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THE
HOUSE ARMED SERVICES COMMITTEE
TACTICAL AIR AND LAND FORCES
SUBCOMMITTEE

STATEMENT OF
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BEFORE THE
TACTICAL AIR AND LAND FORCES SUBCOMMITTEE
OF THE
HOUSE ARMED SERVICES COMMITTEE
ON
FY 2007 NAVAL UAS and UCAS PROGRAMS
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Mr. Chairman, Congressman Abercrombie, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss Fiscal Year (FY) 2007 Unmanned Aircraft System (UAS) programs of the Marine Corps. Rear Admiral Clingan is with me today on behalf of the U.S. Navy.

The Marine Corps' UASs are operating in support of Operation IRAQI FREEDOM (OIF) and Operation ENDURING FREEDOM (OEF), providing the battle space awareness that our Marines need to counter the threats they face. The demand for this support is great, and growing. We are flying our Pioneers over 6,000 hours a year, or nearly ten times their programmed flight hour rate. We are aggressively sustaining this critical capability and fielding new systems such as the man-packable Dragon Eye. Maintaining our current capability, we continue to develop the requirements for our future UAS capabilities.

CONCEPT OF EMPLOYMENT

The Marine Corps's UAS concept of employment is divided into three tiers, each coinciding with the level of unit they support.

The Marine Corps' Tier I UAS, Dragon Eye, is being flown at the Battalion level and below. These UAS are meant for the small unit and its video is not available beyond the user at that level. The Marine Corps has been engaged in the Small UAS Joint Integrated Product Team (IPT) with the U.S. Army and Special Operations Command (SOCOM). We are currently pursuing a program of record transition from Dragon Eye to the Joint Small UAS, Raven-B, which has already been selected by the Army and SOCOM.

The Marine Division, Regimental, Battalion and Marine Expeditionary Unit (MEU) commanders will be supported by the Tier II UAS. The Marine Corps does not currently have a program of record for a Tier II UAS, but continues to employ two Scan Eagle UAS systems under a fee-for-service agreement to fill this identified capability gap. The Marine Corps is developing an Initial Capabilities Document for a Tier II UAS that will lead to a program of record with a planned IOC in 2010. The Navy, the Air Force, and SOCOM are exploring the feasibility of joining requirements to create a Joint ICD.

The Marine Corps' Tier III UAS is Pioneer. Flown by the Unmanned Aerial Vehicle Squadron (VMU), the Pioneer primarily supports tasking from subordinate units of the Marine Expeditionary Force (MEF) by providing intelligence, surveillance, reconnaissance, and target acquisition to our ground combat elements. This includes direct support to our Marine Division and Regiments. Additionally, when Army and coalition units have been assigned to the MEF, these units have also received Pioneer support.

Within the Joint context, the Pioneer provides near-real time video and annotated digital photos of targets and areas of interest to all units within the MEF area of operations, including Army and coalition forces. In addition, the Pioneer provides immediate descriptions of areas of interest and activities with an Internet chat capability. The squadron also has the capability to send out teams with Manpack Receive Stations (MRSs). These small laptop-based systems provide video support directly to front-line units by receiving video from the Pioneer and our Litening Pod-equipped F/A-18s and AV-8Bs.

The Marine Corps' future employment concepts and requirements are being further refined in light of current operational lessons. The Marine Corps Combat Development Command (MCCDC) is conducting an Overarching UAS Study to provide a broad, capabilities-based analysis assessing the full range of Marine Air-Ground Task Force (MAGTF) UAS requirements. Additionally, MCCDC is completing a Marine Corps UAS Family of Systems concept of operations to define how the three tiers of UAS will synergistically cooperate within a robust command and control architecture.

Marine Aviation is committed to developing persistent Intelligence, Surveillance, and Reconnaissance (ISR), generating more robust and agile command and control, and making our precision attack and maneuver even more effective. In December 2005, the Marine Corps conducted Demonstration AGILE LION in Yuma, Arizona, where cutting-edge technologies were blended with current capabilities to develop a more net-centric air-ground team with a clearer real-time operational picture. The capabilities explored during this demonstration and follow-on efforts (i.e. Dynamic Integrated Combat Environment) will be resident in future Marine Corps UAS.

U.S. MARINE CORPS UAS PROGRAMS

The Marine Corps has two fielded UAS programs: Dragon Eye and Pioneer. Dragon Eye has flown 8,500 hours in support of OIF and OEF and Pioneer has flown over 13,900 combat hours in theater, highlighting the criticality of these systems for our Marine Forces. The Marine Corps is also developing Tier II and III UAS in support of Ship to Objective Maneuver Warfare concepts from Expeditionary Maneuver Warfare (EMW).

Dragon Eye: The Dragon Eye UAS Milestone C was completed in the Fall 2003 and was followed by production contract award. This system achieved Initial Operational Capability (IOC) in June 2004. Dragon Eye began fielding in June 2004, after a successful 10-system demonstration with the 1st Marine Division serving in Iraq. Currently, over 40% of the Dragon Eye inventory (171 air vehicles and 57 Ground Control Stations (GCSs)) is serving in OIF and OEF.

Pioneer: The Pioneer System provides tactical commanders with day and night, battlefield ISR and target acquisition in support of Marine expeditionary warfare operations. The Pioneer sustainment plan includes the technology refresh necessary to ensure the viability of Pioneer for the Marine Corps. This effort consists of incorporating payloads, launchers and corrections for obsolescence issues to sustain the Pioneer until a replacement is fielded. The Pioneer program is using major sub-systems from the Army's Shadow 200 and Hunter UAV systems to minimize Life Cycle Cost (i.e. the engine, payload, GCS and launcher from Shadow and the Flight Computer and avionics package from Hunter). In addition, the sustainment program will provide tactical common data link compatibility for this system, improving interoperability, in compliance with FY06 Congressional language.

Vertical Unmanned Aircraft System (VUAS): As the Tier III replacement for the Pioneer, VUAS will provide responsive, real-time reconnaissance, surveillance, intelligence, targeting and weapons employment capability that is organic to the Marine Air Ground Task Force and Joint Task Force Commanders. It will have the key attributes necessary to support EMW. These include vertical takeoff and landing from all air capable ships/austere land bases, the speed to be responsive and tactically agile, and the survivability required to effectively operate in denied access environments. The VUAS Initial Capabilities Document was approved in December of 2005. An Analysis of Alternatives will get underway this year which will examine existing UA systems, their costs, and their ability to meet the Marine Corps requirements.

One System GCS: A central part of the Pioneer sustainment plan is the purchase of the U.S. Army One System GCS. Procurement of this GCS to replace the legacy Pioneer GCS minimized development costs and will provide a means to develop greater interoperability and commonality with U.S. Army systems. This system is also scalable, and intended to serve as the common GCS across all future Marine Corps UAS tiers. Investments in the One System GCS will improve the readiness, flexibility, and availability of systems to the warfighter today, and will serve as an investment in the infrastructure of our future systems, while increasing commonality and interoperability with our joint partners.

OPERATIONAL EXPERIENCE

Tier I: The Dragon Eye's mission is to provide the small unit commander a simple, cost effective day/night point reconnaissance and surveillance sensor that does not impact

manpower. Today, the average system, composed of three air vehicles and one GCS, is flying three to five times a day with each sortie averaging 10-45 minutes. The battery powered air vehicles fly with one electro-optical (EO), low light level (LLL), or infrared camera depending upon the prevailing conditions. Dragon Eyes are flying 60% of their sorties during the day and 40% at night. Two Marines assemble and launch the Dragon Eye UAV with a bungee cord in less than ten minutes. Controlled autonomously via an L-Band data link and by GPS, Dragon Eye has been indispensable in providing an “over the next hill, around the next bend” awareness for battalion and company commanders. The air vehicles can land on improved and unimproved surfaces. As of January 2005, 22 Dragon Eyes had been lost. Eleven air vehicles have been suspected of being lost to combat, six to operator error, three to flying beyond the operational envelope, and two suffered from GPS issues that had not been discovered during operational and developmental testing.

Tier II: The Marine Corps has continued to contract for Scan Eagle UAS services to support our regiments in OIF. Scan Eagle is not a program of record but fills an identified capability gap, and is filling the Tier II role in the Marine Corps’ three tier construct. The Marine Corps is developing requirements for a UAS to support regimental and Marine Expeditionary Unit operations. This Tier II UAS will be smaller in size than our Tier III Pioneer but bigger than our Tier I UAS, the Dragon Eye.

Tier III: The Pioneer UAS continues to be the backbone of Marine UAS capability. Today 77% of the air vehicles (10 of 13) and two of three GCSs available to Marine units are supporting OIF II/III operations. OIF hours have accounted for over 20% of the 40,000 total Pioneer flight hours flown since the program’s start in 1986.

In spite of the increased flight hours, Pioneer incident and strike rates continue to fall. During the eight months of OIF I, there were 23 incidents, including five strikes translating to an incident for every 102.5 hours and strike per every 471.6 flight hours. During the 12 months of OIF II, Pioneer had six incidents including one strike for an incident for every 863 flight hours and a strike for every 5,176.8 flight hours. During the period of operations for OIF III, there were 6 incidents, which included no strikes, translating to an incident for every 1,045 flight hours and no strikes for 6,273 flight hours flown. Factoring in material solutions like spark plug gaps, increased inspections, and lesson learned, the VMUs have increased their flight hours by 220% and decreased the incident rate by 88% and strike rate by 91%. From OIF II to OIF III the flight hours increased by 18%, while the incident rate and strike rate both decreased by 17%. Further, the specific causal factors for incidents have fallen. Operator error accounted for 50% of the OIF I incidents and only 36% of OIF II incidents. Further, engine cuts were the largest mechanical causal factor accounting for 79% of the OIF I incidents, but those have been reduced to 57% of the OIF II incident causal factors. The incidents occurring in OIF III were determined to be caused by engine failures (80%) and possible operator error (20%), with those in the operator error category still awaiting completion of investigations.

VMUs average four sorties a day covering a 16-hour window. The recently introduced POP-300 payload has significantly increased the Pioneer's utility. By effectively doubling the image resolution, the Pioneer can now operate with the same effectiveness at twice the altitude. This provides a tactically significant reduction in the

vehicle's audible signature, increasing its utility and flexibility. The IR illumination capability of the POP-300 will be fielded later in the year.

The Marine Corps' acquisition of Receive-Only Video Enhanced Receiver (ROVER) III has greatly enhanced our interoperability with other Services' UAS. The ROVER III can receive video from the Air Force's Predator, the Army's Shadow, our own Pioneer, and Litening Pod equipped manned aircraft. The Marine Corps has procured 72 Rover III systems. Fifty-Eight systems are currently deployed in Iraq with remaining systems being used for CONUS training.

These system enhancements have allowed the Pioneer to have great success against the Improvised Explosive Device (IED) threat. In this mission, the primary focus is to locate IED emplacers in the act. A secondary goal is to look for suspicious objects, disturbed earth, and roadside hot or cold spots. In the last six months, Pioneer has flown 1,106 hours (approximately 35% of total hours flown) focusing on the IED threat. During that period, Pioneer located 1,140 possible IEDs, and provided over 3,400 images of these areas to supported units for investigation. The Pioneer also has supported over 50 post-IED attacks. The Electro Optical/ Infrared sensor acquires and tracks trigger men or other enemy moving to or from the IED site, detects secondary IED locations, and provides overwatch for supported units during counter-indirect fire missions.

SUMMARY

The Marine Corps has a heritage of fighting battles and winning wars on the sea, on the ground, and in the air, as well as a commitment to innovation in war fighting technologies and tactics. We have employed UASs to great effect in combat since Operation DESERT STORM. UASs today are providing exceptional new ways of

supporting our war fighters, and complementing and augmenting the capabilities of our manned aircraft. We are committed to continuing the development of these systems in close partnership with our joint and coalition partners, seeking interoperability and commonality that maximizes our joint warfighting capability. We are committed to these technologies, and the benefits they bring. Thank you for your consideration.