed jointly of the TIO, the air intelligence representative (when assigned), and the LF TIO.

E.11.1 Target Intelligence Officer

The TIO is primarily responsible for acquiring, analyzing, and processing all target intelligence data to determine possible effects on the AF, and for subsequently recommending targets for engagement to the SAC.

E.11.2 Air Intelligence Representative

The air intelligence representative (when assigned) is primarily responsible for acquiring, analyzing, and processing pertinent target intelligence data to determine the enemy's effect against friendly aircraft, the vulnerability of enemy forces to friendly aircraft, and for subsequently recommending targets for engagement to the ADC.

E.11.3 Landing Force Target Intelligence Officer

The LF TIO is primarily responsible for acquiring, analyzing, and processing pertinent target intelligence data affecting the LF, advising the FFC, and recommending targets to the target intelligence representative for inclusion in the AFTL. The LF TIO also maintains the up-to-date Target Card File (Figure E-10).

E.11.4 Establishing the Amphibious Force Target List

After the initiating directive is issued, the TIC begins procedures to establish the AFTL. Although the TIC members may not be physically or geographically located together, contact must be established to begin the targeting process. Necessary 1:50,000 map sheets of selected areas are drawn from each TIC member's respective command, and the enemy situation is plotted as received from the various intelligence organizations. The initiating directive is reviewed to determine the area of operations, friendly forces, and the dates of the exercise or operation. The air intelligence representative and the LF TIO review available data and produce recommended target locations (six-digit grid coordinates), target descriptions, elevations (in meters), classifications, priorities, and parts for each target. These are presented to the target intelligence representative. Concurrently, the target intelligence representative produces a rough AFTL. Upon receipt of the lists of targets and inputs from the daily AFTB, the target intelligence representative reviews and consolidates all inputs into the AFTL. All inputs are delivered to the SAC, who provides final approval.

E.11.5 Amphibious Force Target List Dissemination

After the SAC has approved the recommended AFTL, the target intelligence representative disseminates the information in message format to the following commanders and units:

1. Appropriate commanders assigned to the ESG and ATF/LF
2. Aircraft carriers supporting the operation
3. Fire support ships
4. SEALs and the ships in which they are embarked
5. Reconnaissance units and the ships in which they are embarked
6. Other designated elements of the AF, including the advance force.

The AFTL includes the target number, six-digit grid coordinate, target description, elevation (in meters), target classification, and target priority. Once disseminated, the AFTL becomes a planning document that is updated by TARBULs.

OPORD:_____ **CMD:**_____ **DATE**
OPENED:_____

Description:	Remarks:	Map Symbol:[1]

DTG	TGT #	Size	Location[2]	Firing Unit(s)[3]	Munition(s)[4]	BDA[5]	Assessment

1. Include both unit and weapon symbol
2. Complete UTM grid
3. Use official unit/command designators (Do not use call sign)
4. Include caliber (if applicable), type, and number of rounds
5. D = Destroyed N = Neutralized S = Suppressed

Figure E-10. Target Card File

E.11.6 Target Information Center Coordination

Depending upon whether or not the LF is embarked, all members of the TIC may not have physical access to each other. This does not negate the requirement for coordination. As soon as an initiating directive is issued, all three members must establish contact and continue liaison through embarkation. Coordination ensures that the overall targeting effort is effective and the resulting information received from other members of the TIC is disseminated to the appropriate agencies.

E.11.7 Phases of Targeting

Once the SACC is activated, the AF is normally close to the area of operations. Each TIC member establishes a workstation in the SACC, and posts the necessary maps, overlays, and targeting reference materials at the location. Two phases of targeting are described in the following paragraphs.

E.11.7.1 Advance Force Operations

If advance force operations are directed, specific guidelines must be provided to the advance force commander in regard to targeting. The guidelines must include:

1. Designation of specific targets to be destroyed and neutralized as specified in the AFTL

2. Authority to issue consecutive TARBULs, to include instructions on reporting new targets, destroyed targets, damaged targets, canceled targets, and reactivated targets, as well as the reporting format.

E.11.7.2 D-day and Subsequent Operations

Upon completion of advance force operations, the advance force commander issues a final TARBUL, numbered consecutively, that includes a paragraph stating "THIS IS MY FINAL TARBUL." The SACC then regains control of the targeting effort and TIC members again become active. As new data is received, analyzed, and processed, the ATF target intelligence representative for the SACC issues additional TARBULs. To avoid confusion, the first TARBUL issued after the completion of advance force operations uses the next consecutive unused number. Although parts are not used after D-day on the AFTL, the classification and priority continue to be listed on TARBULs to indicate the threat each target can pose as well as the effect on all AF elements.

In the event control of supporting arms is passed ashore, the TIC assumes a monitoring role. However, if the situation ashore deteriorates, the TIC members activate and resume their duties. For a more detailed discussion of passing control ashore and afloat, see paragraph E.13.

E.12 FIRE SUPPORT COORDINATING MEASURES

FSCMs serve as the primary aids for the timely and safe delivery of supporting fires (Figure E-11).

The supporting and/or supported commanders have the authority for the approval and establishment of FSCMs within the area of operations. For a list and comprehensive discussion of FSCMs refer to Appendix A in JP 3-09, Doctrine for Joint Fire Support.

E.13 PASSAGE OF CONTROL

When the LF FSCC is ready to assume the coordination and control of supporting arms in support of the LF ashore, that responsibility is passed from the supporting commander to the supported commander.

E.13.1 Conditions Required to Pass Control and Coordination of Supporting Arms Ashore

The paragraphs below describe the conditions required for passing control of various supporting fires assets from the SACC to the FSCC ashore.

FIRE SUPPORT COORDINATION MEASURES						
FSCM	LOCATION	SIZE/ RADIUS	REMARKS/ RESTRICTIONS	ESTABLISHING/ OCCUPYING UNIT	EFFECTIVE DTG	PASSED Y/N

NEXT RFA #	NEXT NFA #

Figure E-11. Fire Support Coordination Measures

E.13.2 Artillery

Before control and coordination of artillery can be passed ashore, the following conditions must be satisfied:

1. Satisfactory radio checks on the following nets:
    a. FFC
    b. Artillery COF
2. Current location of all firing units
3. Current mission of all firing units
4. Any changes to priority of fires
5. Current Ammunition Report.

E.13.3 Naval Surface Fire Support

Control and coordination of NSFS may be passed ashore when the following criteria are in place:

1. Satisfactory radio checks on the following nets:
    a. FFC
    b. NSFS Ground Spot.
2. The following information is on hand (as appropriate):
    a. DS ships currently on station (ship names)
    b. Time DS ships off station
    c. Time DS ships relieved (by ship name)
    d. DS ships' location (FSA number)
    e. GS ships currently on station (ship names)
    f. Time GS ships off station
    g. Time GS ships relieved (by ship name)
    h. Expected changes to NSFS status
    i. Additional NSFS assets requested and current status of the request(s).

E.13.4 Offensive Air Support and Assault Support

Control and coordination of OAS and assault support may be passed ashore when the following conditions are met:

1. Satisfactory radio checks on the following nets:
    a. FFC

b. TAD

c. TAR.

2. The following information is on hand:

a. OAS on station and location (type aircraft)

b. Preplanned air support expected and time

c. Check points (CP), initial point (IP), battle position (BP), and holding area (HA) to be used, as approved by SAC

d. Status of additional air support requests

e. Current altitude and areas aircraft will not be routed into.

E.13.5 Fire Support Coordinating Measures

Before control and coordination can be passed ashore, the SACC and the FSCC must ensure the following information is on hand:

1. Coordinated fire line (CFL) in effect, including location
2. CFL on order, including location and time effective
3. FSCL in effect, including location
4. FSCL on order, including location and time effective
5. ACA in effect, including location and altitudes
6. ACA on order, including location and altitudes
7. RFAs in effect, including location and size
8. RFAs on order, including location, size, and time effective
9. NFAs in effect, including location and size
10. NFAs on order, including location, size, and time effective
11. Additional FSCMs in effect or on order, including location and time effective
12. Ground force units assigned zone action and zone of responsibility
13. Zone of fire and zone of responsibility assignments, including assigned firing stations.

E.13.6 Target Information

The SACC and the FSCC must ensure the following target information is on hand before control and coordination is passed ashore:

1. Last target number used

2. Last TARBUL issued, including date-time group (DTG).

E.13.7 Adjacent and Allied Unit Information

The following information must also be on hand before control and coordination of fires is passed ashore:

1. Forward line of troops (FLOT), by grid coordinates, of allied and adjacent units

2. Command Post locations, by grid coordinates

3. Status of requests for additional fire support, as appropriate.

E.13.8 Coordinating Instructions

The FSC must ensure coordinating instructions from the CLF to the LF FSCC/air support element (ASE) are on hand.

Note

Before going ashore, the FSC receives a final update in the SACC regarding all phasing coordination ashore checklist items (paragraph E.14 and Figure E-12). Therefore, when completing the checklist during the phasing process, the SAC need only pass that information modified since the FSC departed.

E.14 CHECKLISTS FOR PHASING CONTROL ASHORE AND AFLOAT

E.14.1 Passage of Control Ashore

When the FSCC is established ashore and is prepared to assume control of fire support coordination, the checklist in Figure E-12 is used for phasing control ashore.

Note

Only the SAC/FFC and the FSC conduct communications regarding final passage of control ashore.

E.14.2 Passage of Control Afloat

After phasing control ashore the SACC continues to monitor the situation and remains prepared to reassume control if necessary. In withdrawal operations, or if the tactical situation dictates, control of fire support coordination is passed from the FSCC back to the SACC. In passing control afloat the checklist in Figure E-13 is used if time and the tactical situation permit.

Note

Only the SAC/FFC and the FSC conduct communications regarding final passage of control afloat.

E.14.3 Passage of Responsibility

Passage of responsibility for supporting arms coordination occurs in five phases:

1. Phase I. The SACC performs the following functions for the AF:

   a. Artillery fire support and coordination

CHECKLIST FOR PHASING CONTROL ASHORE

		REQUIREMENT
1		BLT NSFSLO established communication with the NSFS observers on Ground Spot, Air Spot (if necessary), and SFCP nets. BLT NSFSLO establishes communications with NSFS ships on Ground Spot and NSFS Control nets.
2		BLT air officer established communication with FACs on TACP local and with the TACC on TAR/HR. If the ASE is established with the BLT, they should have communication on TAR/HR, TATC, HD, and TAD nets.
3		BLT artillery LNO established communication with artillery FOs and the Artillery Battery on COF nets.
4		BLT 81-mm rep established communication with observers and 81-mm mortar sections on 81-mm COF nets.
5		The FSC contacts the SAC on LF FSC net with the following message: "(**BLT callsign) is prepared to take control of Fire Support coordination. I have communication on all required fire support nets."**
6		SAC passes tactical updates to the FSC over the LF FSC net in the following sequence:
***** **NOTE:** ***This information (lines 6a-6l) is passed by exception from the last time when the BLT FSC was present in the SACC.***		
6a		**NSFS Ships:** Ship Name: _____ FSA: _____ Mission: _____ Grid Location: _____ Ship Name: _____ FSA: _____ Mission: _____ Grid Location: _____
6b		**Artillery Battery:** Grid Location: _____ Mission: _____ Grid Location: _____ Mission: _____
6c		**Mortar Platoon:** Grid Location: _____ Mission: _____ Grid Location: _____ Mission: _____

Figure E-12. Checklist for Phasing Control Ashore (Sheet 1 of 4)

6d		**Ammunition Status:** **NSFS**: HE-CVT: _____ Illum: _____ HE-PD: _____ ME/MT: _____ WP: _____ Fuzes: _____ **Artillery**: HE: _____ Illum: _____ WP: _____ M825: _____ DPICM: _____ FASCAM: _____ CPHD: _____ Fuzes: _____ **Mortars**: Illum: _____ HE: _____ WP: _____ RP: _____ Fuzes: _____ **CAS:** _____ _____ _____ _____ _____ _____
6e		**Airborne Aircraft:** Fixed Wing: Section Composition: _____ Mission: _____ Section Composition: _____ Mission: _____ Rotary Wing Section Composition: _____ Mission: _____ Section Composition: _____ Mission: _____

Figure E-12. Checklist for Phasing Control Ashore (Sheet 2 of 4)

6f		**Aircraft Alert Status**: _____
6g		**Air Defense Condition**: _____
6h		**Current and On Order FSCMs in Effect:** FSCL: _____ _____ _____ CFL: _____ _____ _____ ACA: _____ _____ _____ NFA: _____ _____ _____ RFA: _____ _____ _____ _____ _____ _____ FFA: _____ _____ _____
6i		**Missions in Progress:** Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____
6j		**All TARBULs**: _____ _____ _____ _____ _____ _____

Figure E-12. Checklist for Phasing Control Ashore (Sheet 3 of 4)

6k		**Friendly Unit Locations:** Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____
6l		**OP Locations:** OP: _____ Grid Location: _____ OP: _____ Grid Location: _____ OP: _____ Grid Location: _____ OP: _____ Grid Location: _____
7		The LF FSO informs the CLF that the BLT FSCC is prepared to take control of fire support coordination.
8		The SAC informs the CATF that the BLT FSCC is prepared to take control of fire support coordination.
9		Upon approval from both commanders, the SAC contacts the FSC and passes over the LF FSC net, **"You now have control of all fire support coordination within the BLT zone of action."**
10		The FSC responds with, **"Roger, I now have control of all fire support coordination within the BLT zone of action."**
***** **NOTE:** ***The SACC no longer has control or coordination of fire support operations. The SACC will only monitor all nets. All fire support agencies will receive approval or denial for calls for fire from the BLT.***		
11		The SAC announces in the SACC that (BLT callsign) now has control of fire support coordination.
12		The NSFSLO contacts all stations on the Ground Spot nets and states **"(BLT callsign) now has control of fire support coordination. Approval for all fires within the BLT zone of action will come from (BLT callsign)."**
13		The air officer contacts all stations on the TAR and TACP nets and states **"(BLT callsign) now has control of fire support coordination. Approval for all fires within the BLT zone of action will come from (BLT callsign)."**
14		The artillery LNO and 81-mm rep do the same as above for their observers and respective firing agencies.

Figure E-12. Checklist for Phasing Control Ashore (Sheet 4 of 4)

CHECKLIST FOR PHASING CONTROL AFLOAT

		REQUIREMENT
1		NSFS CO establishes communication with the NSFS observers on Ground Spot and Air Spot (if necessary). NSFS CO establishes communications with NSFS ships on Ground Spot and NSFS Control nets.
2		ASC/TACC establishes communication with FACs on TACP, TAR/HR, TAD, and HD nets.
3		Artillery RT operators establish communication with artillery FOs and the Artillery Battery on COF nets (if artillery is established).
4		81-mm RT operators establish communication with observers and 81-mm mortar sections on 81-mm COF nets (if mortars are established).
5		The SAC contacts the BLT FSC on LF FSC net with the following message: **"(SACC callsign) is prepared to take control of fire support coordination. I have communication on all required fire support nets."**
6		BLT FSCC passes tactical updates to the SACC over the LF FSC net in the following sequence:
***** **NOTE:** ***This information (lines 6a-6l) is passed in its entirety to the SACC to ensure complete receipt of information.***		
6a		**Naval Surface Fire Support Ships:** Ship Name: _____ FSA: _____ Mission: _____ Grid Location:_____ Ship Name: _____ FSA: _____ Mission: _____ Grid Location:_____
6b		**Artillery Battery:** Grid Location: _____ Mission: _____ Grid Location: _____ Mission: _____
6c		**Mortar Platoon:** Grid Location: _____ Mission: _____ Grid Location: _____ Mission: _____

Figure E-13. Checklist for Phasing Control Afloat (Sheet 1 of 4)

6d		**Ammunition Status:** **NSFS**: HE-CVT:_____ Illum: _____ HE-PD _____ ME/MT: _____ WP: _____ Fuzes: _____ **Artillery**: HE: _____ Illum: _____ WP: _____ M825: _____ DPICM: _____ FASCAM: _____ CPHD: _____ Fuzes: _____ **Mortars**: Illum: _____ HE: _____ WP: _____ RP: _____ Fuzes: _____ **CAS:** _____ _____ _____ _____ _____ _____

Figure E-13. Checklist for Phasing Control Afloat (Sheet 2 of 4)

6f		**Aircraft Alert Status**: _____
6g		**Air Defense Condition**: _____
6h		**Current and On Order FSCMs in Effect:** FSCL: _____ _____ _____ CFL: _____ _____ _____ ACA: _____ _____ _____ NFA: _____ _____ _____ RFA: _____ _____ _____ _____ _____ _____ FFA: _____ _____ _____
6i		**Missions in Progress:** Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____ Tgt # _____ Agency: _____ TOT: _____ Grid Position: _____
6j		**All TARBULs**: _____ _____ _____ _____ _____ _____ _____

Figure E-13. Checklist for Phasing Control Afloat (Sheet 3 of 4)

6k		**Friendly Unit Locations:** Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____ Unit: _____ Grid Location: _____
6l		**OP Locations:** OP: _____ Grid Location: _____ OP: _____ Grid Location: _____ OP: _____ Grid Location: _____ OP: _____ Grid Location: _____
7		The LF FSO informs the CLF that the SACC is prepared to take control of fire support coordination (if time permits).
8		The SAC informs the CATF that the SACC is prepared to take control of fire support coordination (if time permits).
9		Upon approval from both commanders (if time permits) the SACC responds to the FSCC on the LF FSC net **"I now have control of all fire support coordination within the area of operations."**
10		The FSCC responds with **"Roger, you now have control of all fire support coordination within the area of operations."**
***** **NOTE:** ***Upon completion, the SACC has control and coordination of fire support within the area of operations. All fire support agencies will receive approval or denial of calls for fire from the SACC.***		
11		The SAC announces in the SACC that the SACC now has control of fire support coordination.
12		The NSFS CO contacts all stations on the Ground/Air Spot nets and states **"(SACC callsign) now has control of Fire Support coordination. Approval for all fires will come from (SACC callsign)."**
13		The ASC contacts all stations on the TAR/HAR and TACP nets and states **"(SACC callsign) now has control of fire support coordination. Approval for all fires will come from (SACC callsign)."**
14		The artillery LNO and 81-mm rep do the same as above for their observers and respective firing agencies.

Figure E-13. Checklist for Phasing Control Afloat (Sheet 4 of 4)

b. NSFS control and coordination

c. Air support control and coordination.

2. Phase II. Advance parties for the LF FSCC and air support liaison team move ashore to establish required facilities and communications.

3. Phase III. The rear echelon of the LF FSCC moves ashore.

4. Phase IV. The LF FSCC is established ashore as follows:

   a. Coordination of artillery and NSFS, and limited control of NSFS, is passed from the CATF (SACC) to the CLF (FSCC).

   b. Limited control and coordination of air operations (i.e., DAS) is passed from the TACC (afloat) to the air support element (collocated with the FSCC).

   c. Coordination is passed from the supporting commander to the supported commander after the FSCC/air support element completes appropriate checklists (paragraph E.14.1), a voice message verifies the same, and the supporting/supported commanders concur.

5. Phase V. The SACC remains activated and continues to:

   a. Monitor all SACC communications nets

   b. Maintain and update all SACC overlays and status boards

   c. Maintain the AFTL.

E.14.4 Emergency Procedures for the Supporting Arms Coordination Center to Reassume Coordination of Supporting Arms

Once coordination of supporting arms is passed to the FSCC ashore, the SACC must be ready to reassume control of fires at any time. Reasons for this include, but are not limited to, loss of effective communications by the LF ashore and enemy action that renders the FSCC ashore ineffective. Supporting/supported commander authority is key to the decision to take emergency control, but if not immediately available, this cannot delay approval of fires. The commanders must be informed of the change in coordination as soon as possible.

E.14.4.1 Maintaining Situational Awareness

Appropriate manning and situational awareness of LF operations ashore must be maintained in the SACC after coordination has been passed ashore. Specifically, the SACC must be cognizant of:

1. Positions of all friendly units. Landing force operations center (LFOC) and ground observers should report this regularly.)

2. FSCMs in effect (maintained by closely monitoring the appropriate net).

3. Current ammunition and firing status of firing units.

4. Current and projected air sorties (TACC responsibility).

E.14.4.2 Emergency Scenarios

In the following emergency scenarios, the SACC reassumes coordination of supporting arms from the FSCC immediately:

1. If neither the SACC nor any other firing units have communications with the FSCC, the following actions are required:

   a. Ensure LFOC and ATF command center (FLAGPLOT) are aware of the situation, and instruct LFOC to immediately send a liaison to the SACC to verify friendly locations.

   b. If fire missions or nine-line briefs are pending approval, verify the location of friendly units before taking control and approving missions.

   c. Announce the assumption of emergency control of all supporting arms coordination on all nets (SACC function).

   d. If such a situation arises, it is critical that the SACC assumes control quickly. Once the SACC has control, the checklist items that the SACC and FSCC normally monitor should be updated.

Note

Due to the critical nature of emergency passage of supporting arms control afloat, the FSC and SAC/FFC must ensure that all FSCC and SACC members are trained regarding the proper procedures. The goal of the SACC is to obtain control within 5 minutes.

E.14.4.3 Loss of Communications

If the FSCC loses communications with fire support ships, but still has communications with the SACC, the following actions are required:

1. The FSCC requests SACC support until communication is regained on all required nets.

2. The SACC relays information between the fire support ships and the FSCC.

E.15 SUPPORTING ARMS COORDINATION CENTER RECORDKEEPING

The SAC ensures appropriate records are maintained whenever SACC is activated. These records include:

1. A log of significant events

2. All preplanned fire schedules

3. All NSFS request forms

4. All JTARs

5. All SACC-FSCC-related message traffic.

E.16 COMMUNICATIONS

Consistent reliable communications are critical to the planning, coordination, and execution of supporting arms within the AF and/or ESG.

E.16.1 SACC Communications Nets

Figures E-14 and E-15 display the recommended communications nets to be monitored during supporting arms coordination. Chapter 3 also contains more specific information.

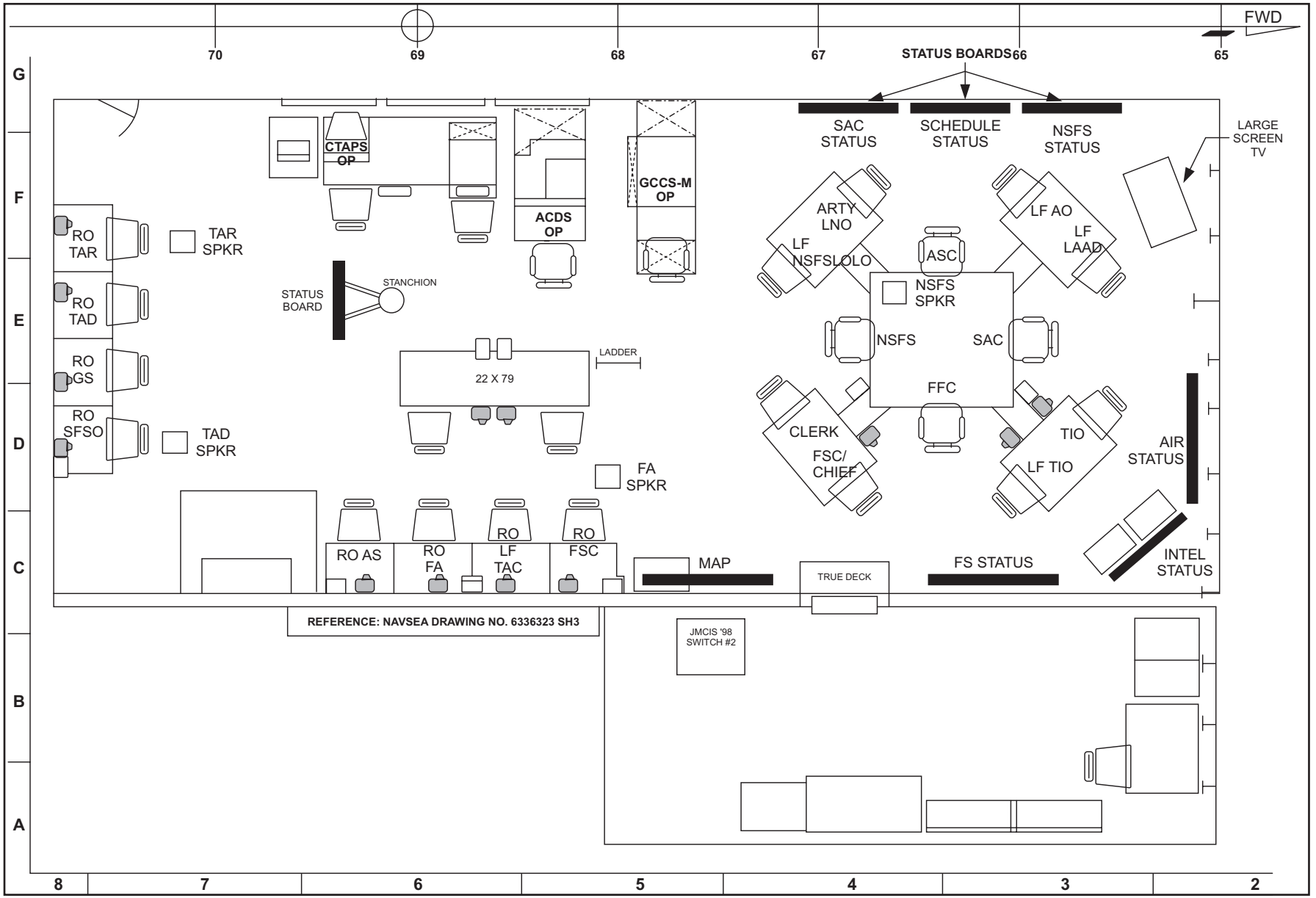

Figure E-14. Existing Amphibious Assault Ship (Multi-Purpose) Supporting Arms Coordination Center Configuration

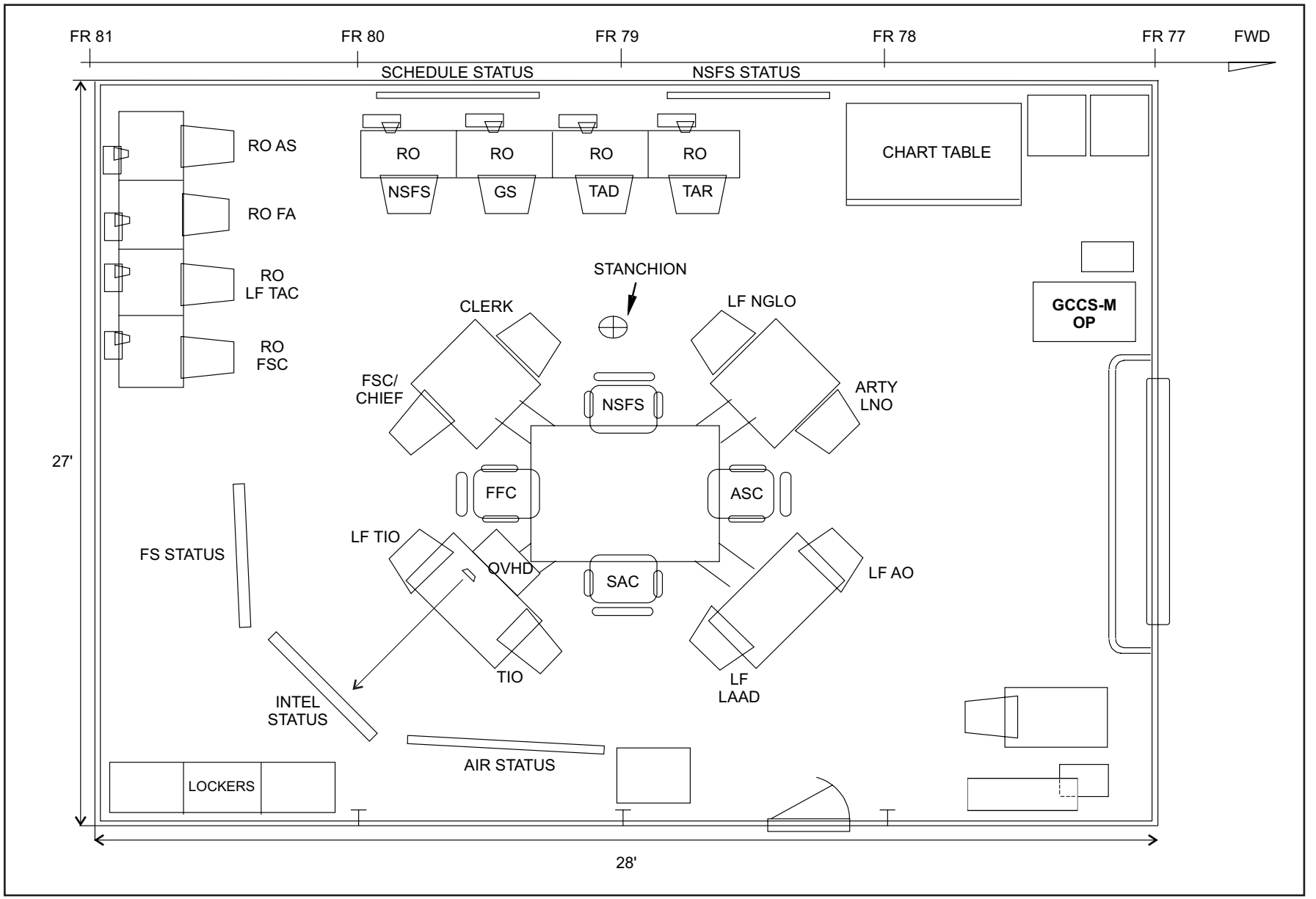

Figure E-15. Existing Amphibious Assault Ship (General Purpose) Supporting Arms Coordination Center Configuration

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NAVY LESSONS LEARNED SYSTEM

http://www.nwdc.navy.mil/NLLS/default.asp

LIST OF ACRONYMS AND ABBREVIATIONS

A

A2C2	Army airspace command and control (JP 1-02)
AAA	antiaircraft artillery (JP 1-02)
AADC	area air defense commander (JP 1-02)
AADCP	Army air defense command post
AASC	assistant air support controller
AAV	amphibious assault vehicle (JP 1-02)
AAWS	antiair warfare section
ACA	airspace coordination area (JP 1-02)
ACE	aviation combat element (MAGTF) (JP 1-02)
ACM	artillery coordination measure
ACO	airspace control order (JP 1-02)
ACOS	assistant chief of staff
ACP	airspace control plan (JP 1-02)
AD	air defense (JP 1-02)
ADC	air defense commander (JP 1-02)
AEW&C	airborne early warning and control (JP 1-02)
AF	amphibious force (JP 1-02)
AFATDS	advanced field artillery tactical data system (JP 1-02)
AFIC	amphibious force intelligence center
AFIO	amphibious force intelligence officer
AFTB	amphibious force targeting board
AFTB WG	AFTB working group
AFTL	amphibious force target list
AGM	attack guidance matrix

AGS	advanced gun system
AH-1	Cobra rotary-wing attack aircraft (USMC)
AI	air interdiction (JP 1-02)
AIO	air intelligence officer
AIRSUPREQ	air support request (JP 1-02)
ALLOREQ	allocation request (JP 1-02)
ALT-SUWC	alternate surface warfare commander
AMPHIB	amphibious
AOC	air operations center (JP 1-02)
AOR	area of responsibility (JP 1-02)
APS	afloat planning system (TLAM) (NWP 1-02)
AR	aerial reconnaissance; armed reconnaissance (NWP 1-02)
AREC	air resource element coordinator (JP 1-02)
AS	air support
ASC	air support controller (NWP 1-02)
ASC(A)	air support controller (airborne)
ASCM	antiship cruise missile (NWP 1-02)
ASCS	air support control section (JP 1-02)
ASE	air support element (NWP 1-02)
ASOC	air support operations center (JP 1-02)
ASR	assault support request (NWP 1-02)
ASW	antisubmarine warfare (JP 1-02)
ASWC	antisubmarine warfare commander (JP 1-02)
ATACMS	Army tactical missile system
ATACS	amphibious tactical air control system (NWP 1-02)
ATCS	air traffic control section (JP 1-02)
ATDC	advanced tactical data console
ATF	amphibious task force (JP 1-02)

AT/FP	antiterrorism/force protection
ATG	amphibious task group (JP 1-02)
ATO	air tasking order (JP 1-02)
ATP	allied tactical publication (JP 1-02)
ATWCS	advanced Tomahawk weapons control system
AV-8B	Harrier fixed-wing attack aircraft (USMC)
AW	air warfare (JP 1-02)
AWC	air warfare commander (JP 1-02)
AWS	air warfare section

B

BAT	brilliant anti-tank (munitions)
BCE	battlefield coordination element (USA)
BCD	battlefield coordination detachment (JP 1-02)
BDA	battle damage assessment (JP 1-02)
BLT	battalion landing team (JP 1-02)
BP	battle position (JP 1-02)
BSM	battlespace shaping matrix

C

C2	command and control (JP 1-02)
C2W	command and control warfare (JP 1-02)
C3	command, control, and communications (JP 1-02)
C4	command, control, communications, and computers (JP 1-02)
C4I	command, control, communications, computers, and intelligence (JP 1-02)
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance (JP 1-02)
CA	combat assessment (JP 1-02)
CAP	crisis action planning (JP 1-02)
CAS	close air support (JP 1-02)
CASREP	casualty report (JP 1-02)

CAT	crisis action team (JP 1-02)
CATF	commander, amphibious task force (JP 1-02)
CCIR	commander's critical information requirements (JP 1-02)
CCO	combat cargo officer (JP 1-02)
CE	command element (MAGTF) (JP 1-02)
CEP	circular error probable (JP 1-02)
CFF	call for fire
CFL	coordinated fire line (JP 1-02)
CG	commanding general (JP 1-02); guided-missile cruiser
CIA	Central Intelligence Agency (JP 1-02)
CIC	combat information center (JP 1-02)
CJTF	commander, joint task force (JP 1-02)
CLF	commander, landing force (JP 1-02)
CLZ	cushion landing zone (JP 1-02)
CO	commanding officer (JP 1-02)
COA	course of action (JP 1-02)
COC	combat operations center (JP 1-02)
COE	center of excellence
COF	conduct of fire (JP 1-02)
COG	center of gravity (JP 1-02)
COMINEWARCOM	Commander, Mine Warfare Command (JP 1-02)
COMM	communications (JP 1-02)
COMMCON	communications control
COMNAVSPECWARGRU	Commander, Naval Special Warfare Group
COMSEC	communications security (JP 1-02)
CONOPS	concept of operations (JP 1-02)
CONPLAN	concept plan (JP 1-02); operation plan in concept format (JP 1-02)
COP	common operational picture (JP 1-02)

COS	chief of staff (JP 1-02)
CP	check point (JP 1-02)
CRC	control and reporting center (JP 1-02)
CRUDESGRU	Cruiser Destroyer Group
CS	close support
CSO	chief staff officer
CSS	combat service support (JP 1-02)
CSSE	combat service support element (MAGTF) (JP 1-02)
CTF	combined task force (JP 1-02)
CUROPSO	current operations officer
CV	critical vulnerability; aircraft carrier (JP 1-02)
CVN	aircraft carrier, nuclear (JP 1-02)
CWC	composite warfare commander (JP 1-02)

D

D3A	decide, detect, deliver, and assess (JP 1-02)
DACT	digital automated communications terminal
DAS	direct air support (JP 1-02)
DASC	direct air support center (JP 1-02)
DCA	defensive counterair (JP 1-02)
DCJTF	deputy commander, joint task force (JP 1-02)
DCT	digital communication terminal (NWP 1-02)
DD	destroyer (Navy ship) (JP 1-02)
D-day	unnamed day on which operations commence or are scheduled to commence (JP 1-02)
DDG	guided-missile destroyer (JP 1-02)
DET	detachment (JP 1-02)
DESRON	Destroyer Squadron (NWP 1-02)
DIA	Defense Intelligence Agency (JP 1-02)
DP	decisive point (JP 1-02)

DS	direct support (JP 1-02)
DSM	decision support matrix
DST	decision support template
DTG	date-time group (JP 1-02)
DZ	drop zone (JP 1-02)

E

E-2C	early warning fixed-wing aircraft
E3	electromagnetic environmental effect (JP 1-02)
EA	electronic attack (JP 1-02)
EEFI	essential elements of friendly information
EFST	essential fire support task
EHF	extremely high frequency (JP 1-02)
EMCON	emission control (JP 1-02)
EMPRA	embarkation, movement to the objective, planning, rehearsal, assault
EP	electronic protection (JP 1-02)
EPW	enemy prisoner of war (JP 1-02)
ERGM	extended range guided munitions (JP 1-02)
ES	electronic warfare support (JP 1-02)
ESG	expeditionary strike group
ETAC	enlisted terminal attack controller (JP 1-02)
EW	electronic warfare (JP 1-02)
EWC	electronic warfare coordinator (JP 1-02)
EW/C	electronic warfare/control
EWO	electronic warfare officer (JP 1-02)

F

FAAWC	force antiair warfare coordinator (JP 1-02)
FAC	forward air controller (JP 1-02)
FAC(A)	forward air controller (airborne) (JP 1-02)
FCC	flight coordination center (USA)

FCE	fires coordination element
FD	fire direction (NWP 1-02)
FDC	fire direction center (JP 1-02)
FFC	force fires coordinator (JP 1-02)
FFCC	force fires coordination center (JP 1-02)
FLAGPLOT	ATF command center
FLOT	forward line of troops (JP 1-02)
FO	forward observer (JP 1-02)
FOC	flight operations center (USA)
FOPS	future operations officer
FRAGORD	fragmentary order (JP 1-02)
FRU	firing unit
FSA	fire support area (JP 1-02)
FSC	fire support coordinator (JP 1-02)
FSCC	fire support coordination center (JP 1-02)
FSCL	fire support coordination line (JP 1-02)
FSCM	fire support coordinating measure (JP 1-02)
FSE	fire support element (JP 1-02)
FSEM	fire support execution matrix
FSO	fire support officer (JP 1-02)
FSS	fire support station (JP 1-02)
FST	fleet surgical team (JP 1-02)
FWC	functional warfare commander

G

G-2	Army or Marine Corps component intelligence staff officer (Army division or higher staff, Marine Corps brigade or higher staff) (JP 1-02)
G-3	Army or Marine Corps component operations staff officer (Army division or higher staff, Marine Corps brigade or higher staff) (JP 1-02)
G-4	Army or Marine Corps component logistics staff officer (Army division or higher staff, Marine Corps brigade or higher staff) (JP 1-02)

G-5	Army or Marine Corps component future plans staff officer (Army division or higher staff, Marine Corps brigade or higher staff) (JP 1-02)
G-6	Army or Marine Corps component C4 staff officer (Army division or higher staff, Marine Corps brigade or higher staff) (JP 1-02)
GCCS-M	Global Command and Control System-Maritime (JP 1-02)
GCE	ground combat element (MAGTF) (JP 1-02)
GFCS	gunfire control system (NWP 1-02)
GGM	GPS-guided munitions
GPS	global positioning system (JP 1-02)
GS	general support (JP 1-02)
GS-R	general support-reinforcing (JP 1-02)
GTL	gun-target line (JP 1-02)
GURF	guns up ready-to-fire (USMC) (NWP 1-02)
GWS	gun weapon system (NWP 1-02)

H

HA	holding area (JP 1-02)
HC	helicopter coordinator
HCI	human-computer interface
HCS	helicopter coordination section (JP 1-02)
HDC	helicopter direction center (JP 1-02)
HEC	helicopter element coordinator (JP 1-02)
HF	high frequency (JP 1-02)
H-hour	specific time an operation or exercise begins (JP 1-02)
HPT	high-payoff target
HPTL	high-payoff target list
HR	helicopter request (NWP 1-02)
HVT	high-value target (JP 1-02)
HVTL	high-value target list

I

IFF	identification, friend or foe (JP 1-02)

IMMM	in-flight mission modification message
INFOSEC	information security (JP 1-02)
INS	inertial navigation system (JP 1-02)
INTEL	intelligence (NWP 1-02)
IO	information operations (JP 1-02)
IP	initial point (JP 1-02)
IPB	intelligence preparation of the battlespace (JP 1-02)
ISR	intelligence, surveillance, and reconnaissance (JP 1-02)
IT	information technologies (JP 1-02)
IW	information warfare (JP 1-02)
IWC	information warfare commander (JP 1-02)

J

J2	JTF intelligence officer
J3	JTF operations officer
JAG	Judge Advocate General (JP 1-02)
JAOC	joint air operations center (JP 1-02)
JFACC	joint force air component commander (JP 1-02)
JFC	joint force commander (JP 1-02)
JFE	joint fires element (JP 1-02)
JFLCC	joint force land component commander (JP 1-02)
JFMCC	joint force maritime component commander (JP 1-02)
JFN	joint fires network
JFSOCC	joint force special operations component commander (JP 1-02)
JIC	joint intelligence center (JP 1-02)
JIPTL	joint integrated prioritized target list (JP 1-02)
JISE	joint intelligence support element (JP 1-02)
JISR	joint intelligence, surveillance, and reconnaissance
JOA	joint operations area (JP 1-02)
JOC	joint operations center (JP 1-02)

JOPES	Joint Operation Planning and Execution System (JP 1-02)
JP	joint publication (JP 1-02)
JPG	joint planning group (JP 1-02)
JSIPS-N	joint service imagery processing system-Navy
JTAR	joint tactical air strike request (JP 1-02)
JTCB	joint targeting coordination board (JP 1-02)
JTF	joint task force (JP 1-02)
JTL	joint target list (JP 1-02)
JTST	joint time sensitive target
JTTP	joint tactics, techniques, and procedures (JP 1-02)

L

LAAD	littoral area air defense
LAC	launch area coordinator (NWP 1-02)
LAR	light-armored reconnaissance mechanized vehicle (NWP 1-02)
LAV	light armored vehicle (JP 1-02)
LCAC	landing craft air cushion (JP 1-02)
LCC	amphibious command ship (JP 1-02); land component commander (JP 1-02)
LCO	LCAC control officer
LCS	LCAC control ship
LCU	landing craft, utility (JP 1-02)
LF	landing force (JP 1-02)
LFOC	landing force operations center (NWP 1-02)
LFSP	landing force support party (JP 1-02)
LGW	laser-guided weapon (JP 1-02)
LHA	amphibious assault ship (general purpose) (JP 1-02)
LHD	amphibious assault ship (multi-purpose) (NWP 1-02)
L-hour	specific hour on an unnamed day at which a helicopter operation commences or is to commence
LLDR	lightweight laser designator rangefinder

LOAC	law of armed conflict (JP 1-02)
LOC	line of communications (JP 1-02)
LNO	liaison officer (JP 1-02)
LPD	amphibious transport dock (JP 1-02)
LPMP	launch platform mission planning
LSD	landing ship dock (JP 1-02)
LZ	landing zone (JP 1-02)

M

MAAP	master air attack plan (JP 1-02)
MACCS	Marine air command and control system (JP 1-02)
MACS	Marine air control squadron (NWP 1-02)
MAGTF	Marine air-ground task force (JP 1-02)
MCDP	Marine Corps Doctrinal Publication (JP 1-02)
MCMRON	Mine Countermeasures Squadron
MCPP	Marine Corps planning process
MCRP	Marine Corps Reference Publication
MCWP	Marine Corps Warfare Publication
MDU	mission data update (NWP 1-02)
MEA	munitions effectiveness assessment (JP 1-02)
MEB	Marine expeditionary brigade (JP 1-02)
MEDEVAC	medical evacuation (JP 1-02)
MEF	Marine expeditionary force (JP 1-02)
METOC	meteorological and oceanographic (JP 1-02)
METT-T	mission, enemy, terrain and weather, troops and support available—time available (JP 1-02)
MEU	Marine expeditionary unit (JP 1-02)
MEU(SOC)	Marine expeditionary unit (special operations capable) (JP 1-02)
MH-53	mine hunting helicopter
MIOC	maritime interception operations commander

MIPO	mission, intent, priorities, and objectives
MIWC	mine warfare commander
MOE	measure of effectiveness (JP 1-02)
MPC	mission planning cell
MPRF	mission planning request form
MSC	major subordinate command (JP 1-02)
MSE	mission support element (JP 1-02)
MSPF	maritime special purpose force (JP 1-02)
MSSG	Marine expeditionary unit service support group (JP 1-02)
MTACS	Marine tactical air command squadron (NWP 1-02)
MW	maneuver warfare

N

N-2	intelligence officer (USN)
N-3	operations officer (USN)
N-31	current operations/ship-to-shore movement officer
N-32	combat cargo officer
N-33	supporting arms coordinator
N-4	combat logistics/material officer (USN)
N-5	plans/policies/exercise officer (USN)
N-6	command, control, communications, and computers officer (USN)
N-8	tactical air officer (USN)
NAI	named area of interest (JP 1-02)
NALE	naval and amphibious liaison element (JP 1-02)
NAVBEACHGRU	Naval Beach Group
NCO	noncommissioned officer (JP 1-02)
NFA	no-fire area (JP 1-02)
NFCS	naval fire control system
NFN	naval fires network
NFO	naval flight officer (JP 1-02)

NLLS	Navy Lessons Learned System (JP 1-02)
NGLO	naval gunfire liaison officer
NLT	not later than (JP 1-02)
NSA	National Security Agency (JP 1-02)
NSFS	naval surface fire support (JP 1-02)
NSFSC	naval surface fire support coordinator
NSFSLO	naval surface fire support liaison officer
NSFSO	naval surface fire support officer
NSL	no-strike list
NTACS	Navy tactical air control system (JP 1-02)
NTTP	Navy tactics, techniques, and procedures
NWDC	Navy Warfare Development Command
NWP	Navy warfare publication

O

OAAW	offensive antiair warfare (USMC) (JP 1-02)
OAS	offensive air support (JP 1-02)
OAW	offensive air warfare
OCA	offensive counterair (JP 1-02)
OFAAM	operational fires and air apportionment message
OIC	officer in charge (JP 1-02)
OIR	operational intelligence requirements (JP 1-02)
OOB	order of battle (JP 1-02)
OPCON	operational control (JP 1-02)
OPGEN	operational general matter (JP 1-02)
OPLAN	operation plan (JP 1-02)
OPORD	operation order (JP 1-02)
OPSEC	operations security (JP 1-02)
OPT	operational planning team (JP 1-02)
OPTASK	operation task (JP 1-02)

OTC	officer in tactical command (JP 1-02)
OTH	over the horizon (JP 1-02)

P

P-3	maritime patrol aircraft
PCRS	primary casualty receiving ship
PDE	planning, decision, execution (cycle)
PERMA	planning, embarkation, rehearsal, movement to the objective, assault
PHIBGRU	amphibious group (JP 1-02)
PHIBRON	amphibious squadron (JP 1-02)
PLP	prelaunch position
POLAD	political advisor (JP 1-02)
PPAR	purpose, priority, allocation, restrictions
PSS	plans and support section
PSYOP	psychological operations (JP 1-02)

R

R&S	reconnaissance and surveillance
R2P2	rapid response planning process (JP 1-02)
RAOC	rear area operations center (JP 1-02)
RFA	restricted fire area (JP 1-02)
RFI	request for information (JP 1-02)
ROE	rules of engagement (JP 1-02)
ROP	recommended operating procedures
RREMS	refinement, record as target, end of mission, surveillance (report)
RT	radio-telephone
RTL	restricted target list (JP 1-02)

S

S-2	battalion or brigade intelligence staff officer (Army, Marine Corps battalion or regiment) (JP 1-02)
S-3	battalion or brigade operations staff officer (Army, Marine Corps battalion or regiment) (JP 1-02)

S-4	battalion or brigade logistics staff officer (Army, Marine Corps battalion or regiment) (JP 1-02)
S-6	battalion or brigade C4 staff officer (Army, Marine Corps battalion or regiment) (JP 1-02)
SA	situational awareness (JP 1-02)
SAC	supporting arms coordinator (JP 1-02)
SACC	supporting arms coordination center (JP 1-02)
SAM	surface-to-air missile (JP 1-02)
SAR	search and rescue (JP 1-02)
SATCOM	satellite communications (JP 1-02)
SCC	sea combat commander
SEAD	suppression of enemy air defenses (JP 1-02)
SEAL	sea-air-land team (JP 1-02)
S/EWCC	signals intelligence/electronic warfare coordination center (JP 1-02)
SFCP	shore fire control party (JP 1-02)
SI	special intelligence (JP 1-02)
SIGINT	signals intelligence (JP 1-02)
SIPRNET	SECRET Internet Protocol Router Network (JP 1-02)
SJA	Staff Judge Advocate (JP 1-02)
SLCP	ship's loading characteristics pamphlet (JP 1-02)
SME	subject matter expert (JP 1-02)
SOF	special operations forces (JP 1-02)
SORTIEALOT	sortie allotment message (JP 1-02)
SPECWAR	special warfare (JP 1-02)
SPINS	special instructions (JP 1-02)
STOM	ship to objective maneuver
STWC	strike warfare commander (JP 1-02)
SUW	surface warfare (JP 1-02)
SUWC	surface warfare commander (JP 1-02)

SW	strike warfare
SWDG	Surface Warfare Development Group
SWO	senior watch officer (NWP 1-02)
SYSCON	systems control (JP 1-02)

T

TA	target acquisition (JP 1-02)
TAC	tactical air controller; terminal attack control
TAC(A)	tactical air coordinator (airborne) (JP 1-02)
TACAIR	tactical air (JP 1-02)
TACC	tactical air control center (USN) (JP 1-02); tactical air command center (USMC) (JP 1-02)
TACGRU	tactical air control group (NWP 1-02)
TACLOG	tactical-logistical (JP 1-02)
TACMEMO	tactical memorandum (NWP 1-02)
TACOM	tactical command (NWP 1-02)
TACON	tactical control (JP 1-02)
TACP	tactical air control party (JP 1-02)
TACS	tactical air control system (JP 1-02)
TACSIT	tactical situation (NWP 1-02)
TACTOM	tactical Tomahawk (NWP 1-02)
TAD	tactical air direction (JP 1-02)
TADC	tactical air direction center (JP 1-02); tactical air direction controller
TAI	target area of interest (JP 1-02)
TAO	tactical actions officer (JP 1-02); tactical air officer
TAOC	tactical air operations center (USMC) (JP 1-02)
TAR	tactical air request (JP 1-02)
TARBUL	target bulletin (JP 1-02)
TAR/HAR	tactical air request/helicopter request (net)
TATC	tactical air traffic control (JP 1-02)

TBM	theater ballistic missile (JP 1-02)
TBMCS	theater battle management core system (JP 1-02)
TES-N	tactical exploitation system-Navy
TIC	target information center (JP 1-02)
TIO	target intelligence officer (JP 1-02)
TG	task group (JP 1-02)
TGTINFOREP	target information report (JP 1-02)
TGWG	target guidance working group
TLAM	Tomahawk land-attack missile (JP 1-02)
TLAM (LAC)	TLAM (launch area coordinator)
TLDHS	target location designation and handoff system
TOF	time of flight (JP 1-02)
TOT	time on target (JP 1-02)
TRAP	tactical recovery of aircraft and personnel (JP 1-02)
TSC	Tomahawk land-attack missile strike coordinator (NWP 1-02)
TSN	Tomahawk strike network
TSS	target selection standards (NWP 1-02)
TST	time-sensitive target (JP 1-02)
TSTL	time-sensitive target list
TTP	tactics, techniques, and procedures (JP 1-02)
TTWCS	tactical Tomahawk weapon control system
TTWS	tactical Tomahawk weapon system
TVA	target value analysis (NWP 1-02)
TWS	Tomahawk weapon system (NWP 1-02)

U

UAV	unmanned aerial vehicle (JP 1-02)
UH-1N	command and control helicopter (USMC)
UHF	ultrahigh frequency (JP 1-02)
UNREP	underway replenishment (JP 1-02)

USA	United States Army (JP 1-02)
USAF	United States Air Force (JP 1-02)
USCG	United States Coast Guard (JP 1-02)
USMC	United States Marine Corps (JP 1-02)
USN	United States Navy (JP 1-02)
USW	undersea warfare (JP 1-02)
USWC	undersea warfare commander (JP 1-02)

V

VERTREP	vertical replenishment (JP 1-02)
VHF	very high frequency (JP 1-02)
VLS	vertical launching system (JP 1-02)
VTC	video teleconferencing (JP 1-02)

W

WARNORD	warning order (JP 1-02)
WMD	weapons of mass destruction (JP 1-02)

X

XO	executive officer (JP 1-02)

SYMBOLS

4-D	four-dimensional

LIST OF EFFECTIVE PAGES

Effective Pages	Page Numbers
MAY 2004	1 thru 22
MAY 2004	EX-1, EX-2
MAY 2004	1-1 thru 1-10
MAY 2004	2-1 thru 2-20
MAY 2004	3-1 thru 3-12
MAY 2004	4-1 thru 4-28
MAY 2004	5-1 thru 5-12
MAY 2004	6-1 thru 6-16
MAY 2004	A-1 thru A-8
MAY 2004	B-1, B-2
MAY 2004	C-1 thru C-8
MAY 2004	D-1 thru D-10
MAY 2004	E-1 thru E-40
MAY 2004	Bibliography-1, Bibliography-2
MAY 2004	LOAA-1 thru LOAA-18
MAY 2004	LEP-1, LEP-2

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NTTP 3-02.2
MCWP 3-31.6
EDITION MAY 2004