~~SECRET//NOFORN~~

Report No. DODIG-2019-081

INSPECTOR GENERAL

U.S. Department of Defense

APRIL 17, 2019

(U) Audit of Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

~~Classified By: Troy M. Meyer,~~
~~Principal Assistant Inspector General for Audit~~
~~Derived From: Multiple Sources~~
~~Declassify On: 20461104~~

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

~~SECRET//NOFORN~~


INSPECTOR GENERAL
INTEGRITY
EFFICIENCY
DEPARTMENT OF DEFENSE

Results in Brief

(U) Audit of Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

April 17, 2019

(U) Objective

(U) The objective of the audit was to determine whether training ranges and airspace had the capability and capacity to support aviation readiness for units assigned to the U.S. Indo-Pacific Command (USINDOPACOM). We focused on rotary-wing (helicopter), fixed-wing (airplane), and unmanned aircraft systems that have offensive air support (use weapons to attack enemy assets).

(U) We defined capability as the ability of the range to provide realistic training conditions, targets, and threats. We defined capacity as the ability of the range size and airspace to accommodate the number and types of aircraft and training missions that need to be flown.

(U) The United States Code defines a range as a designated land or water area that is set aside, managed, and used for DoD range activities and includes firing lanes and positions, maneuver areas, impact areas, electronic scoring sites (ranges with electronic scoring that assesses how accurately the operator or pilot shot the target or performed during the training event), and airspace areas designated for military use.[1] We reviewed ranges located in Japan, South Korea, Hawaii, Alaska, Nevada, and Arizona.

(U) Finding

(U) We found that training ranges and airspace did not have the capability or capacity to support aviation readiness for units assigned to USINDOPACOM. Specifically, the training land, airspace, impact areas, and

Finding (cont'd)

(U) electronic warfare systems were more limited than what was required for training with ordnance and the aircrafts' capabilities. For example, at the Fallon Range Training Complex, the size of the range limited the use of weapons. In another example, the range at the Joint Pacific Alaska Range Complex lacked modern electronic warfare systems, which limited training that pilots received.

(U) The training ranges and airspace capability and capacity limitations occurred because:

- (U) land, airspace, and impact areas on training ranges were designed to meet mission needs of World War II and the Cold War;
- (U) training ranges in Japan and South Korea are shared with the host nation forces, which limited availability;
- (U) funds available for modernizing range capabilities, such as electronic warfare systems, were prioritized for operations in Southwest Asia, and limited by continuing resolutions;
- (U) protection of endangered species, safety considerations related to the use of weapons, and inclement weather limited the activities on the ranges; and
- (U) the Army and Air Force lacked a clear command structure to jointly operate and manage the Joint Pacific Alaska Range Complex.

~~(S//NF)~~ As a result, the aviation units in the USINDOPACOM area of responsibility could not train as they would fight, which the National Defense Strategy states is essential for lethality and success in

[1] (U) Section 101, title 10, United States Code, "Definitions (e) Facilities and Operations."

Results in Brief

(U) Audit of Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

Finding (cont'd)

~~(S//NF)~~ accomplishing theater campaign and operation plan objectives. [redacted][2] [redacted]

(U) FY 2019 National Defense Authorization Act

(U) The National Defense Authorization Act for FY 2019 requires the Secretary of Defense to develop and implement a strategic plan to improve the capabilities of DoD training ranges and installations. The Act requires the Secretary of Defense to develop and implement a comprehensive strategic plan to identify and address deficits in the capabilities of DoD training ranges to support current and anticipated readiness requirements to execute the National Defense Strategy.

(U) Recommendations

(U) We recommend that the Under Secretaries of Defense for Personnel and Readiness and for Acquisition and Sustainment:

- (U) review the individual Services' range plans, including the response provided to address the requirement of the National Defense Authorization Act, and determine whether Service solutions to training limitations can be accomplished across the DoD. The review should include live-virtual-constructive, and regionalization training; and
- (U) develop and implement a plan to field and sustain DoD-wide solutions to address training gaps, including addressing the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and the need to join neighboring airspace on a continuing basis.

(U) Also, we recommend that the Under Secretary of Defense for Personnel and Readiness develop and implement plans to synchronize Army and Air Force range management and range use in Alaska for joint training events; individual through collective level training; and future F-35 training needs across the DoD ensure readiness and the ability to accomplish operation plans.

(U) Management Comments and Our Response

(U) The Deputy Assistant Secretary of Defense for Force Education and Training, responding for the Under Secretary of Defense for Personnel and Readiness, concurs with our recommendation.

(U) Comments from the Deputy Assistant Secretary of Defense for Force Education and Training addressed all specifics of the recommendation. Therefore, the recommendation is resolved but will remain open. We will close the recommendation when we verify that the Office

[2] (U) Defense Readiness Reporting System-Strategic is a web-based software that provides the only strategic tool able to access readiness data and information across the Defense Readiness Reporting System Enterprise.

Results in Brief

(U) Audit of Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

(U) Management Comments (cont'd)

(U) of the Deputy Assistant Secretary of Defense for Force Education and Training developed and implemented a plan to field and sustain DoD-wide solutions to address training gaps, including the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and the need to join neighboring military airspace on a continuing basis.

(U) The Assistant Secretary of Defense for Sustainment, responding for the Under Secretary of Defense for Acquisition and Sustainment:

- (U) agreed with the recommendation to review the individual Services' range plans stating that the National Defense Authorization Act contains a new requirement for the DoD to develop a strategic plan to identify and address inadequacies at training ranges. He further stated that this ongoing effort includes Service assessments and plans.
- (U) partially agreed with the recommendation to develop and implement a plan to field and sustain DoD-wide solutions to address training gaps. The Assistant Secretary of Defense for Sustainment stated that the strategic range plan will be comprehensive and cover all operating domains.

(U) Comments from the Assistant Secretary of Defense for Sustainment addressed all specifics of the recommendation. We agree that the actions to address the recommendation can be accomplished in one plan. Therefore, the recommendation is resolved but will remain open. We will close the recommendation when we verify that the Office of the Assistant Secretary of Defense for Sustainment developed and implemented a plan to field and sustain DoD-wide solutions to address training gaps, including the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and the need to join neighboring airspace on a continuing basis.

(U) Recommendations Table

(U) Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Under Secretary of Defense for Personnel and Readiness	None	1.a, 1.b, 2	None
Under Secretary of Defense for Acquisition and Sustainment	None	1.a, 1.b	None (U)

(U) **Note:** The following categories are used to describe agency management's comments to individual recommendations.

- (U) **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- (U) **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- (U) **Closed** – OIG verified that the agreed upon corrective actions were implemented.

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

April 17, 2019

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND READINESS
UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT

SUBJECT: (U) Audit of Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command (Report No. DODIG-2019-081)

(U) We are providing this report for your information and use. We conducted this audit in accordance with generally accepted government auditing standards.

(U) We considered comments from the Deputy Assistant Secretary of Defense for Force Education and Training, responding for the Under Secretary of Defense for Personnel and Readiness, and the Assistant Secretary of Defense for Sustainment, responding for the Under Secretary of Defense for Acquisition and Sustainment, and unsolicited comments from the Army's Office of the Deputy Chief of Staff, G-3/5/7, on the draft of this report when preparing the final report. Those comments conformed to the requirements of DoD Instruction 7650.03; therefore, we do not require additional comments.

(U) If you have any questions please contact me at (703) 604-8905 (DSN 664-8905). We appreciate the cooperation and assistance received during the audit.

Troy M. Meyer
Principal Assistant Inspector General
for Audit

(U) Contents

(U) Introduction

(U) Objective

(U) The objective of the audit as to determine whether training ranges and airspace that support U.S. Indo-Pacific Command (USINDOPACOM) had the capability and capacity to support aviation readiness for units assigned to the USINDOPACOM.[3] We focused on rotary-wing (helicopter), fixed-wing (airplane), and unmanned aircraft systems (UAS) that have offensive weapons (weapons used to attack enemy assets).

(U) We defined capability as the ability of the range to provide realistic training conditions, targets, and threats. We defined capacity as the ability of the range size and airspace to accommodate the number and types of aircraft and training missions that need to occur. See the Appendix for a complete description of our audit scope and methodology. See the Glossary for definitions of terms used throughout this report.

(U) United States Code – Range

(U) The United States Code defines a range as a designated land, water, or airspace used by the DoD and includes maneuver areas, impact areas, and electronic scoring sites.[4] Range activities include training DoD personnel in the use and handling of military munitions, other ordnance, and weapon systems.

(U) Background

(U) Readiness as a Part of the 2018 National Defense Strategy

(U) The 2018 National Defense Strategy (NDS) focuses on rebuilding military strength and establishing competitive advantages in the face of intensifying pressure from adversaries. The NDS states that one way to establish a competitive advantage is through building a more lethal force. The NDS further states that building a more lethal force requires restoring warfighting readiness.

~~(S)~~ [redacted]:

1. ~~(S)~~ [redacted];[5]

[3] (U) On May 30, 2018, the U.S. Pacific Command became the U.S. Indo-Pacific Command. We use U.S. Indo-Pacific Command (USINDOPACOM) throughout this report.

[4] (U) Section 101, title 10, United States Code, "Definitions (e) Facilities and Operations." An electronic scoring site is a range with electronic scoring that assesses how accurately the operator or pilot shot the target or performed during the training event. The Army's Digital Air Ground Integration Range is an example of an electronic scoring site.

[5] (U) A near-peer adversary is a nation state, such as China or Russia, rather than a terrorist organization. For the purpose of this report, we consider advanced adversaries as near-peers.

2. ~~(S)~~ [redacted]

3. ~~(S)~~ [redacted].

(U) In addition, the NDS is designed to deter conflict in three geographical areas, one of which is the Indo-Pacific.

(U) USINDOPACOM and the National Defense Strategy

~~(S)~~ USINDOPACOM is the combatant command in charge of using and integrating military forces from all of the Services to achieve the NDS while protecting national interests in the USINDOPACOM area of responsibility (AOR). The USINDOPACOM AOR is the Asia-Pacific region, including the Pacific Ocean; part of the Indian Ocean; and 36 nations including China, Japan, North Korea, South Korea, and Australia. [redacted].

(U) The USINDOPACOM Commander develops plans to implement the NDS for the AOR, including combating actions from adversaries.[6] To accomplish the plans, the commander identifies mission-essential tasks (tasks that are essential to accomplishing plan objectives) in the Defense Readiness Reporting System-Strategic (DRRS-S).

~~(S//REL)~~ While preparing to execute the NDS, the USINDOPACOM Commander assesses capability gaps (what the commander lacks that prevents accomplishing the mission) and identifies joint warfighting requirements in an integrated priority list. [redacted].

(U) Defense Readiness Reporting System

(U) DRRS-S captures capability and resource data and provides near real-time assessments by DoD operating forces of their ability to execute their assigned missions, including combatant commander plan objectives, given their current level of resources and training. The purpose of DRRS-S is to share the assessments of the combatant

[6] (U) Types of plans include theater campaign and operation plans. Each combatant commander develops a theater campaign plan to focus on the command's steady-state activities, which include activities designed to achieve strategic end states in the AOR. An operation plan is a formal plan written by a commander to conduct operations and achieve objectives before or during a conflict.

(U) commanders and Services to promote awareness of the preparedness of the DoD to carry out its assigned missions. The assessments are based on mission-essential tasks, which are assessed against a standard and address personnel, training, equipment inventory, and equipment condition. DRRS-S assessments help to identify readiness deficiencies in the DoD. The assessments begin at the lowest level of capability entity in a chain of command. Each unit reports the status of its readiness and training to record its ability to accomplish its assigned mission-essential tasks. As each of the lower-level commanders record their assessment, the assessment is available to each level in that unit's chain of command.

(U) Sustainable Ranges Reports

(U) In 2001, the DoD formed the Sustainable Ranges Initiative, which was designed to ensure the long-term viability and continuity of military training and testing ranges while providing good stewardship for the land. The goal of the initiative is to sustain full operational use of and access to the ranges through proactive policy, planning, and partnerships to avoid and mitigate restrictions from competing interests and encroachment.

(U) The Sustainable Ranges Report (SRR) is an annual report mandated by Congress in the National Defense Authorization Act for Fiscal Year 2003 that describes military training range needs, resources, and constraints to understand the extent that encroachment impacts training. The Sustainable Ranges Report also describes the DoD's progress in developing a comprehensive plan to address training constraints caused by limitations on military land, marine area, and airspace use and progress in ensuring the long-term sustainability of its training ranges. However, the SRR does not outline recommendations or solutions to overcome the limitations.

(U) Ranges Used by USINDOPACOM Units in Our Scope

(U) USINDOPACOM aviation units train at ranges throughout the USINDOPACOM AOR and in the continental United States. We visited the premier ranges for the Services that are used by USINDOPACOM aviation units located in Hawaii, Alaska, Nevada, and Arizona.[7] We also reviewed a nonstatistical sample of training ranges located outside of the United States in Japan and South Korea that are used by USINDOPACOM aviation units. The following are the ranges we reviewed for each Military Service.

[7] (U) Premier means the most important or best. For the purpose of this report, we used this terminology to mean "best." We chose these ranges because the Services identified them as ranges they use prior to deployment or to maintain training requirements while deployed in the region.

(U) Army Ranges

(U) The Army has the most land training ranges in the USINDOPACOM AOR, with ranges in Hawaii and Alaska. A U.S. Army Hawaii official, the Director of Training Support System stated that, in Hawaii, only two ranges can support aviation gunnery—the Multipurpose Range Complex at Schofield Barracks on Oahu and the Pohakuloa Training Area on the island of Hawaii. The Army also trains at the Joint Pacific Alaska Range Complex (JPARC). The JPARC combines multiple ranges and airspace throughout Alaska some of which are not physically connected. JPARC uses Army-owned and controlled land and restricted airspace at Fort Wainwright, Fort Greely, and Joint Base Elmendorf-Richardson and Air Force managed airspace controlled by Eielson Air Force Base to conduct training exercises.[8]

(U) Navy Ranges

(U) The Fallon Range Training Complex at Naval Air Station Fallon, Nevada, is the premier training range for naval aviation. A Navy Carrier Air Wing 5 Strike Operations official stated that the Navy's forward-deployed units use the Joint Iwakuni Training Range Complex in Japan and the Pilsung range in South Korea for aviation training.[9]

(U) Air Force Ranges

(U) The Air Force uses training ranges in Alaska, Japan, and South Korea, but identifies JPARC in Alaska as the premier Air Force range in the USINDOPACOM AOR. According to Air Force Fighter Wing officials, Air Force fighter wings also train at the Draughon range in Japan and the Pilsung range in South Korea. According to an Air Force 35th Operations Support Squadron official, the Air Force shares the Draughon range with the Japan Air Self Defense Force. An Air Force official stated that the Pilsung range in South Korea is controlled by the Republic of Korea Air Force, and a memorandum of agreement allows the U.S. Air Force to use the range. According to a Marine Corps official stationed at Iwakuni, the Navy and Marine Corps also use the Pilsung range.

(U) Marine Corps Ranges

(U) The Marine Corps uses the training ranges at Marine Corps Air Station Yuma, Arizona, the Army's Schofield Barracks, and the Pohakuloa Training Area in Hawaii. According to a Marine Corps official stationed at Marine Corps Station Futenma, the forward-deployed Marine Corps units use training ranges in Misawa and Okinawa, Japan, and the Pilsung range in South Korea.

---

[8] (U) Impact area is the ground within the training complex used to contain fired or launched ammunition and explosives, and the resulting fragments, debris, and components from various weapon systems.

[9] (U) A forward-deployed unit is one that is home-ported in a foreign country.

(U) Units Interviewed

(U) The team interviewed nine USINDOPACOM aviation units that used the ranges in our sample. Table 1 identifies the units interviewed, their location, and the type of aircraft flown by the units.

(U) Table 1. USINDOPACOM Aviation Units Interviewed

(U) Service	Unit	Location	Aircraft
Army	25th Combat Aviation Brigade	Schofield Barracks, Hawaii Fort Wainwright, Alaska	AH-64 Apache (rotary-wing) RQ-7B Shadow (UAS) MQ-1C Grey Eagle (UAS)
Navy	Carrier Air Wing 5	Based Ashore: Marine Corps Air Station Iwakuni, Japan	FA-18E/F Super Hornet (fixed-wing) EA-18G Growler (fixed-wing)
Air Force	35th Fighter Wing	Misawa Air Base, Japan	F-16 Fighting Falcon (fixed-wing)
Air Force	51st Fighter Wing	Osan Air Base, South Korea	F-16 Fighting Falcon (fixed-wing) A-10 Thunderbolt II (fixed-wing)
Air Force	3rd Wing	Joint Base Elmendorf-Richardson, Alaska	F-22 Raptor (fixed-wing)
Marine Corps	Marine Aircraft Group 24	Marine Corps Air Station Kaneohe Bay, Marine Corps Base Hawaii	AH-1 Cobra (rotary-wing) UH-1 Iroquois (rotary-wing) RQ-7B Shadow (UAS) RQ-21 Blackjack (UAS)
Marine Corps	Marine Aircraft Group 12	Marine Corps Air Station Iwakuni, Japan	F-35B Lightning II (fixed-wing)
Marine Corps	Marine Aircraft Group 36	Marine Corps Air Station Futenma, Japan	AH-1 Cobra (rotary-wing) UH-1 Iroquois (rotary-wing)
Marine Corps	Marine Aircraft Group 13	Marine Corps Air Station Yuma, Arizona	F-35B Lightning II (fixed-wing) AV-8B Harrier II (fixed-wing) RQ-21 Blackjack (UAS)

(U)

(U) Source: The DoD OIG.

(U) We also interviewed fixed-wing and rotary-wing training pilots at the Naval Aviation Warfighting Development Center at Naval Air Station Fallon, Nevada, and fixed-wing pilots with the 18th Aggressor Squadron at Eielson Air Force Base, Alaska.

(U) Review of Internal Controls

(U) DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.[10] We did not identify internal control weaknesses.

[10] (U) DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

(U) Finding

(U) Aviation Units Do Not Receive Realistic Training

(U) Training ranges and airspace we reviewed did not have the capability or capacity to support aviation readiness for the units assigned to USINDOPACOM. Specifically, the training land, airspace, impact areas, and electronic warfare systems were more limited than what was required for training with ordnance used by the aircraft and the aircrafts' capabilities.[11] This occurred because:

- (U) land, airspace, and impact areas on training ranges were designed to meet the mission needs of World War II and the Cold War;
- (U) training ranges in Japan and South Korea are shared with the host nation forces, which limited availability;
- (U) funds available for modernizing range capabilities, such as electronic warfare systems, were prioritized for operations in Southwest Asia, and limited by continuing resolutions;
- (U) protection of endangered species, cultural sites, safety considerations related to the use of weapons, and inclement weather limited the activities on the ranges; and
- (U) the Army and Air Force lacked a clear command structure to jointly operate and manage the Joint Pacific Alaska Range Complex.

~~(S//NF)~~ As a result, the aviation units in the USINDOPACOM AOR did not train as they would fight, which the NDS states is essential for lethality and success in accomplishing theater campaign and operation plan objectives. [redacted] [12]

[11] (U) Impact area is the ground within the training complex used to contain fired or launched ammunition and explosives, and the resulting fragments, debris, and components from various weapon systems. Electronic warfare is military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Ordnance are explosives and chemicals such as bombs, guns, ammunition, and flares.

[12] (U) We chose a nonstatistical sample of 10 aviation units for our DRRS-S analysis. We reviewed DRRS-S for the readiness of the 10 aviation units in completing their mission-essential tasks. The 10 aviation units included 1 Army, 1 Navy, 4 Air Force, and 4 Marine Corps.

~~(S//NF)~~ [redacted].[13]

(U) Training Ranges Lack Space and Modern Electronic Warfare Systems

(U) Training ranges and airspace did not have the capability or capacity to support aviation readiness for USINDOPACOM-assigned units. Specifically, the land, airspace, and impact areas were more limited than what was required for training with ordnance and the aircrafts' capabilities. Each of the Services has range and training requirements specific to its missions and types of aircraft. We identified limitations in capability or capacity for the four premier training ranges and the foreign training ranges in our sample used by USINDOPACOM units.

(U) Army Ranges in Hawaii Capability and Capacity Gaps

(U) The Army training ranges provided limited capability and capacity to support aviation readiness for units assigned to USINDOPACOM. In Hawaii, the Army had two ranges that aviation units train at, the Multipurpose Range Complex at Schofield Barracks on Oahu and Pohakuloa Training Area on the island of Hawaii. These two ranges supported Army and Marine Corps aviation units.[14] The Army and Marine Corps aviation units that used the Hawaii ranges were the 25th Combat Aviation Brigade (CAB) and Marine Aircraft Group (MAG) 24.

- (U) 25th CAB pilots flew the AH-64 Apache (rotary-wing) and operators flew the RQ-7B Shadow (UAS).
- (U) MAG 24 pilots flew the UH-1 Iroquois (rotary-wing) and AH-1 Cobra (rotary-wing) and operators flew the RQ-7B Shadow (UAS) and RQ-21 Blackjack (UAS).

(U) While the Army and Marine Corps had different aviation unit gunnery requirements, both Army and Marine Corps training started with the individual level (single aircraft) training events and progressed to more complex unit-level (multi-aircraft) training events. While the two Services had the same individual and unit-level training idea,

[13] (U) When we looked in DRRS-S for training and resource status reports for the 10 aviation units (1 Army, 1 Navy, 4 Air Force, and 4 Marine Corps), we found that the Air Force units provided information at the squadron level only. Therefore, the 4 Air Force units reported their training and resource status across 9 squadrons.

[14] ~~(S//NF)~~ According to MAG 24 officials, the Marine Corps did not have ranges in Hawaii where the MAG 24 pilots could use ordnance and train to gunnery standards; therefore, [redacted].

(U) they used separate gunnery tables, which described the pilots' training objectives.[15] As a pilot progressed through the gunnery tables, each table became more complex to challenge the pilot's skill. In addition, the pilot needed to perform the requirements from each gunnery table to an acceptable standard before moving to the next table.

(U) Hawaii Range Capability Limitations

(U) During our site visit to Hawaii, we met with U.S. Army Hawaii range managers, pilots, and tactics and operations officers from the 25th CAB and MAG 24 who stated that the ranges' capabilities were limited. Both the Army and Marine pilots stated that they could not perform their advanced training requirements—such as the Army's unit-level gunnery tables (tables 10-12) and Marine Corps gunnery table 3000 and 4000—at the Multipurpose Range Complex at Schofield Barracks.[16]

(U) The Army's training circular, "Combat Aviation Gunnery," stated that the Army's advanced training event for gunnery standards is a capstone event for all aircraft platforms to execute collective tasks in a tactical live-fire environment as a cohesive maneuver force. An official from the Army's 25th CAB and the U.S. Army Hawaii range manager stated that pilots could not perform to these gunnery standards at the Multipurpose Range Complex due to the small Oahu footprint, and restrictive target array and maneuver space. The 25th CAB Commander's February 2018 after action review of training at the Multipurpose Range Complex stated that pilots cannot conduct any unit-level gunnery table exercises at the Multipurpose Range Complex, which means the unit would have to travel to Pohakuloa Training Area on the island of Hawaii to obtain unit-level gunnery table training (gunnery tables 10-12). The after action review also states that the Multipurpose Range Complex was very restrictive in terms of target array and maneuver space, and ranges were designed for ground-based weapon systems, not an aerial weapons platform.[17] For example, Army gunnery table 12 requires four AH-64 Apache helicopters to engage simultaneously and a rocket range of 4 to 6 kilometers. According to the U.S. Army Hawaii range manager, both of these tasks can be accomplished at the Pohakuloa Training Area. The Multipurpose Range Complex at Schofield Barracks can only accommodate two AH-64s simultaneously, and allows a maximum rocket range of 2 kilometers.

---

[15] (U) Army gunnery requirement: Headquarters Department of Army Training Circular 3-04.45, "Combat Aviation Gunnery," January 2014. Marine Corps gunnery requirement: Department of the Navy, Navy Marine Corps (NAVMC) 3500.49A, "AH-1W Training and Readiness Manual," July 25, 2014.

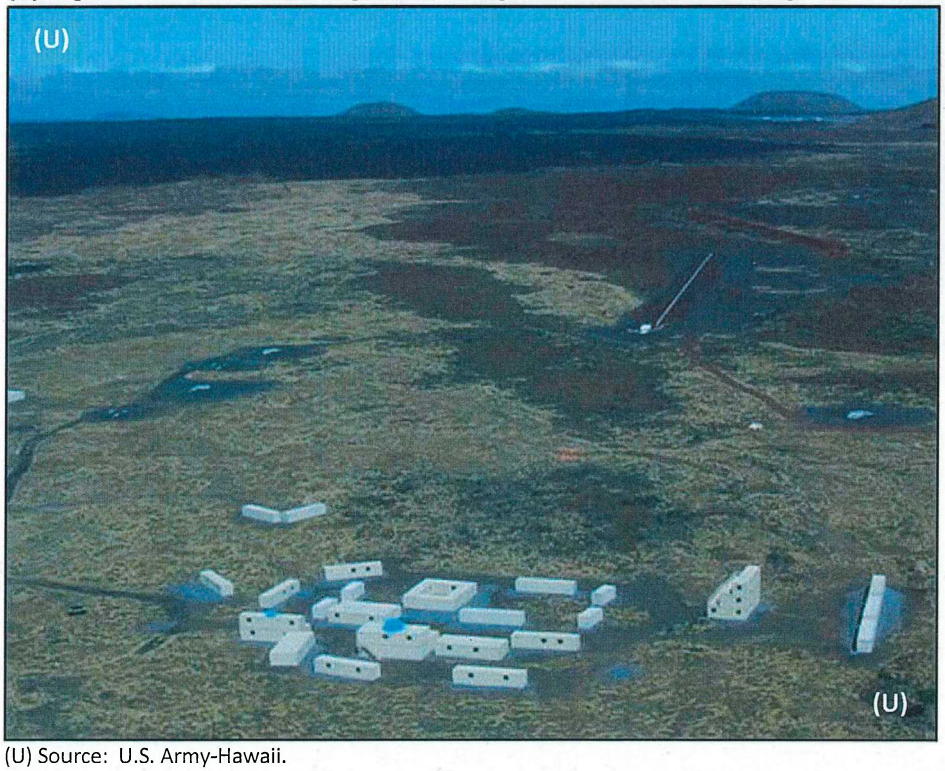
[16] (U) The Army's advanced gunnery standards are in tables 10 through 12. The Marine Corps calls these types of training events 3000 and 4000 level training.

[17] ~~(S//NF)~~ Although the 25th CAB stated that there were range limitations, its [redacted]

~~(S//NF)~~ The Marine Corps' advanced training [redacted].

(U) Therefore, the Army and Marine Corp pilots traveled to Pohakuloa Training Area to perform to the advanced gunnery standards. Also, an Army official stated that the Army invested in the Pohakuloa Training Area by adding an air-ground integration village and three-dimensional steel targets to support aviation gunnery. According to another Army official, citing an Army training circular, the air-ground integration village is used to train manned and unmanned aviation crews, teams, platoons, and companies/troops on skills necessary to detect, identify, and effectively engage stationary and moving infantry and/or armor targets in a tactical array.[18] The Army training circular defines this as a Digital Air Ground Integration Range. See Figure 1 for the air-ground integration village on Pohakuloa Training Area.

(U) Figure 1. Air-Ground Integration Village on Pohakuloa Training Area



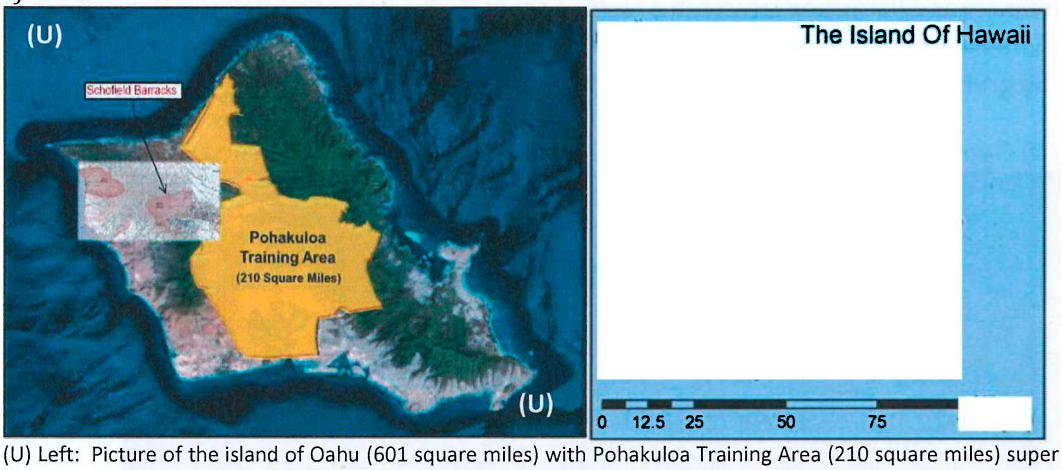
(U) Source: U.S. Army-Hawaii.

[18] (U) Headquarters Department of Army Training Circular 25-8, "Training Ranges," July 2016.

(U) Hawaii Range Capacity Limitations

(U) Army and Marine Corps senior pilots and tactics and operations officers stated that the capacity of the Hawaii ranges was limited. According to the 2018 DoD Sustainable Ranges Report (SRR), restricted airspace at Schofield Barracks is limited.[19] This contributed to the Army and Marine Corps pilots traveling to Pohakuloa Training Area to obtain their higher-level gunnery training. The Pohakuloa Training Area, located on the island of Hawaii, was about one-third the size of the island of Oahu and significantly larger than the Multipurpose Range Complex at Schofield Barracks. See Figure 2 for the Pohakuloa Training Area in relation to the island of Oahu and in relation to Schofield Barracks.

(U) Figure 2. Schofield Barracks and Pohakuloa Training Area in Relation to the Island of Oahu



(U) Left: Picture of the island of Oahu (601 square miles) with Pohakuloa Training Area (210 square miles) super imposed over top for size comparison. Right: Picture of the Island of Hawaii (4,028 square miles) with the actual size and location of Pohakuloa Training Area.
(U) Source: Left: U.S. Army Garrison Pohakuloa and Army G3/5/7. Right: U.S. Army Pacific.

[19] (U) Under Secretary of Defense for Personnel and Readiness, "2018 Report to Congress on Sustainable Ranges," (2018 DoD SRR) January 26, 2018.

(U) The Army and Marine Corps pilots both stated that the Schofield Barracks Multipurpose Range Complex and Pohakuloa Training Area ranges' availability and accessibility are limited. MAG 24 reported in its March 2018 DRRS-S:

~~(S//NF)~~ [redacted]

(U) In the 2018 DoD SRR, the Army states that the location of the Multipurpose Range Complex at Schofield Barracks (in the impact area) makes it difficult for units to schedule training. The Army had a quarterly scheduling conference to set the range schedule. When the scheduling conference was unable to accommodate the Army and Marine Corps aviation units' requests to train on the Multipurpose Range Complex because of competing requirements from other units, the units then had the option to travel to the Pohakuloa Training Area on the island of Hawaii. The MAG 24 Commanding Officer stated that the MAG supplemented the training available in Hawaii with an annual rotational deployment to Darwin, Australia.

(U) Fallon Range Training Complex Capability and Capacity Gaps

(U) The range at Naval Air Station Fallon, Nevada, had capability and capacity gaps for land, airspace, impact areas, and electronic warfare systems. The Navy's premier range for naval aviation was the Fallon Range Training Complex (FRTC) at Naval Air Station Fallon. On Naval Air Station Fallon, the Naval Aviation Warfighting Development Center (NAWDC) had the mission to train naval air forces in advanced tactics, techniques, and procedures across all combat missions. NAWDC also developed standards for naval aviation and made recommendations on aviation warfare requirements. On June 12, 2015, the NAWDC Commander sent a letter to the Deputy Chief of Naval Operations (Fleet Readiness and Logistics) that included the document, "Ninety Days to Combat: Required Training Capabilities for the Fallon Range Training Complex 2015-2035" (Ninety Days to Combat). Ninety Days to Combat identifies the land and airspace requirements for the FRTC based on required warfighting capabilities.

(U) Size of Range Limited the Use of Weapon Capability

~~(FOUO)~~ According to a NAWDC official, to meet training requirements, the FRTC requires an additional 345,950 acres of restricted land (a 74-percent gap). [redacted]

~~(FOUO)~~ [redacted]

~~(FOUO)~~ [redacted]

[redacted]

(U) Source: NAWDC.

~~(FOUO)~~ [redacted].

[20] (U) Stand-off weapons are weapons that may be launched at a distance sufficient to allow attacking personnel to evade defensive fire from the target area.

(U) During our site visit to FRTC, we spoke with Navy and Marine Corps weapons and tactics instructors who taught at Naval Air Station Fallon and who previously conducted combat operations while deployed to Iraq and Syria. A Marine Corps pilot who flew F-16 Fighting Falcon (fixed-wing) and F-18 Hornet and Super Hornet (fixed-wing) aircraft stated that the airspace, release headings, and impact areas at the FRTC were too restrictive to use the preferred stand-off weapons that are required to defeat a near-peer threat. A NAWDC official also stated that the restrictive release headings degraded training.

(U) Spectrum Encroachment Limited Electronic Warfare Training Systems

~~(FOUO)~~ [redacted]. The DoD uses frequency spectrum to transmit and receive critical voice and data communications involving military tactical radio, air combat training, precision-guided munitions, unmanned aerial systems, aeronautical telemetry and satellite control. The military employs these systems for training, testing, and combat operations. Commercial entities use frequency spectrum to provide a variety of wireless services including mobile voice and data, paging, broadcast television and radio, and satellite services. Frequency spectrum encroachment consists of the commercial sector's increasing demand for the DoD's dedicated frequency spectrum for public use. For example, the DoD's Electromagnetic Spectrum Strategy stated that the wireless broadband industry is seeking to reallocate spectrum from defense use to commercial use to meet consumer demand for greater mobility and more data.[21] Adding to the growth of demand is the aggressive fielding of electronic attack and cyber technologies by adversaries that are significantly eroding the DoD's ability to use the frequency spectrum to conduct military training.

[redacted].

~~(S//REL)~~ [redacted]. The range had electronic warfare systems ranging from a 1970 surface-to-air simulator to a 2006 mobile threat emitter simulator. These electronic warfare systems did not represent current threats. In addition, the newer electronic warfare systems were low-fidelity, meaning the electronic device did not accurately reproduce the desired effect, such as sound or picture. In addition, the 2018 DoD SRR states that the electronic warfare systems at the FRTC were not representative of an integrated air defense system, such as the systems

[21] (U) Deputy Secretary of Defense, "Electromagnetic Spectrum Strategy," September 11, 2013.

(~~S//REL~~) our near-peers have. For example, according to the USINDOPACOM integrated priority list and the 2016 Rand report, [redacted] and, as of 2015, had surface-to-air electronic warfare systems up to surface-to-air-21.[22] During our site visit, the Marine Corps and Navy pilots and weapons and tactics instructors reiterated that the electronic warfare systems at the FRTC did not replicate the threats pilots would face in combat and were outdated.

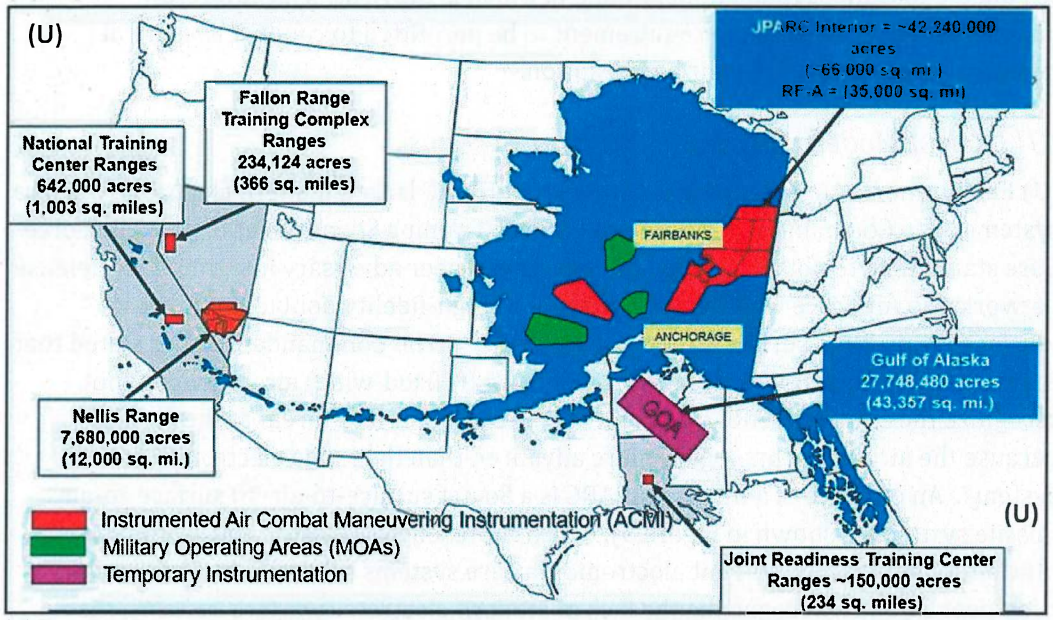
(U) Joint Pacific Alaska Range Complex Capability and Capacity Gaps

(U) In Alaska, the Army and Air Force training ranges provided limited capability and capacity to support aviation readiness for units assigned to USINDOPACOM. According to an Army official, no specific guidance or command and control exists to provide the Army, Navy, and Air Force the mission, roles, or responsibilities at JPARC. JPARC was a unique, joint use, combination and overlap of withdrawn lands—public land reserved for military training and testing in support of national defense requirements—restricted and military operation air space, and surface and subsurface sea space. JPARC consisted of ranges and operating areas from different Army and Air Force military installations including Fort Wainwright (Army), Fort Greely (Army), Eielson Air Force Base, and Joint Base Elmendorf-Richardson (a joint Army and Air Force base). Both Army and Air Force aviation units trained at JPARC. See Figure 4 for a map of JPARC and Alaska over the continental United States to show the size of JPARC and how it compares in size to other premier ranges in the DoD.[23]

[22] (U) Rand Corporation, "Training the People's Liberation Army Air Force Surface-to-Air Missile (SAM) Forces," 2016.

[23] (U) The Nellis Range, National Training Center Ranges, and Joint Readiness Training Center Ranges were not part of our sample.

(U) Figure 4. JPARC and Alaska Size Relative to the Continental United States



(U) The air training space at JPARC was about 66,000 square miles, which is about the size of Florida. The ground maneuver space at JPARC was 2,490 square miles, which is about the size of Delaware. The Gulf of Alaska space at JPARC was about the size of Virginia.

(U) Source: 353rd Combat Training Squadron (modified).

(U) Although JPARC was significantly larger than the other ranges in our sample, pilots stated that it did not support the Army's higher-level aviation gunnery requirements and did not support the Air Force with modern electronic warfare systems.

(U) Army Unable to Train to Highest Gunnery Standards

(U) A U.S. Army Alaska official stated that the Army stationed one aviation battalion with an attached company of the 25th CAB at Fort Wainwright, Alaska. In Alaska, the 25th CAB pilots flew the AH-64 Apache (rotary-wing), and operators flew the MQ-1C Grey Eagle (UAS). The AH-64 pilots included a standardization pilot and a tactical operations officer, and the UAS operators included the platoon leader who stated that he had 15 years of UAS operator experience. During our site visit with the Army, the pilots provided examples of the limited capabilities they had when training with the Apaches at JPARC. For example, the Apache pilots stated that the airspace near the impact area was not large enough to allow for different approaches, and the targets on the ranges were of poor quality. Army pilots also stated that the impact area at the Donnelly Training Area was too narrow, and the pilots were often unable to locate the targets because the targets—dumpsters—do not facilitate accurate recognition of combat vehicles. The Apache pilots stated that, due to range limitations, they were

(U) unable to train beyond gunnery table 6, which is the Army's basic aircrew qualification and the baseline requirement to be permitted to conduct live-fire at gunnery events outside of their home station.[24]

(U) Lack of Modern Electronic Warfare Systems

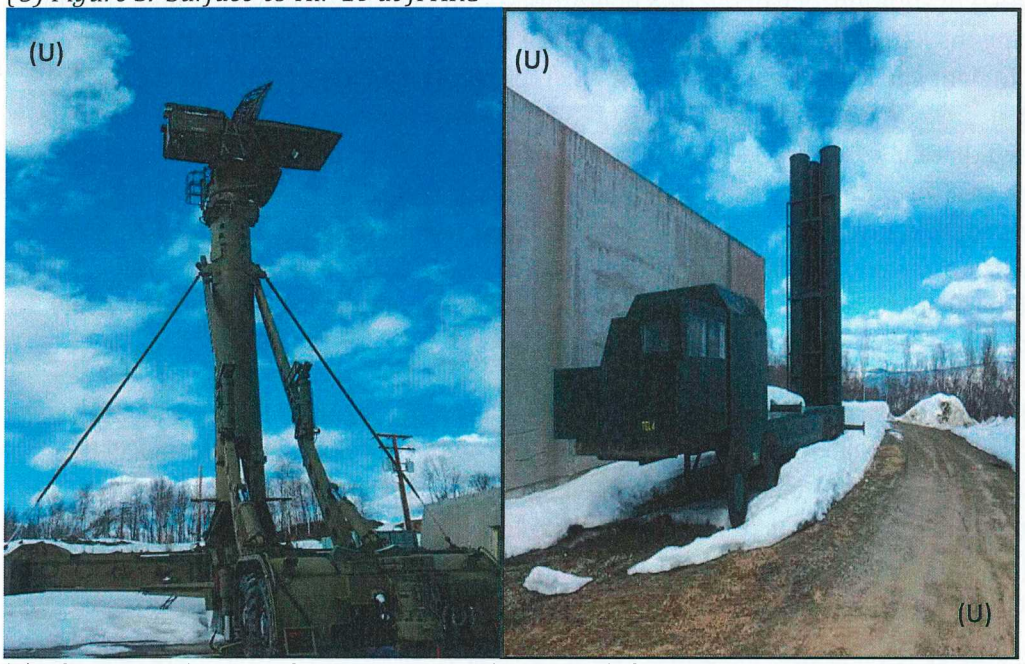
(U) Furthermore, Air Force officials stated that JPARC lacked modern electronic warfare systems. The Commander of the 353rd Combat Training Squadron at Eielson Air Force Base stated that, to obtain a realistic layered near-peer adversary integrated air defense network, the Air Force would need a mixture of high-fidelity double-digit threats (surface-to-air-20 to surface-to-air-26) on JPARC.[25] The Commander further stated that the F-22 Raptor (fixed-wing) and F-35 Lightning II (fixed-wing) aircraft would not recognize the existing JPARC electronic warfare systems as a threat to the aircraft because the aircraft technology is more advanced than the range electronic warfare systems. An example of a threat at JPARC is a Soviet surface-to-air-10 surface-to-air missile system (as shown in Figure 5), which represents a 1980s threat. Air Force officials stated that the current electronic warfare systems at JPARC do not replicate near-peer threats. Recognizing the lack of modern electronic warfare systems, the Secretary of the Air Force, in a 2018 report to Congress, stated that the Air Force has an urgent need for higher-fidelity threats with advanced characteristics.[26]

[24] (U) According to the Army training circular, table 6 is the basic aircrew qualification and the baseline requirement to conduct live fire at other than home station gunnery events. This includes any delegated major commands tasks and operations at combat training centers.

[25] (U) High-fidelity represents systems that are a faithful replication of an adversary system that would be targeted in hostilities. Double-digit is the number referring to the North Atlantic Treaty Organization reporting code name that describes a surface-to-air threat. As the North Atlantic Treaty Organization reporting is essentially chronological, a double-digit number does not represent a specific capability but is simply a label for relatively modern systems fielded since 1978. According to the JPARC Handbook, the highest double-digit surface-to-air threat at JPARC is a surface-to-air-15.

[26] (U) U.S. Air Force Report to Congressional Committees, "Report on Joint Pacific Alaska Range Complex Modernization," April 2018, responding to section 1058 of House Report 115-404.

(U) Figure 5. Surface-to-Air-10 at JPARC



(U) Left is the actual Soviet surface-to-air-10, and right is a model of the truck that would carry the missiles. Both of these were co-located in the Yukon training area at Fort Wainwright.

(U) Source: The DoD OIG.

(U) Army and Air Force Lack Access to JPARC

(U) The Army UAS operators and Air Force pilots also stated that they had capacity problems with JPARC. Furthermore, the 2018 DoD SRR states that lack of restricted airspace over sections of the range limited ordnance use and UAS operations. Specifically, UAS MQ-1C Grey Eagle operators stated that the ability to fly was limited by the weather, and that they were required to be escorted to and from the ranges by a manned aircraft.[27] The 2018 DoD SRR also states that the UAS operations are limited because of the requirement for UAS to fly outside of restricted airspace with support. As a result, according to an Army official, the UAS operators needed to coordinate with Apache units for gunnery training.

[27] (U) U.S. Army Alaska regulation 350-2, 'Training: Range Safety," July 6, 2011, states that UAS may need to be followed by another aircraft when operating in certain corridors on the range.

~~(FOUO)~~ In addition, one of the UAS operators stated that they received limited training during the Red Flag Alaska event because the aircraft did not have Air Force-required equipment and software, such as Link 16.[28] [redacted].[29] UAS operators and Air Force officials stated that Link 16 is important because it prevents mid-air collisions. UAS operators hope that the addition of the Link 16 on the aircraft will allow the UASs to fully participate in future Red Flag Alaska events. This is important because the Red Flag Alaska events had one of the highest-priority accesses to the JPARC ranges. Having the UAS participate in the Red Flag Alaska event could free up range time for other Army and Air Force units.

(U) When the Air Force trained at JPARC, the Army had to grant the Air Force clearance to Army-controlled areas. According to a U.S. Army Alaska regulation, during all live firing exercises, the impact area must be kept under constant visual or radar observation.[30] The regulation states that a pilot will contact the range control fire desk before entering the restricted airspace or other training lands to receive flight advisory or clearance.[31]

(U) According to Air Force officials, they had challenges accessing parts of JPARC that were controlled by the Army. The Air Force officials explained that the Army required a person to staff the range control fire desk during training exercises, which limited when the Air Force could use the range. According to the U.S. Army Alaska regulation, only Army range control fire desk personnel can grant clearance into the restricted airspace when it is active. As a result, both Army and Air Force officials stated that Army assets (land and personnel) were used to support Air Force training events. According to Army officials, the range control fire desk is operated by a small Army range organization—Training Support Activity-Alaska—and must manage all of the Army and Air Force training exercises. An Army official stated that only nine people were

---

[28] (U) Red Flag Alaska is a series of U.S. Pacific Air Forces commander-directed field training exercises for U.S. forces, provides joint offensive counter-air, interdiction, close air support, and large force employment training in a simulated combat environment.

(U) Link 16 is a communications, navigation, and identification system intended to exchange surveillance and command and control information among various command and control and weapons platforms, which enhance the missions of each service. Links 16 provides multiple access, high capacity, jam resistant, digital data, and secure voice communications, navigation, and identification information to a variety of platforms. Link 16 is the primary North Atlantic Treaty Organization standard for the tactical datalink.

[29] (U) Army Tactical Publication 3-04.64, "UAS Multi-Service Tactics, Techniques, and Procedures for the Tactical Employment of Unmanned Aircraft Systems," Jan 22, 2015.

[30] (U) U.S. Army Alaska Regulation 350-2, "Training Range Safety," July 6, 2011.

[31] (U) The range control fire desk is the routine and emergency communication base station for training. As the designated controlling authority for use of the range complex, range operations issues orders regarding the opening and closing of training facilities, routine and emergency check fires, resolution of training conflicts, and reallocation or resources.

(U) qualified to operate the range control fire desk that supports 24 hours, 7 days a week operations for both the Army and Air Force. Another Army official stated that the Army Training Support Activity-Alaska managed an average of 18,888 training events (Army-13,725 events and Air Force-5,163 events) a year.

(U) Marine Corps Air Station Yuma Capability and Capacity Gaps

(U) The Marine Corps had capability and capacity gaps for space and electronic warfare systems. The Marine Corps' premier range for aviation training was the Marine Corps Air Station Yuma, Arizona. According to a Marine Corps Air Station Yuma official, the ranges at Marine Corps Air Station Yuma included land and airspace across Arizona and California, but the airspace of various ranges were not connected. The Marine Corps Air Station Yuma official also stated that there were nearby airspaces at Luke Air Force Base and Yuma Proving Ground (Army) that were sometimes joined with Marine Corps Air Station Yuma's airspace.[32] In a June 19, 2017, Marine Corps memorandum, leadership at Marine Corps Air Station Yuma identify necessary range improvements for the Yuma area of operations, including the need for more space and more and better electronic warfare systems.[33]

(U) F-35 Airspace Requirements

(U) The F-35 required larger blocks of airspace to train than older fixed-wing aircraft. As stated in the 2018 DoD SRR, Marine Corps airspace at Yuma did not support F-35 required airspace. The June 19, 2017, memorandum, states that the requirement for the F-35 training is 50 miles wide by 90 miles long. The F-35 airspace requirement is for one floor altitude, one ceiling altitude, and for it to be contiguous from 5,000 feet to 50,000 feet. However, according to the Marine Corps Air Station official, the airspace at Yuma is not physically connected and has a variety of altitudes (ceilings and floors), and the largest 2 blocks of airspace are 10 miles wide by 40 miles long and 28 miles wide by 38 miles long. An F-35 pilot at Marine Corps Air Station Yuma stated that, as a result of the airspace restrictions, he could not shoot stand-off weapons during normal exercises, could not fly in his fighting formation, and was limited to where he could train with live ordnance. The F-35 pilot stated that he could not achieve five of nine mission-essential tasks at Marine Corps Air Station Yuma due to a lack of airspace. As a result of the lack of airspace, the pilot stated that F-35 pilots trained in simulators, which could be linked so that the pilots could fly in their four aircraft fighting formation.

---

[32] (U) As of April 2018, the airspace was connected during the Marine Corps weapons and tactics instruction, which happened twice each year.

[33] (U) Marine Corps memorandum, "Yuma Area of Operations Range Improvements in Support Marine Air-Ground Task Force Training," June 19, 2017.

(U) High-End Electronic Warfare Systems

(U) An F-35 pilot stated that, as of April 2018, electronic warfare systems in the Yuma Range Complex did not have the capability of an advanced near-peer adversary. According to the Marine Corps memorandum, the required threat systems should have the ability to replicate modern threats, which include double-digit threats. An example of an advanced near-peer threat is Russia's Pantsir long-range air defense system, which includes truck-mounted surface-to-air missiles (surface-to-air-22).

(U) Unmanned Aircraft Systems Requirements

(U) The Marine Corps memorandum acknowledges that recent military operations around the globe show the seriousness of the current and potential UAS threat. According to the memorandum, the Marine Corps was required to replicate the continuously evolving threat and provide trained personnel and equipment to prepare Marines for UAS tactics, techniques, and procedures used by adversary groups around the world. The 2018 DoD SRR states that, although the current airspace meets requirements, it does not meet unit-level training requirements because of a lack of standalone airspace blocks. A UAS operator stated that UAS operators were unable to obtain the airspace they needed to conduct advanced training because Yuma did not have UAS-dedicated airspace and the UAS had to share with manned aircraft.

(U) Ordnance Limitations

(U) Although not discussed specifically in the Marine Corps memorandum, the MAG 13 operations officer, an AV-8 Harrier (fixed-wing) pilot, stated that there was not enough ordnance for the pilots to use during training exercises. He stated that the primary precision-guided munition is the joint direct attack munition (JDAM).[34] He stated that the last time the MAG-13 pilots had JDAMs for training was 2 years ago (March 2016) during the weapons and tactics instructor course because JDAMs were in high demand in overseas war zones. He stated that as a result, there was a good chance that Marines would arrive in a combat environment never having trained with the JDAM. He stated that the simulators cannot replicate the missile well enough to provide effective or realistic training.

(U) Another AV-8 pilot stated that the main weapon used on the Harrier is a laser-guided rocket, which is an advanced precision kill weapon system used against moving targets. He stated that the AV-8 pilots could not use their main weapon on the range because of a lack of moving targets. The Marine Corps memorandum included a need

[34] (U) A JDAM is an air-to-surface weapon that autonomously navigates to designated target coordinates once it is released from an aircraft.

(U) for a moving land target, which is a remote-controlled vehicle capable of towing a target sled. These targets are important because they provide aircrew with threat representative targets that are mobile and realistic to radar for combat training.

(U) Foreign-Based Ranges Capability and Capacity Gaps

(U) Ranges in Japan and South Korea had capability and capacity gaps for electronic warfare systems, range size and access, and ordnance delivery. We spoke to officials in Navy, Air Force, and Marine Corps units that used ranges in Japan and South Korea, including Pilsung, Draughon, Iwakuni, and Idesuna Jima ranges.

(U) The ranges in Japan primarily had problems with electronic warfare systems and range size. The Navy reported in the 2015 DoD SRR that electronic warfare is one of the mission areas most severely impacted by encroachment.[35] Only one range—Draughon range—in Japan had electronic warfare systems. According to the 2018 DoD SRR, the Draughon range has surface-to-air-2, surface-to-air-3, and surface-to-air-6 threats. These threats are from the 1960s and 1970s. Furthermore, a MAG 12 pilot stationed at Iwakuni, Japan, stated that the electronic warfare systems were low fidelity and low quality.[36] A MAG 36 pilot stationed at Futenma, Japan, stated that the closest electronic warfare range was in South Korea. According to military officials and the 2015 and 2018 DoD SRRs, the size of the ranges in land and airspace creates challenges in training. For example, pilots stated that one range, Idesuna Jima (Figure 6), at its widest points, is a 0.40 by 0.31 mile-wide island and when civilians were on the island, available range space that could be safely engaged was reduced to a 0.31 by 0.06 mile stretch of beach. A Naval pilot and the 2018 DoD SRR also stated that the Japan ranges had limited airspace.

[35] (U) Under Secretary of Defense for Personnel and Readiness, "2015 Report to Congress on Sustainable Ranges," (2015 DoD SRR) February 12, 2015.

[36] (U) Fidelity refers to the degree to which an electronic device accurately reproduces its effect, such as sound or picture.

(U) Figure 6. Map of Idesuna Jima Range in Japan to the West of Okinawa

(U) Idesuna Jima is about 43 miles west of Okinawa.
(U) Source: Google Maps.

(U) The Pilsung range in South Korea primarily had problems with electronic warfare systems, range access, and dropping ordnance. Pilots from the 51st Fighter Wing stated that the electronic warfare systems were unreliable and outdated, representing electronic warfare systems from the 1960s and 1970s rather than near-peer surface-to-air electronic warfare systems. According to the 2015 DoD SRR, electronic warfare systems tend to overheat after 30 minutes of operation, and one or more electronic warfare systems were usually undergoing maintenance. Additionally, according to the 2015 DoD SRR, there were challenges in obtaining range access, and planning and scheduling range time was a concern because U.S. forces shared access with South Korean Air Forces.

(U) Furthermore, there were limitations to dropping ordnance at the Pilsung range. Pilots stated that the narrow approach to the range to drop ordnance created repetitive, predictable, and unrealistic training. In addition, according to the 2015 DoD SRR, pilots were not permitted to use JDAMs, mavericks, or hellfire munitions on the range due to the range's limited size.[37] The 2015 DoD SRR also stated that encroachment from heavy vegetation and fire concerns also limited the pilots' ability to drop ordnance.

[37] (U) See Glossary for a definition of these types of ordnance.

(U) Glossary

(U) Defense Readiness Reporting System-Strategic. A web-based software that provides the only strategic tool able to access readiness data and information across the Defense Readiness Reporting System Enterprise.

(U) Double-Digit. The number referring to the North Atlantic Treaty Organization reporting code name that describes a surface-to-air threat. As the North Atlantic Treaty Organization reporting is essentially chronological, a double-digit number does not represent a specific capability but is simply a label for relatively modern systems fielded since 1978.

(U) Electronic Scoring Site. A range with electronic scoring that assesses how accurately the operator or pilot shot the target or performed during the training event.

(U) Electronic Warfare. Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy.

(U) Emitter. A device that puts out an electronic signal similar to an adversary's anti-aircraft radar or other enemy electronic warfare system.

(U) Encroachment. Encroachment is any external factor that inhibits the DoD's ability to use its ranges to conduct effective training and testing, such as the expanse of urban development near military ranges or threatened and endangered species on or near the range.

(U) Fidelity. The degree to which an electronic device accurately reproduces its effect, such as sound or picture.

(U) Fixed-Wing Aircraft. An aircraft, such as an airplane or jet, that uses forward airspeed to generate lift.

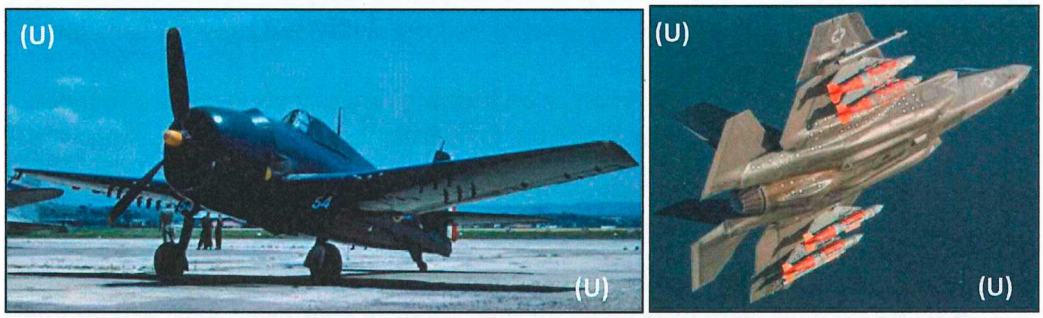
(U) Forward-Deployed Unit. A unit in which ships are home-ported overseas and crews reside in the host country.

(U) Hellfire. An air-to-ground, laser-guided, subsonic missile with significant antitank capacity. It can also be used as an air-to-air weapon against helicopters or slow-moving fixed-wing aircraft.

(U) High-Fidelity. Represents systems that are a faithful replication of an adversary system that would be targeted in hostilities.

(U) World War II aircraft, could carry a 5,000-pound bomb that had to be dropped over a target. However, the F-35 could be equipped with a variety of advanced ordnance with precision-guided systems, such as JDAMs and missiles that can be launched from 15 miles away.[39]

(U) Figure 7. Navy F6F Hellcat and F-35 Lightning II Aircraft



(U) Left: Navy F6F Hellcat; Right: F-35 Lightning II

(U) Source: Left: Aircraft-in-Focus; Right: U.S. Naval Institute.

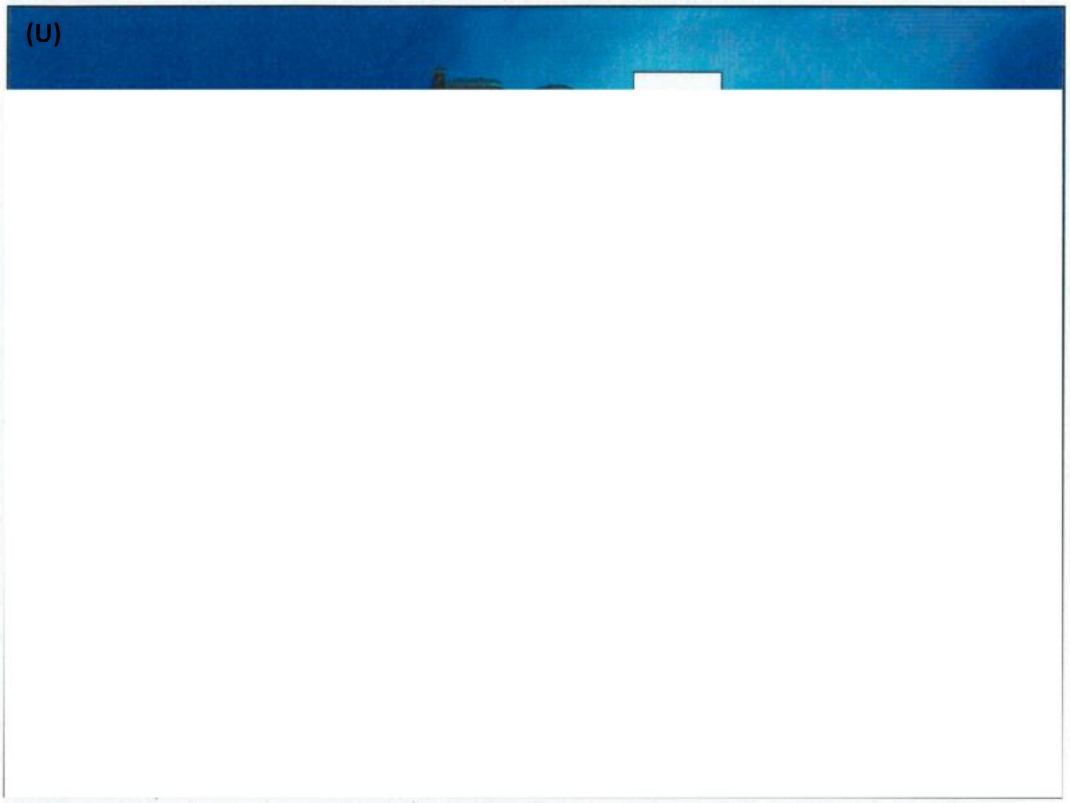
(U) As weapons and aircraft capabilities developed, each Service established plans to expand land or airspace, but the expansion takes time. According to military officials and a JPARC plan, the Services performed environmental impact studies and worked with government officials to get approvals for expansion.[40] Specifically, for airspace, the Services must work with the Federal Aviation Administration to obtain approval to expand. These processes can take several years and may not result in the requested expansion being approved.

(U) As a solution to the lack of space, in addition to trying to expand the existing land and airspace, the range officials stated that they also stratified the existing space. Range officials at Naval Air Station Fallon and Marine Corps Air Station Yuma stated that they divided the airspace into layers and smaller segments to allow multiple training events to take place simultaneously. See Figure 8 for how a Navy official stated that the UAS, fixed-wing, and rotary-wing aircraft can operate at the same time by layering the airspace. Also, at Marine Corps Air Station Yuma, during the twice yearly weapons and tactics instruction training events, the airspace at Yuma was combined with the adjoining airspace at Luke Air Force Base. This shared use of neighboring airspace allowed the Marine Corps to complete the weapons and tactics instruction.

[39] (U) See the Glossary for a definition of joint direct attack munitions.

[40] (U) U.S. Air Force, "JPARC 2025: U.S. Air Force Strategic Plan for JPARC (Draft-Pre-Decisional)," April 2018

(U) Figure 8. Naval Air Station Fallon Layered Airspace



(U) Note: SFC is surface and measurement is in feet in 100s.

(U) Source: NAWDC.

~~(FOUO)~~ [redacted][41] [redacted]

[41] (U) Air Force Air Combat Command, "Enterprise Range Plan," August 2, 2017.

(U) The Services established plans to identify and solve capability and capacity gaps and limitations, including expanding or maintaining land, airspace, and impact areas for ranges. Specifically, the Army is working with the State of Hawaii to continue to maintain the leased land that part of the Pohakuloa Training Area uses. According to an Army official, the land was leased by the Army from Hawaii for 65 years, with the lease expiring in 2029. The Air Force developed an enterprise range plan that examined current capability and capacity gaps and identified ways to maximize current ranges to support training needs across the entire Service. The Air Force enterprise range plan describes incorporating live-virtual-constructive training and regionalization of training resources as possible solutions. The Navy developed a FRTC requirements document that outlined capability and capacity shortfalls for aviation training. For Marine Corps Air Station Yuma, the Marine Corps identified range deficiencies and provided justification for each of the solutions. However, training range improvement is a DoD-wide problem requiring a DoD-wide solution. From 2001 through 2018, the DoD identified capability and capacity gaps related to encroachment, such as urban development, protection of endangered species, and inclement weather, and began reporting on the gaps in 2005. However, the DoD has not developed a comprehensive plan to address the range capability and capacity gaps across the DoD.

(U) Therefore, we recommend that the Under Secretaries of Defense for Personnel and Readiness and for Acquisition and Sustainment, in coordination with the Services:

- (U) review the individual Services' range plans, including the response provided to address the requirement of the National Defense Authorization Act, and determine whether Service solutions to training limitations can be accomplished across the DoD. The review should include live, virtual, constructive, and regionalization; and

- (U) develop and implement a plan to field and sustain DoD-wide solutions to address training gaps, including addressing the airspace and impact area needs of advanced aircraft and weapons, such as the F-35, and the need to join neighboring airspace on a continuing basis.

(U) Ranges in Foreign Countries Shared With the Host Nation

(U) Navy, Air Force, and Marine Corps units stationed in Japan and South Korea shared time on the range with the host nation's forces. According to Navy and Air Force pilots, a couple of ranges in Japan were shared with Japan's Air Self-Defense Forces and Maritime Self-Defense Forces. According to the 2015 DoD SRR, the ranges in South Korea were shared with the South Korean Air Force as well as other American units. For example, Air Force officials from the 51st Fighter Wing stated that the Pilsung range was shared with the South Korean Air Force, other U.S. Army and Air Force units

(U) stationed in South Korea, and other units deployed to the area but not stationed in South Korea. The sharing of time on the ranges reduced the amount of time the units were able to use the ranges; however, the SRR did not quantify this impact. A DoD-wide solution to space limitations that leverages the regionalization and live-virtual-constructive capabilities described in the Air Force's Enterprise Range Plan could address the limitations on ranges in foreign countries.

(U) Focus on Operations in Southwest Asia and Funds Not Available for Range Modernization

~~(S)~~ The operations in Southwest Asia, counterterrorism operations, and repeated continuing resolutions have negatively impacted the DoD's ability to adequately fund range modernization. [redacted]

(U) Military Leadership Acknowledges the Need for Better Technology on Ranges to Develop a More Lethal Force

(U) On February 14, 2018, the Vice Chief of Staff of the Army, Vice Chief of Naval Operations, Vice Chief of Staff of the Air Force, and Assistant Commandant of the Marine Corps met before the U.S. Senate Subcommittee on Readiness and Management Support Committee on Armed Services to discuss the current readiness of U.S. Forces.

(U) The Vice Chief of Staff of the Army requested Congress' continued assistance to provide timely, predictable, and sustained funding to ensure the Army maintains its competitive edge. The Vice Chief of Naval Operations stated that the Navy plans to aggressively and responsibly accelerate its readiness recovery plan. He also acknowledged that Congress invested $1.7 billion in Navy readiness in FY 2017 and that these funds will be used to restore readiness. The Assistant Commandant of the Marine Corps stated that predictable, on-time, and sustained budgets remain the essential requirements for the Marine Corps to meet its obligations. He further stated that, after years of prioritizing readiness to defeat violent extremist organizations,

(U) the current defense strategy now focuses on rising peer threats. The Vice Chief of Staff of the Air Force stated that the readiness decline was due to a lack of funding because of a 27-year period of combat, a decade of fiscal disorder, and numerous continuing resolutions.[42]

(U) Two military officials also stated that, to maintain the competitive edge, the military required timely, predictable, stable, and sustained funding. According to the Assistant Commandant of the Marine Corps, buying updated electronic warfare systems was necessary because a modern conflict could not be fought with the old equipment and by definition, the military was not ready.

(U) Electronic Warfare Systems Need to Be Updated

~~(S//REL)~~ [redacted]

~~(FOUO)~~ The Navy and Air Force both recognized the need for improved electronic warfare systems. During the 1970s and 1980s, the Navy invested relatively large amounts into procuring maximum fidelity electronic warfare simulators.[43] As procurement funds diminished, Navy training ranges were forced to procure the lowest fidelity simulators possible. In its 2017 Enterprise Range Plan, [redacted]

(U) Live-Virtual-Constructive Training

~~(S//NF)~~ [redacted]

[42] (U) Each of the service members testified in a hearing on readiness to a subcommittee of the Senate Armed Services Committee on February 14, 2018.

[43] (U) Fidelity refers to the degree to which an electronic device accurately reproduces its effect, such as sound or picture.

[44] (U) Live training involves real people operating real equipment in a real environment. Virtual training is real people operating simulators in a simulated environment. Constructive training is artificial intelligence operating simulated equipment in a simulated environment.

~~(S//NF)~~ [redacted]

(U) Therefore, we recommend that the Under Secretaries of Defense for Personnel and Readiness and for Acquisition and Sustainment, in coordination with the Services, review the individual Services' range plans, including the response provided to address the requirement of the National Defense Authorization Act, and determine whether Service solutions to training limitations can be accomplished across the DoD. The review should include live, virtual, constructive, and regionalization.

(U) Environmental and Safety Limitations Affect Training

(U) According to military officials, the 2018 DoD SRR, and the 2016 Pohakuloa Training Area Standard Operating Procedures, training ranges used by USINDOPACOM units were limited by environmental and safety concerns (encroachment), including endangered species, cultural sites, weather, urban development, radio and electromagnetic frequencies (spectrum), and impact areas.[45]

(U) According to military officials, the 2018 DoD SRR, and the 2016 Pohakuloa Training Area Standard Operating Procedures, many of these encroachment concerns affected both of the Hawaii ranges—Multipurpose Range Complex at Schofield Barracks and Pohakuloa Training Area. According to an Army official and the 2016 Pohakuloa Training Area Standard Operating Procedures, the Pohakuloa Training Area was home to 26 threatened and endangered species and contained 1,200 identified archaeological sites, which must be protected by range officials. According to an Army official, the protection of endangered species and archaeological sites contributed to the limited range space available for training, which is about one-third (70) of the 210 square miles of range land. Furthermore, according to a U.S. Army Hawaii range official, the Pohakuloa Training Area experienced six out of seven climates. According to an Army pilot, the inclement weather—such as rain, fog, wind, and complications from volcanic eruptions—resulted in training events being shortened or canceled at a moment's notice. The pilot also stated that the Multipurpose Range Complex at Schofield Barracks was also limited by urban development. The range was surrounded by neighborhoods

[45] (U) U.S. Army Garrison, "Pohakuloa Training Area External Standard Operating Procedure," January 11, 2016. The radio frequency spectrum is the resource that makes possible wireless communication and supports a vast array of commercial and government services including national defense, air-traffic control, weather forecasting, and public safety.

(U) that resulted in the range officials receiving noise complaints from nearby residents. According to an Army range official, when aviation units trained at the Multipurpose Range Complex, the Army had to close two other ranges nearby for safety concerns of the soldiers.

(U) Spectrum encroachment was a factor that contributed to the capability gaps at some of the ranges in our sample. The radio frequency spectrum is the resource that makes possible wireless communication and supports a vast array of commercial and government services. Federal, state, and local agencies use spectrum to fulfill a variety of government missions, such as national defense, air-traffic control, weather forecasting, and public safety.[46] Commercial entities use spectrum to provide a variety of wireless services, including mobile voice and data, paging, broadcast television and radio, and satellite services. The DoD uses spectrum to transmit and receive critical voice and data communications involving military tactical radio, air combat training, precision-guided munitions, UAS, and aeronautical telemetry and satellite control, among others. The military uses these systems for training, testing, and combat operations throughout the world.

(U) In the Electromagnetic Spectrum Strategy, the Deputy Secretary of Defense states that the DoD's air, land, maritime, space, and cyberspace operations increasingly depend on electromagnetic spectrum access. All Joint Functions—movement and maneuver, fires, command and control, intelligence, protection, and sustainment—rely on capabilities that use the spectrum.[47] The strategy further states that the growth in the complexity of modern military systems and the demand for more and timely information at all levels is driving an increase in the DoD's need for spectrum management. Additionally, it states that adversaries are aggressively fielding electronic attack and cyber technologies that significantly erode the DoD's ability to use the spectrum to conduct military operations. Also, the strategy states that the global wireless broadband industry has sought to reallocate spectrum from defense use to commercial use to meet consumer demand.

[46] (U) In the United States, responsibility for spectrum management is divided between two agencies—the Federal Communications Commission and the National Telecommunications and Information Administration. The Federal Communications Commission manages spectrum for non-Federal users. The National Telecommunications and Information Administration manages spectrum for Federal Government users.

[47] (U) Deputy Secretary of Defense memorandum, "Electromagnetic Spectrum Strategy: A Call to Action," September 11, 2013.

~~(FOUO)~~ The 2018 DoD SRR stated that spectrum was the encroachment factor that had the greatest negative impact on training at Naval Air Station Fallon. A NAWDC official stated that the Federal Communications Commission was selling spectrum to commercial organizations. Furthermore, [redacted]

(U) The National Defense Authorization Act for FY 2019 requires the Secretary of Defense to establish processes and procedures to develop, integrate, and enhance the electronic warfare mission area and the conduct of joint electromagnetic spectrum operations across the DoD. Furthermore, the Secretary of Defense will ensure that such processes and procedures provide for defense-wide strategy, planning, and budgeting with respect to the conduct of such operations by the DoD.

(U) Therefore, we are not making a recommendation because the National Defense Authorization Act includes a spectrum requirement that would cover our recommendation.

(U) Lack of a Unified Command Structure for JPARC

(U) The Air Force identified an organizational structure weakness related to its management of JPARC. JPARC was operated individually instead of jointly. In February 2013, in a memorandum signed between Commanders of U.S. Alaska Command and the 11th Air Force and the Commanding General of U.S. Army Alaska, the three entities agreed that U.S. Alaska Command is responsible for integrating military activities within Alaska to maximize the readiness of theater forces, because U.S. Alaska Command serves as a subordinate command to USINDOPACOM. However, in October 2014, the Secretary of Defense approved the reassignment of U.S. Alaska Command from USINDOPACOM to U.S. Northern Command. According to a U.S. Alaska Command official, U.S. Alaska Command is the only joint command in Alaska. Therefore, with the realignment of U.S. Alaska Command, there is no local joint command that oversees all military activity of JPARC.

(U) Although U.S. Alaska Command reports to U.S. Northern Command, both Army and Air Force officials stated that it has not stopped the Army and Air Force from working together to achieve their training objectives at JPARC. Specifically, Army and Air Force officials still implemented the requirements outlined in an April 2014 memorandum of

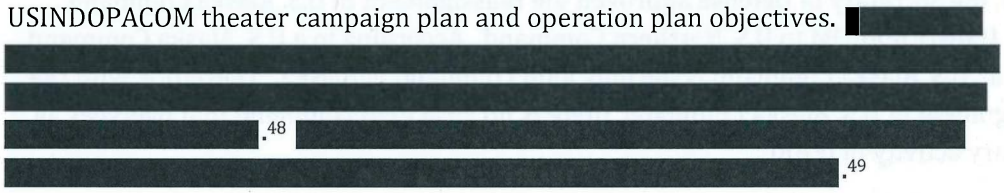
(U) agreement. For example, each Service continues to manage its respected training ranges and restricted air space. However, when the Air Force uses Army-controlled space, the Army requires someone to staff the range control desk, making the Air Force reliant on the Army.

(U) The Air Force realizes that, while this is burdensome to the Army, it is not solely the Army's responsibility. During our meeting with Air Force officials, they recognized the benefit of the Army range management structure and, on May 11, 2018, Air Force officials stated that they briefed the U.S. Pacific Air Forces Commander on the problems and recommended solutions, and received approval to conduct a manpower study to determine whether their recommendations were feasible. Specifically, the U.S. Pacific Air Forces' JPARC 2025 plan would realign JPARC management functions performed at U.S Pacific Air Forces Headquarters, the 611th Air Operation Center and 353rd Combat Training Squadron under one command.

(U) We recommend that the Under Secretary of Defense for Personnel and Readiness, in coordination with the Army and the Air Force, develop and implement a plan to synchronize Army and Air Force range management and range use in Alaska for joint training events, individual through collective level training for the Army and the Air Force, and future F-35 training needs across the DoD to ensure readiness and the ability to accomplish operation plans.

(U) Aviation Units in the USINDOPACOM AOR Are Not Mission Ready

~~(S//NF)~~ The aviation units in the USINDOPACOM AOR did not train as they fight, which the NDS states is essential for lethality and success in accomplishing both USINDOPACOM theater campaign plan and operation plan objectives. [redacted]



[48] (U) We chose a nonstatistical sample of 10 aviation units for our DRRS-S analysis. We reviewed DRRS-S for the readiness of the 10 aviation units in completing their mission-essential tasks. The 10 aviation units included 1 Army, 1 Navy, 4 Air Force, and 4 Marine Corps units.

[49] (U) When we looked in DRRS-S for training and resource status reports for the 10 aviation units (1 Army, 1 Navy, 4 Air Force, and 4 Marine Corps), we found that the Air Force units provided information at the squadron level only. Therefore, the Air Force units reported their training and resource status across 10 squadrons.

(U) Aviation Units Did Not Train as They Fight

(U) Due to the size, impact area, environmental, and safety limitations at ranges, the way pilots and operators trained was not the way they would fight. In addition, some aviation units did not train with the ordnance they would use in combat.

- (U) According to the 2015 DoD SRR, pilots are unable to use JDAMs when training at the Pilsung range in South Korea. The pilots from the 51st Fighter Wing confirmed that the inability to use JDAMs created a significant limitation to training because fighter aircraft often used those types of weapons in combat.

- (U) A pilot from MAG 36 stated that only one of the ranges they trained at, Tori Shima, allowed the pilots to use hellfire missiles and precision-guided munitions. However, as the pilot explained, Tori Shima was a piece of land that was exposed only during low tide, creating difficulties in completing training.

(U) In addition, pilots stated that the way they approached a target and dropped ordnance was repetitive and predictable. A pilot of MAG 13 stated that the pilots were very familiar with the urban training area at the Marine Corps Air Station Yuma range, so after one or two approaches, the training became predictable. The 2018 DoD SRR states that at Marine Corps Air Station Yuma the urban training area, "does not provide a realistic training environment for helicopter gunnery operations."

(U) Furthermore, the DoD developed advanced aircraft with technology designed to defeat a near-peer adversary. However, DoD officials stated that the training ranges have not been updated to meet those threats or to train pilots to the full capability of the aircraft. Many of the ranges in our sample did not have the advanced electronic warfare systems needed to accurately replicate near-peer threats; therefore, training against electronic warfare systems at those ranges in our sample was not realistic.

~~(S//NF)~~ For example, the 8th Fighter Wing, based out of Kunsan Air Base in South Korea, [redacted]

(U) Units Not Ready According to the Defense Readiness Reporting System

~~(S//NF)~~ We nonstatistically sampled 10 USINDOPACOM aviation units in DRRS-S.[50]

[redacted]

~~(S//NF)~~ [redacted]

(U) Conclusion

(U) In the FY 2018 NDS, the Secretary of Defense emphasized the need to rebuild military strength and establish competitive advantages in the face of intensifying pressure from our adversaries. The NDS stated that the DoD must change its culture and processes if it is to prevail in strategic competition because the current approach is bureaucratic and increasingly unresponsive. The Secretary further stated that the DoD must transition to a culture of performance that promotes innovative thinking and values creative innovators.

~~(S)~~ [redacted]

[50] (U) We reviewed DRRS reports from March through May of 2018.

~~(S)~~ [redacted]

(U) Because of the Secretary's statements in the NDS, we made our recommendations to the Under Secretaries of Defense for Personnel and Readiness and for Acquisition and Sustainment. These Under Secretaries play a vital role in ensuring consistency, interoperability, and standardization across the Military Departments and in concert with the Secretary's priorities. By asking the Under Secretaries of Defense to work together to develop solutions to the training land, airspace, impact area, and electronic warfare gaps that exist on ranges, the different solutions in development by the Services can be leveraged to create a joint solution. A joint solution will ensure greater interoperability, ensure greater innovation, and reduce costs.

(U) National Defense Authorization Act for FY 2019

(U) During this audit, the National Defense Authorization Act for FY 2019 was enacted on August 13, 2018. Although the DoD had identified training range problems in the SRRs, the DoD has not developed a DoD-wide corrective action plan. The Services developed individual, range-specific plans to address training range deficiencies; however, these plans did not address multi-Service corrective plans.

(U) The National Defense Authorization Act for FY 2019 requires the Secretary of Defense to develop and implement a strategic plan to improve the capabilities of DoD training ranges and installations.[51] The Act states:

> (U) (a) PLAN REQUIRED.—The Secretary of Defense shall develop and implement a comprehensive strategic plan to identify and address deficits in the capabilities of Department of Defense training ranges to support current and anticipated readiness requirements to execute the National Defense Strategy (NDS).
>
> (U) (b) EVALUATION.—As part of the preparation of the strategic plan, the Secretary shall conduct an evaluation of the following:
>
> > (U) (1) The adequacy of current training range resources to include the ability to train against near-peer or peer threats in a realistic 5th Generation environment.

[51] (U) Public Law 115-232, "John S. McCain National Defense Authorization Act for Fiscal Year, 2019," August 13, 2018, section 2862, "Strategic Plan to Improve Capabilities of Department of Defense Training Ranges and Installations."

(U) (2) The adequacy of current training enablers to meet current and anticipated demands of the Armed Forces.

(U) (c) ELEMENTS.—The strategic plan shall include the following:

(U) (1) An integrated priority list of location-specific proposals and/or infrastructure project priorities, with associated Department of Defense Form 1391 documentation, required to both address any limitations or constraints on current Department resources, including any climatically induced impacts or shortfalls, and achieve full spectrum training (integrating virtual and constructive entities into live training) against a more technologically advanced peer adversary.

(U) (2) Goals and milestones for tracking actions under the plan and measuring progress in carrying out such actions.

(U) (3) Projected funding requirements for implementing actions under the plan.

(U) Once the Secretary has developed the plan, the Act requires the Secretary to submit progress reports no later than April 1, 2019, and annually after for 3 years. These progress reports must describe the previous actions taken to implement the strategic plan, additional actions taken to implement the strategic plan, and an assessment of the individual training ranges included in the initial evaluation.

(U) As a result, our recommendations may be incorporated into the National Defense Authorization Act strategic plan requirements to address the DoD training range capability and capacity challenges.

(U) Management Comments on the Findings and Our Response

(U) Although not required to comment, the Chief of the Training Simulations Division in the Army's Office of the Deputy Chief of Staff, G-3/5/7, provided clarifying comments on the finding. We considered these comments and revised the report as necessary to address the Chief's comments. For the full text of the comments, see the Management Comments section of the report.

(U) Chief of the Training Simulations Division in the Army's Office of the Deputy Chief of Staff, G-3/5/7, Comments

(U) The Chief of the Training Simulations Division in the Army's Office of the Deputy Chief of Staff, G-3/5/7, was concerned about statements in the draft report regarding the capabilities and capacities of Army ranges.

(U) The Chief stated that the Army made improvements to Donnelly Training Area (an Army Range in Alaska that is part of the JPARC) that include additional moving armor target and new stationary armor targets as a bridge to a future project which U.S. Army Alaska is working now. The U.S. Army Training and Doctrine Command Capability Manager for Ranges worked with U.S. Army Alaska to design a scenario to accomplish a basic table 12 gunnery at Donnelly Training Area. Additionally, there is an air-ground integration village that supports UAS MQ-1C Grey Eagle engagements. The Army is procuring three-dimensional targets with FY 2019 funding to continue modernization of its ranges in Alaska.

(U) The Chief stated that the Army believes the report statement, "Land, airspace, and impact areas on training ranges were designed to meet the mission needs of World War II and the Cold War," was inaccurate because it implies that ranges continue to be at post-World War II conditions. In addition, he stated that the Army made significant range improvements to facilities across all theaters and at contiguous United States locations, including ranges that support Army aviation, which included ranges in the Republic of Korea, Alaska, and Hawaii. He stated that, while the Army's ability to expand and better improve these locations was constrained by the lack of land and restricted airspace, and encroachment around existing facilities, it made significant improvements to its facilities to address weapon systems technology improvements and modernization.

(U) The Chief of the Training Simulations Division also stated that the Army believes the report statement, "Funds available for modernizing range capabilities, such as electronic warfare systems, were prioritized for operations in Southwest Asia, and limited by continuing resolutions," was inaccurate because the statement does not recognize facility improvements the Army made in Hawaii and Alaska. He stated that, in Hawaii, the Battle Area Complex on Pohakuloa Training Area has an air-ground integration village and three-dimensional steel targets. In addition, the Army is planning to add an Apache Long Bow tactical engagement simulation system for training after action review purposes. He also stated that, in Alaska, the Army added additional moving armor targets and new stationary armor targets at the Donnelly Training Area. Additionally, the Chief stated that there is also an air-ground integration village that supports UAS MQ-1C Grey Eagle engagements in Alaska and the Army is procuring three-dimensional targets with FY 2019 funding.

(U) Our Response

(U) The report statements regarding the design of training ranges to meet World War II and Cold War needs were made in the Sustainable Ranges Initiative Overview (not dated) and by a DoD official from Deputy Assistant Secretary of Defense for Force Education and Training. The report statements on the prioritization of funds for operations in Southwest Asia were made in the 2018 National Defense Strategy and by senior military leaders during testimony to the Senate Subcommittee on Readiness and Management Support on February 14, 2018. As a result, we did not modify our report to address these comments.

(U) We understand that the Army made improvements to ranges since World War II and after our site visits to Hawaii and Alaska. While we learned about and saw some improvements to various ranges during our site visits, we were not made aware of the improvements discussed by the Chief in his comments. However, we modified sections of this report to acknowledge the Army's improvements, such as the air-ground integration village that supports Grey Eagle.

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation 1

(U) In accordance with Public Law 115-232, Section 2862, paragraphs a through c, we recommend that the Under Secretaries of Defense for Personnel and Readiness and for Acquisition and Sustainment, in coordination with the Services:

> **a. (U) Review the individual Services' range plans, including the response provided to address the requirement of the National Defense Authorization Act, and determine whether Service solutions to training limitations can be accomplished across the DoD. The review should include live, virtual, constructive, and regionalization.**

(U) Deputy Assistant Secretary of Defense for Force Education and Training Comments

(U) The Deputy Assistant Secretary of Defense for Force Education and Training, responding for the Under Secretary of Defense for Personnel and Readiness, agreed with the recommendation, stating that his office concurs with the recommendation as written.

(U) Assistant Secretary of Defense for Sustainment Comments

(U) The Assistant Secretary of Defense for Sustainment, responding for the Under Secretary of Defense for Acquisition and Sustainment, agreed with the recommendation, stating that his office concurs—as the recommendation states, the FY2019 National Defense Authorization Act contains a new requirement for the DoD to develop a strategic plan to identify and address inadequacies at training ranges. This ongoing effort includes Service assessments and plans.

(U) Our Response

(U) Comments from the Deputy Assistant Secretary of Defense for Force Education and Training and from the Assistant Secretary of Defense for Sustainment addressed all specifics of the recommendation. Therefore, the recommendation is resolved but will remain open. We will close the recommendation once we verify that the Office of the Deputy Assistant Secretary of Defense for Force Education and Training and Office of the Assistant Secretary of Defense for Sustainment reviewed the individual Services' range plans and determined whether Service solutions to training limitations can be accomplished across the DoD to include reviewing for live, virtual, constructive, and regionalization.

b. (U) Develop and implement a plan to field and sustain DoD-wide solutions to address training gaps, including addressing:

1. **(U) the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and**

2. **(U) the need to join neighboring airspace on a continuing basis.**

(U) Deputy Assistant Secretary of Defense (Force Education and Training) Comments

(U) The Deputy Assistant Secretary of Defense for Force Education and Training, responding for the Under Secretary of Defense for Personnel and Readiness, agreed with the recommendation, stating that his office concurs with the recommendation as written.

(U) Our Response

(U) Comments from the Deputy Assistant Secretary of Defense for Force Education and Training addressed all specifics of the recommendation. Therefore, the recommendation is resolved but will remain open. We will close the recommendation when we verify that the Office of the Deputy Assistant Secretary of Defense for Force Education and Training developed and implemented a plan to field and sustain

(U) DoD-wide solutions to address training gaps, including the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and the need to join neighboring airspace on a continuing basis.

(U) Assistant Secretary of Defense for Sustainment Comments

(U) The Assistant Secretary of Defense for Sustainment, responding for the Under Secretary of Defense for Acquisition and Sustainment, partially agreed with the recommendation, stating that the strategic range plan referenced in his response to Recommendation 1.a will be comprehensive and cover all operating domains.

(U) The strategic range plan will incorporate cross-Service analysis of peer and near-peer adversary training and will assess training resource adequacy, including whether there is a need to join neighboring airspace on a continuing basis. A separate plan focused on aviation training is not warranted.

(U) Our Response

(U) Comments from the Assistant Secretary of Defense for Sustainment addressed all specifics of the recommendation, and no further comments are required. We agree that the actions to address the recommendation can be accomplished in one plan. Therefore, the recommendation is resolved but will remain open. We will close the recommendation when we verify that the Office of the Assistant Secretary of Defense for Sustainment developed and implemented a plan to field and sustain DoD-wide solutions to address training gaps, including the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and the need to join neighboring airspace on a continuing basis.

(U) Chief of the Training Simulations Division in the Army's Office of the Deputy Chief of Staff, G-3/5/7

(U) Although not required to comment, the Chief of the Training Simulations Division in the Army's Office of the Deputy Chief of Staff, G-3/5/7, provided the following comments on the recommendations. Specifically, the Chief stated that this report's recommendation is redundant with the National Defense Authorization Act, Sec 2862, Training Range Strategy, which already directs DoD to assess and implement a plan that improves its ranges. Further, the Chief stated that, in this process, Army will review all ranges which include those in the USINDOPACOM AOR.

(U) Our Response

(U) The National Defense Authorization Act, section 2862, "Training Range Strategy" was enacted on August 13, 2018, during our audit that began January 17, 2018. As a result, we aligned our recommendations to the National Defense Authorization Act and included additional suggestions, such as reviewing the individual Services' range plans and determining whether Service solutions to training limitations can be accomplished across the DoD and include the need to join neighboring airspace on a continuing basis.

(U) Recommendation 2

(U) We recommend that the Under Secretary of Defense for Personnel and Readiness, in coordination with the Army and the Air Force, develop and implement plans to synchronize Army and Air Force range management and range use in Alaska for:

a. **(U) joint training events,**

b. **(U) individual through collective level training for the Army and the Air Force, and**

c. **(U) future F-35 training needs across the DoD to ensure readiness and the ability to accomplish operation plans.**

(U) Deputy Assistant Secretary of Defense (Force Education and Training) Comments

(U) The Deputy Assistant Secretary of Defense for Force Education and Training, responding for the Under Secretary of Defense for Personnel and Readiness, agreed with the recommendation, stating that his office concurs with the recommendation.

(U) Our Response

(U) Comments from the Deputy Assistant Secretary of Defense for Force Education and Training addressed all specifics of the recommendation. Therefore, the recommendation is resolved but will remain open. We will close the recommendation when we verify that the Office of the Deputy Assistant Secretary of Defense for Force Education and Training develop and implement a plan to synchronize Army and Air Force range management and range use in Alaska for joint training events, individual through collective level training for the Army and the Air Force, and future F-35 training needs across the DoD to ensure readiness and the ability to accomplish operation plans.

(U) Appendix

(U) Scope and Methodology

(U) We conducted this performance audit from January 2018 through January 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our refined audit objective.

(U) Announced and Refined Audit Objective

(U) Our announced objective was to determine whether ranges in the USINDOPACOM AOR effectively support aviation unit readiness.[52] After discussing our objective with DoD officials and developing our scope and methodology, we refined our objective to determine whether training ranges and airspace had the capability and capacity to support aviation readiness for units assigned to USINDOPACOM. We focused on rotary-wing (helicopter), fixed-wing (airplane), and UAS that have offensive air support (use weapons to attack enemy assets).

(U) Universe and Sample Selection

(U) We reviewed the 2015 DoD Sustainable Ranges Report to identify training ranges physically located in the USINDOPACOM AOR.[53] We coordinated with our DoD points of contact to make sure that our training range list was complete. A DoD official added training ranges in the continental United States, which gave us a total of 36 training ranges that were either in the USINDOPACOM AOR or supported the aviation units in USINDOPACOM. During a site visit to Fort Wainwright, Alaska (an Army component of JPARC), an Army range official identified duplicate ranges that were listed as separate ranges but were part of Fort Wainwright, and ranges that were identified as Air Force, but were Army ranges.

(U) We chose a nonstatistical sample of eight ranges based on reviewing ranges:

- (U) used or controlled by each Service to ensure coverage of all four Services,
- (U) used by multiple Services in foreign countries,

---

[52] (U) The combatant command USPACOM was renamed the USIDNOPACOM on May 30, 2018.

[53] (U) The Sustainable Ranges Report is ah annual report required by Congress that describes military training range needs, resources, and constraints and how these limitations impact military training. At the time our audit was announced in January 2018, the 2015 report was the most current comprehensive report. The 2016 and 2017 reports included updates to the 2015 report only, and the 2018 report was not yet published.

- (U) that the Services identified as their premier ranges in the region, and
- (U) that military officials stated supported a variety of aircraft with offensive weapons (aircraft that use ordnance or electronic warfare to attack enemy assets).

(U) We started with the training ranges in Hawaii because USINDOPACOM headquarters and the four Service component commands were in Hawaii. Table 2 identifies the list of training ranges we reviewed.

(U) Table 2. Training Ranges We Reviewed.

(U) Services	Range or Base	State or Country
Army/Air Force	JPARC (includes land and airspace controlled by the Army and the Air Force)	Alaska
Army/Marine Corps	Pohakuloa Training Area (Island of Hawaii)	Hawaii
Army	Schofield Barracks (island of Oahu)	Hawaii
Navy	Fallon Range Training Complex	Nevada
Air Force	Draughon Range	Japan
Air Force	Pilsung Range	South Korea
Marine Corps	Marine Corps Air Station Yuma	Arizona
Marine Corps	Joint Iwakuni Training Range Complex	Japan (U)

(U) Source: The DoD OIG.

(U) Site Visits, Interviews, and Documentation

(U) In addition to the ranges, we interviewed range users to determine their assessment of the training capabilities on the ranges. Similar to our method for choosing the ranges, we chose users from all four Services who used the ranges in our sample and flew a variety of aircraft with offensive weapons. Table 3 identifies the aviation units we interviewed.

(U) Table 3. Units Interviewed

(U) Service	Unit	Location	Aircraft
Army	25th Combat Aviation Brigade	Schofield Barracks, Hawaii Fort Wainwright, Alaska	AH-64 Apache (rotary-wing) RQ-7B Shadow (UAS) MQ-1C Grey Eagle (UAS)
Navy	Carrier Air Wing 5	Based Ashore: Marine Corps Air Station Iwakuni, Japan	FA-18E/F Super Hornet (fixed-wing) EA-18G Growler (fixed-wing)
Air Force	35th Fighter Wing	Misawa Air Base, Japan	F-16 Fighting Falcon (fixed-wing)
Air Force	51st Fighter Wing	Osan Air Base, South Korea	F-16 Fighting Falcon (fixed-wing) A-10 Thunderbolt II (fixed-wing)
Air Force	3rd Wing	Joint Base Elmendorf-Richardson, Alaska	F-22 Raptor (fixed-wing)
Air Force	18th Aggressor Squadron	Eielson Air Force Base, Alaska	F-16 Fighting Falcon (fixed-wing)

(U) Service	Unit	Location	Aircraft
Marine Corps	Marine Aircraft Group 24	Marine Corps Air Station Kaneohe Bay, Marine Corps Base Hawaii	AH-1 Cobra (rotary-wing) UH-1 Iroquois (rotary-wing) RQ-7B Shadow (UAS) RQ-21 Blackjack (UAS)
Marine Corps	Marine Aircraft Group 12	Marine Corps Air Station Iwakuni, Japan	F-35B Lightning II (fixed-wing)
Marine Corps	Marine Aircraft Group 36	Marine Corps Air Station Futenma, Japan	AH-1 Cobra (rotary-wing) UH-1 Iroquois (rotary-wing)
Marine Corps	Marine Aircraft Group 13	Marine Corps Air Station Yuma, Arizona	F-35B Lightning II (fixed-wing) AV-8B Harrier II (fixed-wing) RQ-21 Blackjack (UAS)
Navy and Marine Corps	Weapons and Tactics Instructors with Topgun, Strike, and Seawolf	Naval Air Station Fallon, Nevada	FA-18C/D Hornet (fixed-wing) FA-18E/F Super Hornet (fixed-wing) EA-18G Growler (fixed-wing) MH-60S Seahawk (rotary-wing) (U)

(U) Source: The DoD OIG.

(U) We conducted site visits, interviews, and telephone conferences from February through May 2018 in Virginia, Hawaii, Alaska, Arizona, Nevada, South Korea, and Japan. Specifically, we visited the following training ranges and operating areas:

- (U) Schofield Barracks, Hawaii
- (U) Pohakuloa Training Area, Hawaii
- (U) Fallon Range Training Complex, Fallon Naval Air Station, Nevada
- (U) Marine Corps Air Station Yuma, Arizona
- (U) JPARC, including Fort Wainwright and Eielson Air Force Base, Alaska.

(U) At these training ranges, we interviewed range officials, training officials, or range users to identify range capability and capacity limitations. At Fallon Range Training Complex, we spoke with officials from NAWDC, the organization responsible for developing naval aviation standards and training naval air forces. We physically visited the training areas during our site visits to see some of the capabilities on the ranges, including targets and electronic warfare systems. We also interviewed the range users identified in Table 3.

(U) In addition to the range officials at the individual training ranges, we spoke with DoD officials from the Office of the Secretary of Defense responsible for training, ranges, force readiness, installations, environment, acquisition, and research. We asked these DoD officials to identify overall capability and capacity limitations for ranges used by USINDOPACOM units. We asked range and DoD officials to identify in-process or planned solutions to these training range limitations. We interviewed officials from:

- (U) Office of the Secretary of Defense:
    - (U) Under Secretary of Defense for Acquisitions and Sustainment;
        - (U) Assistant Secretary of Defense for Energy, Installations, and Environment;
    - (U) Under Secretary of Defense for Research and Engineering; and
    - (U) Assistant Secretary of Defense for Readiness.
- (U) USINDOPACOM and component commands:
    - (U) U.S. Army Pacific,
        - (U) U.S. Army Hawaii,
        - (U) U.S. Army Alaska,
    - (U) U.S. Pacific Fleet,
        - (U) Commander, Naval Air Forces Pacific;
    - (U) U.S. Pacific Air Forces, and
    - (U) U.S. Marine Corps Forces, Pacific;
- (U) United States Northern Command, Alaska Command, J-7 (Joint Training and Exercises);
- (U) Deputy Chief of Staff, G-3/5/7 (Operations, Plans, and Training);
- (U) Headquarters, Department of the Air Force, A-3 (Operations, Plans, and Requirements);
- (U) Air Force Air Combat Command, Advanced Programs; and
- (U) Air Force Life Cycle Management Command, Aerospace Dominance Enabler Division.

(U) We also interviewed members of the Policy Board on Federal Aviation whose functions include:

- (U) advising and assisting the Assistant Secretary of Defense for Acquisition on air traffic, airspace management, national airspace system acquisition, and related international affairs;
- (U) serving as the senior advisory group to the DoD on military aviation matters as relates to future national airspace system design as it relates to Deputy Secretary of Defense Memorandum, "Implementation of the Next Generation Air Transportation System within the DoD," December 28, 2007; and
- (U) serving as the DoD liaison with the Department of Transportation and the Federal Aviation Administration on Federal aviation matters and problems that affect the collective members of the Policy Board on Federal Aviation.

(U) We obtained and reviewed range manuals and procedures, aviation training requirements, plans for improving ranges, and plans for solving range limitations. We used this documentation to identify the range requirements, training requirements, and the gaps between the capabilities on the range and the capabilities needed to meet training requirements and accomplish missions and tasks in support of operation plans. We also used some of the planned solutions to guide our recommendations.

(U) We obtained and reviewed data from DRRS-S on aviation units to verify and to supplement the testimonial evidence provided by the pilots we interviewed. We excluded the 18th Aggressor Squadron and the Weapons and Tactics Instructors from our DRRS-S sample because they are training units. We included the 8th Fighter Wing in our DRRS-S sample even though we did not interview the unit. The 8th Fighter Wing was not available for us to interview because the unit traveled to Alaska to participate in the Red Flag Alaska and Distant Frontier training exercises. We then examined DRRS-S data and determined whether the units were able to meet their core mission or operation plan mission-essential tasks. We also used DRRS-S data to identify additional training and range problems.

(U) Use of Computer-Processed Data

(U) We used computer-processed data to perform this audit. We obtained data from DRRS-S, which is a reporting system that provides military units a way to report on their readiness, identify and assess variations from standards, and identify deficiencies in areas, including training. Military units update DRRS-S on a monthly basis. Although the team used DRRS-S, the team did not verify or validate the reliability of the data users entered into the system or the calculations that DRRS-S performed on the data because this was outside the scope of our audit. However, we believe that this approach did not affect our findings, conclusions, or recommendations.

(U) Prior Coverage

(U) During the last 10 years, the Government Accountability Office (GAO) and the Army Audit Agency issued 5 reports discussing aviation readiness.

(U) GAO

(U) Report No. GAO-18-113, "Military Personnel: DoD Needs to Reevaluate Fighter Pilot Workforce Requirements," April 2018

> (U) The Air Force, Navy, and Marine Corps had fewer fighter pilots than authorized positions through FY 2017. Air Force and Navy officials anticipated the gap to continue to increase after FY 2017. Service officials attributed these gaps to aircraft readiness challenges, reduced training opportunities, and increased attrition of fighter pilots due to career dissatisfaction. To help increase fighter pilot numbers, the Services are taking actions, including increasing the amounts of financial incentives to retain pilots.

(U) Report No. GAO-18-81, "Military Readiness: Actions Are Needed to Enhance Readiness of Global Response Force to Support Contingency Operations," October 27, 2017

> (U) The DoD uses the Global Response Force for contingencies to: (1) enhance the DoD's ability to rapidly deploy a tailored joint force and (2) augment the capabilities of combatant commands. Since 2010, the DoD used the Global Response Force 35 times—3 times as part of a joint force and 32 times as support to a combatant command. The predominant use of the Global Response Force to augment combatant command needs (32 of 35 times) has diminished the units available for use as a tailorable joint force. The DoD does not know the risk to Global Response Force readiness because the DoD has not assessed those risks. Therefore, the DoD does not know whether using the Global Response Force to augment combatant command needs hampers the use of the Global Response Force as a tailored joint force.

(U) Report No. GAO-18-75, "F-35 Aircraft Sustainment: DoD Needs to Address Challenges Affecting Readiness and Cost Transparency," October 26, 2017

> (U) The DoD sustained over 250 F-35 aircraft and planned to triple the fleet by the end of 2021, but faced sustainment challenges that affected warfighter readiness, including limited repair capacity at depots, spare parts shortages, undefined technical data needs, unfunded intermediate-level maintenance capabilities, and delays in Autonomic Logistics Information System development and funding uncertainty. These challenges were largely the result of sustainment plans that

(U) did not fully include key requirements or aligned (timely and sufficient) funding. The DoD took steps to address some challenges, but without more comprehensive plans and aligned funding, the DoD risks being unable to fully leverage the F-35's capabilities and sustain a rapidly expanding fleet.

(U) Report No. GAO-16-841, "Military Readiness: DoD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan," September 7, 2016

(U) The DoD recognized that more than a decade of conflict, budget uncertainty, and force structure reductions degraded military readiness, and it underwent efforts to manage the impact of deployments on readiness. The Services reported persistently low readiness levels, which they attributed to emerging and continued demands on their forces, reduced force structure, and increased frequency and length of deployments. To mitigate the impact of continued deployments on readiness, the Joint Staff has focused on balancing the distribution of forces for high-priority missions with the need to rebuild the readiness of the force.

(U) The DoD stated that readiness rebuilding is a priority, but implementation and oversight of department-wide readiness rebuilding efforts did not fully include key elements of sound planning, putting the rebuilding efforts at risk. Key elements of sound planning for results-oriented outcomes include a mission statement supported by long-term goals, strategies for achieving the goals, metrics, and an evaluation plan to determine the appropriateness of the goals and effectiveness of implemented strategies.

(U) Army

(U) Report No. A-2012-0105-FMP, "Managing Training Assets in Alaska," May 15, 2012

(U) The Alaska ranges and training aids reviewed were available and properly managed to meet unit requirements. Moreover, brigade activities were satisfied with the training assets available to them. This report had no recommendations.

(U) Management Comments

(U) Deputy Assistant Secretary of Defense for Force Education and Training

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

READINESS

MEMORANDUM FOR INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE

SUBJECT: Response to the DoD Office of Inspector General Draft Report, *Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command (Project No. D2018-D000CF-0082.000)*

The Office of the Deputy Assistant Secretary of Defense for Force Education and Training has reviewed the draft recommendations associated with the DoD Office of the Inspector General (IG) report entitled *Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command*. Thank you for the opportunity to provide input on the report. We concur with the recommendations as written.

Thank you again for the opportunity to review and comment on the recommendations. My point of contact for this matter is [redacted] who may be reached at [redacted] or [redacted]

C. F. Drummond
Deputy Assistant Secretary of Defense
(Force Education and Training)

(U) Assistant Secretary of Defense for Sustainment

ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

MAR 1 2 2019

SUSTAINMENT

MEMORANDUM FOR ACTING INSPECTOR GENERAL, OFFICE OF THE INSPECTOR GENERAL

SUBJECT: OIG Draft Report, Project No. D2018-D000CP-00082.000 "Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command," January 31, 2019

I am providing responses to recommendations 1.a and 1.b contained in the subject report. I appreciate the DoDIG's review of the capabilities and capacities of training ranges and airspace to support aviation readiness for units assigned to the U.S. Indo-Pacific Command (USINDOPACOM). The Department is conducting a similar assessment across all training ranges. Our response to DoDIG's recommendations are:

Recommendation 1.a:
a. (U) Review the individual Services' range plans, including the response provided to address the requirements of the [2019] National Defense Authorization Act, and determine whether Service solutions to training limitations can be accomplished across the DoD. The review should include live, virtual, constructive, and regionalization.

Response:
Concur. As the recommendation states, the FY 2019 National Defense Authorization Act contains a new requirement for the Department to develop a strategic range plan to identify and address inadequacies at training ranges. This ongoing effort includes Service assessments and plans.

Recommendation 1.b:
b. (U) Develop and implement a plan to field and sustain DoD-wide solutions to address training gaps, including addressing:

1. (U) the airspace and impact area needs of advanced aircraft and weapons, such as the F-35; and
2. (U) the need to join neighboring airspace on a continuing basis

Response:
Partially concur. The strategic range plan referenced in Response 1.a. will be comprehensive, covering all operating domains. It will incorporate cross-Service analysis of peer and near-peer adversary training and will assess training resource adequacy including whether there is a need to join neighboring airspace on a continuing basis. As such, a separate plan focused on aviation training is not warranted.

Please contact [redacted] at [redacted] or [redacted] if additional information is required.

Robert H. McMahon

(U) Army's Office of the Deputy Chief of Staff, G-3/5/7, Comments

Final Report Reference

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-3/5/7
400 ARMY PENTAGON
WASHINGTON, DC 20310-0400

REPLY TO ATTENTION OF

DAMO-TRS

26 February 2019

MEMORANDUM FOR RECORD

SUBJECT: (U) Army Comments to the DODIG Report on Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

1. The Army does not concur that some of the recommendations or comments in this report are entirely accurate and at times make overarching statements that don't necessarily apply across all services. The Army recommends the following changes to the DODIG report on Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command.

Page i, 6, and 23

a. (U) Page i and 16 – **Comment**: JPARC is a joint range complex in name only. There is neither higher directive nor guidance defining the purpose of JPARC nor are there assigned roles and responsibilities for the Joint operation of JPARC. **Change from:** The Army and Air Force lacked a clear command structure to jointly operate and manage the Joint Pacific Alaska Range Complex. **Change to**: There is no Department of Defense directive or guidance defining the purpose or mission of the Joint Pacific Alaska Range Complex (JPARC) and there are no assigned roles or responsibilities to the Army and Air Force for the operation of JPARC.

Page 4

b. (U) Page 3 – **Comment**: JPARC should not be listed under the Army section. It should be in a DoD section. **Change from:** . . . JPARC is Army-controlled and (U) managed land and restricted airspace combined with Air Force-operated airspace. The land and airspace are managed and controlled by Fort Wainwright, Eielson Air Force Base, and Joint Base Elmendorf Richardson. In addition, JPARC consists of multiple ranges and airspace throughout Alaska, some of which are not physically connected. **Change to**: . . . the DoD JPARC concept combines multiple ranges and airspace throughout Alaska, some of which are not physically connected. JPARC uses Army owned/controlled land and restricted airspace at Fort Wainwright, Fort Greely, Joint Base Elmendorf Richardson, as well as USAF managed airspace controlled by USAF Eielson Air Force Base to conduct training exercises in Alaska.

c. (U) Page 8 – **Comment:** Army does not concur that the input on Hawaii ranges is completely accurate. The Army believes that the report was primarily focused on Oahu and doesn't consider improvements made on the battle area complex (BAX) at Pohakuloa Training Area (PTA). The PTA BAX has an Air-Ground Integration (A-GI) village and 3D steel targets to support Aviation Gunnery. The report sounds as if the 25th CAB cannot meet their training requirements. **Change from:** Both the Army and Marine pilots stated that they could not perform their advanced training requirements—such as the Army's unit level gunnery tables (tables 10-12). . . **Change to**: While Army recognizes that real estate availability on Oahu creates challenges for the 25th Combat Aviation Brigade (CAB), PTA continues to be the best option for meeting aviation gunnery requirements.

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~
1

(U) Army's Office of the Deputy Chief of Staff, G-3/5/7, (cont'd)

Final Report Reference

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~

DAMO-TRS
SUBJECT: (U) Army Comments to the DODIG Report on Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

d. (U) Page 8 – **Change from:** The Army's training circular, "Combat Aviation Gunnery," stated that the Army's advanced training event for gunnery standards is a capstone event for all aircraft platforms to execute collective tasks in a tactical live-fire environment as a cohesive maneuver force. An official from the Army's 25th CAB and the U.S. Army Hawaii range manager stated that pilots could not perform to these gunnery standards at the Multipurpose Range Complex due to the small Oahu footprint, and restrictive target array and maneuver space. The 25th CAB Commander's February 2018 after action review of training at the Multipurpose Range Complex stated that pilots cannot conduct any unit level gunnery table exercises at the Multipurpose Range Complex which means the unit would have to travel to Pohakuloa Training Area on the island of Hawaii to obtain unit level gunnery table training (gunnery tables 10-12). The after action review also states that the Multipurpose Range Complex was very restrictive in terms of target array and maneuver space, and ranges were designed for ground-based weapon systems, not an aerial weapons platform. **Change to:** The Army's training circular, "Combat Aviation Gunnery," states that the Army's advanced training event for gunnery standards is a capstone event for all aircraft platforms to execute collective tasks in a tactical live-fire environment as a cohesive maneuver force. An official from the Army's 25th CAB and the U.S. Army Hawaii range manager stated that pilots could not perform to these gunnery standards at the Multipurpose Range Complex due to the small Oahu footprint, and restrictive target array and maneuver space. The Army recognizes the limitation of the Multipurpose Range Complex in supporting gunnery and invested in the Battle Area Complex (BAX) at Pohakuloa Training Area by adding an Air-Ground Integration (A-GI) village and 3D steel targets to support aviation gunnery to provide the 25th CAB a range that meets Army gunnery requirements.

Page 11

e. (U) Page 10 – **Change from:** In the 2018 DoD SRR, the Army states that the location of the Multipurpose Range Complex at Schofield Barracks (in the impact area) makes it difficult for units to schedule training. The Army had a quarterly scheduling conference to set the range schedule. When the scheduling conference was unable to accommodate the Army and Marine Corps aviation units' requests to train on the Multipurpose Range Complex because of competing requirements from other units, the units then had the option to travel to the Pohakuloa Training Area on the island of Hawaii. The MAG 24 Commanding Officer stated that the MAG supplemented the training available in Hawaii with an annual rotational deployment to Darwin, Australia. **Change to:** In the 2018 DoD SRR, the Army stated that the location of the Multipurpose Range Complex at Schofield Barracks (in the impact area) makes it difficult for units to schedule training. The Army attempted to mitigate impacts through scheduling and was unable to accommodate both Army and Marine Corps aviation units' requests because of competing requirements from other units. Both scheduling and range limitations drove the need for aviation units to travel to the Pohakuloa Training Area to meet their training needs. The MAG 24 Commanding Officer stated that the MAG supplemented the training available in Hawaii with an annual rotational deployments to Darwin, Australia.

Page 14

f. (U) Page 13. – **Comment:** this report speaks of JPARC as if JPARC is a joint range complex. While the OSD Joint National Training Capability (JNTC) accredited USAF Red Flag Is a recognized JNTC Program, JPARC is not an OSD accredited JNTC Program for any Service and therefore is a joint range complex in naming convention only. **Change from:** In Alaska, the Army and Air Force training ranges provided limited capability and capacity to support aviation readiness for units assigned to USINDOPACOM. The Army, Navy, and Air Force were each responsible for a portion of JPARC. JPARC was a unique, joint use, combination and

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~
2

(U) Army's Office of the Deputy Chief of Staff, G-3/5/7, (cont'd)

Final Report Reference

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~

DAMO-TRS
SUBJECT: (U) Army Comments to the DODIG Report on Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

overlap of withdrawn lands—public land reserved for military training and testing in support of national defense requirements—restricted and military operation air space, and surface and subsurface sea space. JPARC consisted of ranges and operating areas from different Army and Air Force military installations including Fort Wainwright (Army), Fort Greely (Army), Eielson Air Force Base, and Joint Base Elmendorf Richardson (a joint Army and Air Force base). Both Army and Air Force aviation units trained at JPARC. See Figure 3 for a map of JPARC and Alaska over the continental United States to show the size of JPARC and how it compares in size to other premier ranges in the DoD. **Change to**: In Alaska, the Army and Air Force training ranges provided limited capability and capacity to support aviation readiness for units assigned to USINDOPACOM. No specific guidance or command and control exists to provide the Army, Navy, and Air Force the mission, roles or responsibilities at JPARC. JPARC is a unique, joint use, combination and overlap of withdrawn lands—public land reserved for military training and testing in support of national defense requirements—restricted and military operation air space, and surface and subsurface sea space. JPARC consists of ranges and operating areas from different Army and Air Force military installations including Fort Wainwright (Army), Fort Greely (Army), Eielson Air Force Base (USAF), and Joint Base Elmendorf Richardson (a joint base commanded by the Air Force). Both Army and Air Force aviation units train at JPARC. See Figure 3 for a map of JPARC and Alaska over the continental United States to show the size of JPARC and how it compares in size to other premier ranges in the DoD.

Page. 16

g. **(U)** Page 15. – **At the end of: ". . .** and the baseline requirement to be permitted to conduct live-fire at gunnery events outside of their home station." **Add:** the Army has made improvements to Donnelly Training Area (DTA) that include additional moving armor target (MAT) and new stationary armor targets (SAT) as a bridge to a future project which US Army Alaska is working now. The Army's TRADOC Capability Manager for Ranges worked with US Army Alaska to design a scenario to accomplish a basic TABLE XII gunnery at DTA. Additionally, there is an A-GI village that supports Gray Eagle engagements. The Army is procuring 3D targets with FY19 funding to continue modernization of its ranges in Alaska.

2. Overarching findings the Army believes to be inaccurate.

a. (U) **Finding**: Land, airspace, and impact areas on training ranges were designed to meet the mission needs of World War II and the Cold War. **Rationale:** The Army does not concur with this statement because it implies that ranges continue to be at post WWII conditions. The Army has made significant range improvements to facilities across all theaters and at Contiguous United States (CONUS) locations, including ranges that support Army aviation. This includes Republic of Korea (ROK), Alaska, and Hawaii. While the Army's ability to expand and better improve these locations is constrained by the lack of land and restricted airspace, accompanied by encroachment around existing facilities, it has made significant improvements to its facilities to address weapon systems system technology improvements and modernization.

b. (U) **Finding:** Funds available for modernizing range capabilities, such as electronic warfare systems, were prioritized for operations in Southwest Asia, and limited by continuing resolutions. **Rationale**: The Army does not concur with this statement and emphasizes that the Army has improved facilities in Hawaii and Alaska. In Hawaii, the BAX on PTA has an A-GI village and 3D steel targets. The Army is planning to add an Apache Long Bow tactical engagement simulation system (TESS) for training after action review (AAR) purposes. In

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~
3

(U) Army's Office of the Deputy Chief of Staff, G-3/5/7, (cont'd)

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~

DAMO-TRS
SUBJECT: (U) Army Comments to the DODIG Report on Training Ranges Supporting Aviation Units in the U.S. Indo-Pacific Command

Alaska, improvements made at Donnelly Training Area (DTA) include additional moving armor targets (MAT) and new stationary armor targets (SAT) as a bridge to a future project which US Army Alaska is now working. Additionally, there is also an A-GI village that supports Gray Eagle engagements and the Army is procuring 3D targets with FY19 funding.

3. This reports recommendation is redundant with the National Defense Authorization Act, Sec 2862, Training Range Strategy, which already directs DoD to assess and implement a plan that improves its ranges. in this process, Army will review all ranges which include those in the INDO-PACOM AOR.

THOMAS E. MACIA
Chief, Training Simulations Division

UNCLASSIFIED//~~FOR OFFICIAL USE ONLY~~
4

(U) Sources of Classified Information

(U) The documents listed below are sources used to support information within this report.

SOURCE 1: ~~(S//NF)~~ [redacted]

SOURCE 2: ~~(S)~~ [redacted]

SOURCE 3: ~~(S//REL TO USA, FVEY)~~ [redacted]

SOURCE 4: ~~(S//NF)~~ [redacted]

SOURCE 5: ~~(S//NF)~~ [redacted]

SOURCE 6: ~~(S//NF)~~ [redacted]

SOURCE 7: ~~(S//NF)~~ [redacted]

(U) Acronyms and Abbreviations

AOR	Area of Responsibility
CAB	Combat Aviation Brigade
DRRS-S	Defense Readiness Reporting System-Strategic
FRTC	Fallon Range Training Complex
JDAM	Joint Direct Attack Munition
JPARC	Joint Pacific Alaska Range Complex
MAG	Marine Aircraft Group
NAWDC	Naval Aviation Weapons Development Center
NDS	National Defense Strategy
SRR	Sustainable Ranges Report
UAS	Unmanned Aircraft System
USINDOPACOM	U.S. Indo-Pacific Command

(U) Glossary

(U) Defense Readiness Reporting System-Strategic. A web-based software that provides the only strategic tool able to access readiness data and information across the Defense Readiness Reporting System Enterprise.

(U) Double-Digit. The number referring to the North Atlantic Treaty Organization reporting code name that describes a surface-to-air threat. As the North Atlantic Treaty Organization reporting is essentially chronological, a double-digit number does not represent a specific capability but is simply a label for relatively modern systems fielded since 1978.

(U) Electronic Scoring Site. A range with electronic scoring that assesses how accurately the operator or pilot shot the target or performed during the training event.

(U) Electronic Warfare. Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy.

(U) Emitter. A device that puts out an electronic signal similar to an adversary's anti-aircraft radar or other enemy electronic warfare system.

(U) Encroachment. Encroachment is any external factor that inhibits the DoD's ability to use its ranges to conduct effective training and testing, such as the expanse of urban development near military ranges or threatened and endangered species on or near the range.

(U) Fidelity. The degree to which an electronic device accurately reproduces its effect, such as sound or picture.

(U) Fixed-Wing Aircraft. An aircraft, such as an airplane or jet, that uses forward airspeed to generate lift.

(U) Forward-Deployed Unit. A unit in which ships are home-ported overseas and crews reside in the host country.

(U) Hellfire. An air-to-ground, laser-guided, subsonic missile with significant antitank capacity. It can also be used as an air-to-air weapon against helicopters or slow-moving fixed-wing aircraft.

(U) High-Fidelity. Represents systems that are a faithful replication of an adversary system that would be targeted in hostilities.

(U) Impact Area. The ground within the training complex used to contain fired or launched ammunition and explosives, and the resulting fragments, debris, and components from various weapon systems.

(U) Integrated Priority List. Each Combatant Command annually submits an integrated priority list that identifies prioritized problems, or capability gaps associated with validated or proposed capability requirements, that limit the Command's ability to successfully achieve assigned roles, functions, and missions.

(U) Joint Direct Attack Munition. A JDAM is an air-to-surface weapon. Once released from the aircraft, the JDAM autonomously navigates to the designated target coordinates. A JDAM can be launched from very low to very high altitudes in a dive, toss or loft, and in straight and level flight with an on-axis or off-axis delivery. They have a range of up to 15 miles.

(U) Live-Virtual-Constructive. Training that involves actual personal operating actual, simulated, or constructed systems in a realistic, synthetic, or constructed environment.

(U) Link-16. Link 16 is a communications, navigation, and identification system intended to exchange surveillance and command and control information among various command and control and weapons platforms, which enhance the missions of each service. Links 16 provides multiple access, high capacity, jam resistant, digital data, and secure voice communications, navigation, and identification information to a variety of platforms. Link 16 is the primary North Atlantic Treaty Organization standard for the tactical datalink.

(U) **Maverick.** A tactical, air-to-surface guided missile designed for close air support, interdiction, and defense suppression mission. It provides stand-off capability and high probability of strike against a wide range of tactical targets, including armor, air defenses, ships, transportation equipment, and fuel storage facilities.

(U) Near-Peer Adversary. A nation state, such as China or Russia, rather than a terrorist organization.

(U) **Offensive Air Support.** Air operations which use weapons to attack enemy assets.

(U) Operation Plan. A formal plan written by a commander to conduct operations and achieve objectives before or during a conflict.

(U) **Ordnance.** Explosives, chemicals, pyrotechnics, and similar stores; for example, bombs, guns and ammunition, flares, smoke, or napalm.

(U) Premier. The most important or best.

(U) Range. A designated land or water area that is set aside, managed, and used for DoD range activities and includes firing lanes and positions, maneuver areas, impact areas, electronic scoring sites, and airspace areas designated for military use.

(U) Range Control Fire Desk. The routine and emergency, communication base station for training. As the designated controlling authority for use of the range complex, range operations issues orders regarding the opening and closing of training facilities, routine and emergency check fires, resolution of training conflicts, and reallocation or resources.

(U) Release Heading. The compass heading at which the pilot positions the aircraft in order to release a weapon to hit the desired impact area.

(U) Rotary-Wing **Aircraft.** An aircraft, such as a helicopter, which uses lift generated by rotor blades to fly.

(U) Stand-Off Weapon. A weapon that may be launched at a distance sufficient to allow attacking personnel to evade defensive fire from the target area.

(U) Theater Campaign Plan. Each combatant command develops a theater campaign plan to focus on the command's steady-state activities, which include activities designed to achieve theater strategic end states.

(U) Unmanned Aircraft System. An aircraft, commonly known as a drone, without a human pilot on board.

Whistleblower Protection
U.S. Department of Defense

The Whistleblower Protection Ombudsman's role is to educate agency employees about prohibitions on retaliation and employees' rights and remedies available for reprisal. The DoD Hotline Director is the designated ombudsman. For more information, please visit the Whistleblower webpage at www.dodig.mil/Components/Administrative-Investigations/DoD-Hotline/.

For more information about DoD OIG reports or activities, please contact us:

Congressional Liaison
703.604.8324

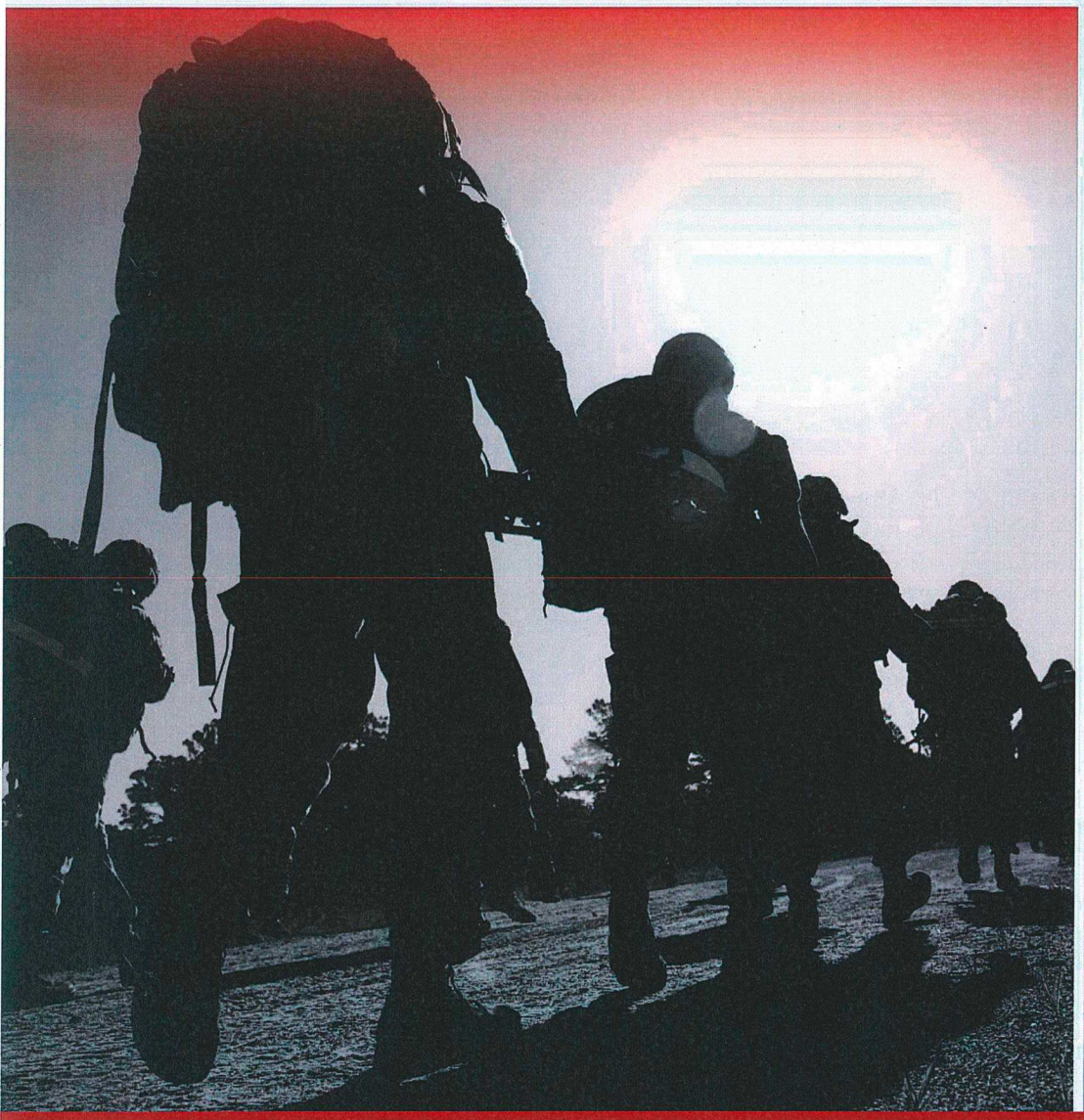
Media Contact
public.affairs@dodig.mil; 703.604.8324

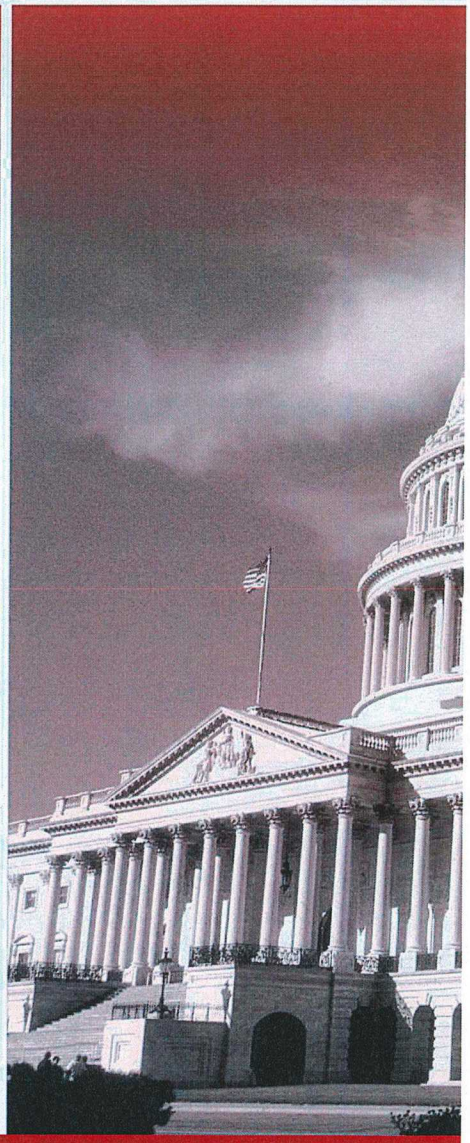
DoD OIG Mailing Lists
www.dodig.mil/Mailing-Lists/

Twitter
www.twitter.com/DoD_IG

DoD Hotline
www.dodig.mil/hotline

~~SECRET//NOFORN~~





DEPARTMENT OF DEFENSE | OFFICE OF INSPECTOR GENERAL

4800 Mark Center Drive
Alexandria, Virginia 22350-1500
www.dodig.mil
Defense Hotline 1.800.424.9098

~~SECRET//NOFORN~~