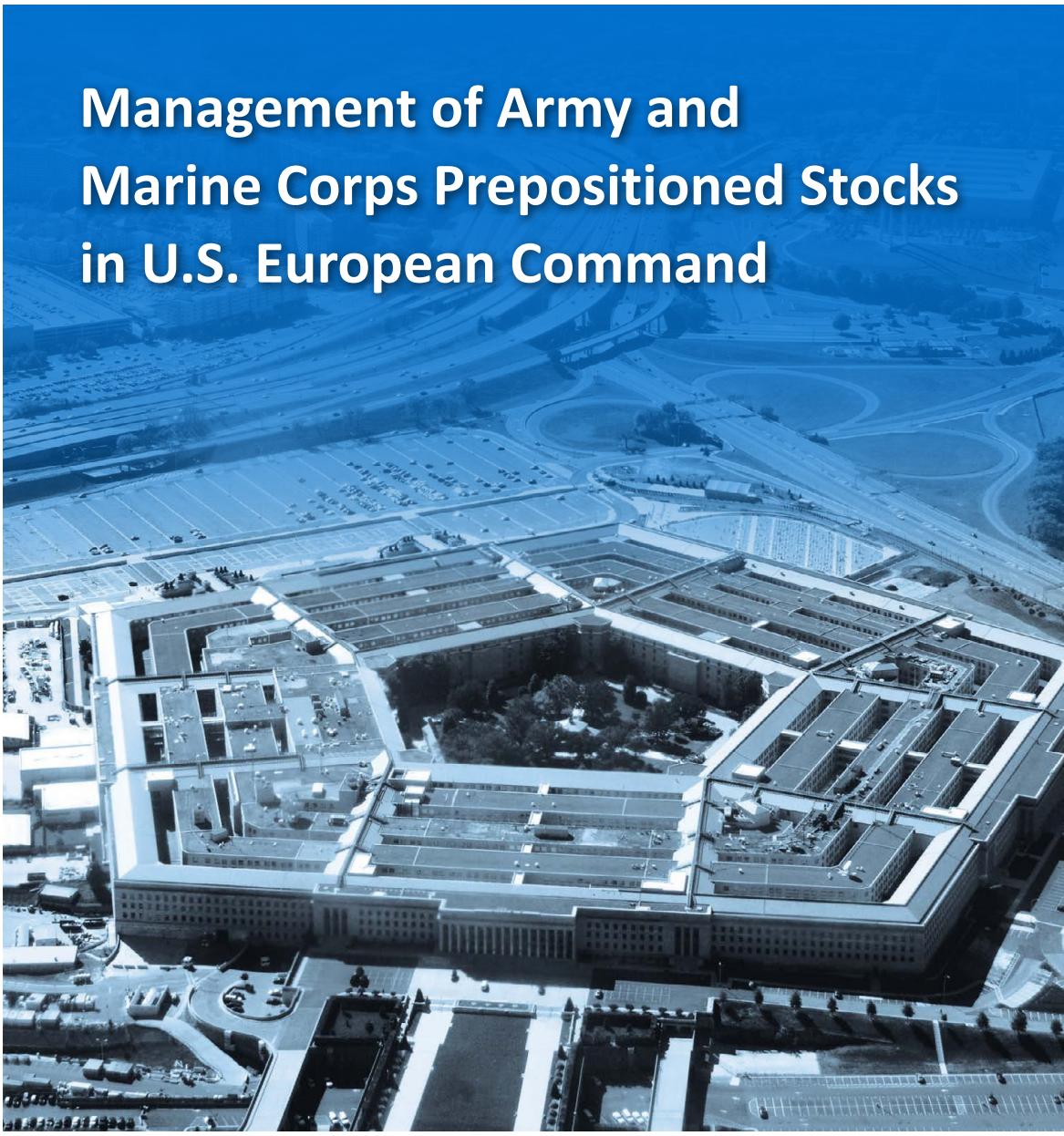
Report No. DODIG-2018-152

INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 17, 2018

Management of Army and Marine Corps Prepositioned Stocks in U.S. European Command



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Results in Brief

Management of Army and Marine Corps Prepositioned Stocks in U.S. European Command

September 17, 2018

Objective

We determined whether the Army and Marine Corps maintained and stored prepositioned stock in accordance with established maintenance schedules and storage requirements in the U.S. European Command area of responsibility. We reviewed the storage and maintenance of Supply Class VII vehicles and weapons for Army Prepositioned Stock and Marine Corps Prepositioning Program–Norway.[1]

Background

The Army Prepositioned Stock program maintains combat-ready equipment and material strategically located and ready for use at a moment's notice. The purpose of the Army's Care of Supplies in Storage program is to ensure the readiness of the Army's stored supplies by identifying and mitigating exposure to temperature, humidity, and other environmental factors so items in storage remain serviceable and ready to deploy when needed.

Army Technical Manual 38-470 establishes maintenance cycles that the Army is required to implement for tactical and combat equipment in the Care of Supplies in Storage program. To determine whether the Army maintained its prepositioned stock in accordance with Army regulations, we performed site visits to Zutendaal, Belgium, and Leghorn Army Depot, Livorno, Italy. However, Zutendaal, Belgium, did not begin receiving equipment until May 2017

[1] Class VII items are major end items, such as racks, pylons, tracked vehicles, weapons, and aircraft engines.

Background (cont'd)

and had not yet conducted maintenance on the equipment because Army personnel have 2 years to establish maintenance operations to stay in compliance with regulations.

Marine Corps Prepositioning Program–Norway is a Marine Corps-managed prepositioned stock program in Norway, operating in accordance with a memorandum of understanding between the U.S. Government and the Government of the Kingdom of Norway for the storage and maintenance of U.S. equipment and supplies. Maintenance for the majority of Marine Corps Prepositioning Program–Norway equipment is conducted by Norwegian government civilians and supervised by Norwegian military personnel with Marine Corps Blount Island Command oversight.

Marine Corps Technical Manual 4790-14/1G provides guidance and procedures for the storage and maintenance of equipment stored with Marine Corps Prepositioning Program–Norway. In addition to the guidance and procedures in the Technical Manual 4790-14/1G, a local bilateral agreement between Blount Island Command and the Norwegian Defense Logistics Organization establishes the daily procedures for logistics support of Marine Corps Prepositioning Program–Norway. To determine whether the Marine Corps maintained its prepositioning stock in accordance with Marine Corps regulations, we performed site visits to Bjugn, Frigaard, and Tromsdal caves in Norway.

Findings

Army and Marine Corps officials did not effectively manage the storage and maintenance of prepositioned stocks in the U.S. European Command area of responsibility. Specifically, Army and Marine Corps officials did not ensure proper storage facility humidity levels, weapons maintenance, and vehicle maintenance.

Army personnel at Leghorn Army Depot in Livorno, Italy, did not manage the humidity levels in accordance with the Army requirements because Army Material Command did not include clear requirements in Technical Manual 38-470 that state who is responsible for maintaining humidity levels or performing the inspections. Additionally, Army

Results in Brief

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Findings (cont'd)

Material Command officials did not specify in Technical Manual 38-470 how often personnel should perform preventive maintenance on Army Prepositioned Stock weapons.

Army officials at Leghorn Army Depot also did not ensure that 21 of 63 vehicles we nonstatistically sampled to test were maintained in accordance with Army regulations because the officials did not anticipate having to perform maintenance required for unscheduled operational missions.[2]

Marine Corps Blount Island Command officials did not control the humidity levels in Marine Corps Prepositioning Program–Norway storage sites because Marine Corps officials did not include a requirement in the local bilateral agreement for the Norwegian personnel to control the humidity levels.

In addition, Marine Corps Blount Island Command officials did not perform or document maintenance on 30 of 36 weapons and 124 of 165 vehicles from our nonstatistical sample because officials did not develop maintenance requirements for weapons stored in protective packaging, develop standard operating procedures for recording completed maintenance, and monitor the completion of required maintenance.

As a result, the DoD does not have assurance that the Army and Marine Corps properly stored and maintained at least $203.7 million worth of prepositioned stock at Army Prepositioned Stock and Marine Corps Prepositioning Program–Norway sites in the U.S. European Command area of responsibility. While we only reviewed five locations, we believe our findings raise potential concerns regarding the maintenance of prepositioned stock at other U.S. European Command locations that follow the Army Technical Manual 38-470 and Marine Corps Technical Manual 4790-14/1G. Without adequately managed prepositioned equipment, the Army and the Marine Corps may not be able to fully support a request to provide immediate crisis response when the need arises in Europe or Africa.

Recommendations

We recommend that the Deputy Chief of Staff of the Army, G-4 (Logistics), in conjunction with the U.S. Army Materiel Command Commander, update Technical Manual 38-470 to specify who is responsible for maintaining controlled humidity levels and inspecting controlled humidity facilities and to clearly state how often the weapons should be maintained.

We recommend that the 405th Army Field Support Battalion–Africa Commander include estimated unscheduled operational missions in the planning process for maintenance of prepositioned stocks.

We also recommend that the U.S. Marine Corps Installations and Logistics Deputy Commandant, in conjunction with the Blount Island Command Commander, assess the degree of corrosion on equipment in the Marine Corps Prepositioning Program–Norway storage sites; include requirements to monitor and control humidity levels; develop maintenance requirements for weapons stored in protective packaging; develop standard operating procedures for recording completed maintenance; and automate the process for monitoring maintenance cycles.

[2] According to 405th Army Field Support Battalion–Africa officials, unscheduled operational missions are time-sensitive, unscheduled equipment moves.

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Management Comments and Our Response

The Strategic Mobility Division Chief, Office of the Deputy Chief of Staff of the Army, G-4 (Logistics), responding for the Deputy Chief of Staff of the Army, G-4 (Logistics), and the U.S. Army Materiel Command Commander neither agreed nor disagreed with the recommendations to update Technical Manual 38-470 to specify who is responsible for maintaining controlled humidity levels and clearly state how often Army Prepositioned Stock weapons should be maintained. Specifically, the Strategic Mobility Division Chief stated that the Army Material Command will publish directives in the Technical Manual with specific guidance outlining schedules for planned inspections of controlled humidity in Army Prepositioned Stock facilities. However, the corrective actions do not fully answer the recommendation. Therefore, the recommendation is unresolved. We request that the Deputy Chief of Staff of the Army, G-4 (Logistics), provide additional comments on the final report. The Strategic Mobility Division Chief also stated that the Army Materiel Command will direct the Army Sustainment Command to specify maintenance frequencies in Technical Manual 38-470. Therefore, the recommendation is resolved, but will remain open until we verify the Technical Manual has been updated and is consistent with applicable criteria.

The 405th Army Field Support Battalion–Africa Commander did not respond to the recommendation to include estimated unscheduled operational missions in the planning process for maintenance of prepositioned stocks. Therefore, the recommendation is unresolved. We request that the Commander provide comments on the final report.

The Head, Audit Coordination, Office of the Director of Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed with the recommendations to assess the degree of corrosion on equipment in the Marine Corps Prepositioning Program–Norway storage sites; include requirements to monitor and control humidity levels; develop standard operating procedures for recording completed maintenance; and automate the process for monitoring maintenance cycles. Therefore, the recommendations are resolved, but will remain open until we verify that the corrective actions have been taken.

In addition, the Head, Audit Coordination, Office of the Director of Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed with the recommendation to develop maintenance requirements for weapons stored in protective packaging and stated that U.S. Marine Corps Installation and Logistics will review the established policy to determine whether additional guidance is required. However, based on prior conversations with U.S. Marine Corps officials, this policy does not exist for weapons stored in Level A packaging. Therefore, the recommendation is unresolved. We request that the Deputy Commandant for U.S. Marine Corps Installations and Logistics provide additional comments on the final report.

Please see the Recommendations Table on the next page.

Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Deputy Chief of Staff of the Army, G-4 (Logistics)	1.a	1.b	None
Deputy Commandant, U.S. Marine Corps Installations and Logistics	3.c	3.a, 3.b, 3.d, 3.e	None
Commander, 405th Army Field Support Battalion–Africa	2	None	None

Please provide Management Comments by October 17, 2018.

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

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

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

September 17, 2018

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Management of Army and Marine Corps Prepositioned Stocks in U.S. European Command (Report No. DODIG-2018-152)

We are providing this report for your review and comment. We conducted this audit in accordance with generally accepted government auditing standards. The 405th Army Field Support Battalion–Africa Commander did not respond to the recommendation in the draft report; however, we considered comments from the Deputy Chief of Staff of the Army, G-4 (Logistics), and the Deputy Commandant for U.S. Marine Corps Installations and Logistics when preparing the final report.

DoD Instruction 7650.03 requires that all recommendations be resolved promptly. One comment from the Deputy Chief of Staff of the Army, G-4 (Logistics), and one comment from Deputy Commandant for U.S. Marine Corps Installations and Logistics partially addressed Recommendations 1.a and 3.c. In addition, the 405th Army Field Support Battalion–Africa Commander did not respond to Recommendation 2. Therefore, we request additional comments on Recommendations 1.a, 2, and 3.c by October 17, 2018.

Please send a PDF file containing your comments on the recommendations audrgo@dodig.mil. Copies of your comments must have the actual signature of the authorizing official for your organization. We cannot accept the /Signed/ symbol in place of the actual signature. If you arrange to send classified comments electronically, you must send them over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the cooperation and assistance received during the audit. Please direct any questions to Ms. Giormary Peluyera at (703) 604-9190, (DSN 312-664-9190).

Michael J. Roark
Assistant Inspector General
Readiness and Global Operations

Distribution:

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Introduction

Objective

We determined whether the Army and Marine Corps maintained and stored prepositioned stock in accordance with established maintenance schedules and storage requirements in the U.S. European Command (USEUCOM) area of responsibility. We reviewed the storage and maintenance of Army Prepositioned Stock Europe and Africa (APS-2) and Marine Corps Prepositioning Program–Norway (MCPP-N) Supply Class VII vehicles and weapons because they have the highest dollar value of the supply classes.[3] Figure 1 shows the 51 countries in the USEUCOM area of responsibility. See Appendix A for a discussion of the scope and methodology.

Figure 1. USEUCOM Area of Responsibility

Source: USEUCOM.

[3] Class VII items are major end items, such as racks, pylons, tracked vehicles, weapons, and aircraft engines.

Background

DoD Prepositioned Program

The DoD prepositions equipment and supplies in strategic land- and sea-based locations worldwide. These prepositioned stocks are critical to ensure that U.S. forces around the world receive the equipment they need in a fraction of the time it would take to move it from the United States to their location. The Army and Marine Corps prepositioned programs consist of combat, combat support, and combat service support capabilities.

Army Prepositioned Stock Program

The Army Prepositioned Stock (APS) program is the cornerstone of the Army's ability to quickly react to urgent situations. The Army prioritizes and dedicates significant resources to ensure the readiness and availability of APS, which maintains combat-ready equipment and material strategically located and ready for use at a moment's notice. The APS program constitutes a third of the Army's Strategic Mobility Triad (airlift, sealift, and prepositioning).

APS includes six regions: continental United States (APS-1), Europe and Africa (APS-2), Afloat (APS-3), Pacific and Northeast Asia (APS-4), Southwest Asia (APS-5), and Central America, South America, and the Caribbean (APS-6). All six regions are available to support all combatant commanders' missions, not only in contingencies, but also for major exercise and humanitarian assistance support.

APS-2

The APS-2 program supports Army forces in the USEUCOM and U.S. Africa Command area of responsibility by providing commanders with reception, staging, onward movement and integration, retrograde, and redeployment support.

The APS-2 program includes four categories.

- Prepositioned unit sets consist of organizational equipment (end items, secondary items, and supplies) stored in unit configurations in order to reduce force deployment response time. Materiel is prepositioned ashore and afloat to meet the Army's strategic requirements.
- Operational project stocks consist of equipment and supplies beyond normal unit authorizations that are tailored for key strategic capabilities essential to support Army operations, plans, and contingencies.

- Activity sets consist of equipment specifically prepositioned for Army forces deploying outside the continental United States to conduct training and exercises.
- War Reserve Stocks for Allies consist of stock prepositioned in the appropriate theater and owned and financed by the United States. They are released to the proper Army component commander for transfer to the supported allied force under provision of the Foreign Assistance Act and under existing memorandums of agreement.

APS-2 Roles and Responsibilities

The APS-2 program is overseen by the Deputy Chief of Staff of the Army, G-4 (Logistics); U.S. Army Materiel Command (AMC); U.S. Army Sustainment Command; 405th Army Field Support Brigade (AFSB); 405th Army Field Support Battalion (AFSBn)–Benelux; and 405th AFSBn-Africa. Each command has specific responsibilities, but they all share oversight and management of APS-2.

Deputy Chief of Staff of the Army, G-4 (Logistics)

The G-4 provides guidance on developing the APS program and ensures that prepositioned material meets Army serviceability standards for issue to deploying units. The G-4 also ensures that prepositioned materiel is maintained at authorized levels to adequately fill unit sets, provides resources to conduct the APS program, approves prepositioned equipment listing, and ensures equipment requirements are identified in Army force structure, systems, and applicable documents.

U.S. Army Materiel Command

U.S. Army Materiel Command is the executive agent for the APS program. This includes developing APS funding requirements, providing accountability of APS equipment (except medical equipment), reviewing and validating authorization documents, and ensuring operational readiness of APS equipment.

U.S. Army Sustainment Command

U.S. Army Sustainment Command is responsible for all APS equipment except medical equipment.[4] This responsibility includes accounting for, storing, maintaining, and issuing APS materiel. As the responsible agent, U.S. Army Sustainment Command is required to develop all procedures that support APS and to manage APS in the Army War Reserve Deployment System.

[4] U.S. Army Medical Materiel Agency provides management for Class VIII (medical).

405th AFSB

The 405th AFSB headquarters is located at Daenner Kaserne, Kaiserslautern, Germany. The 405th AFSB provides mission command of assigned AFSBns and coordinates support of APS. The 405th AFSB provides direct support in the European and African areas of responsibility. AFSBns located in the USEUCOM area of responsibility are responsible for managing APS-2 assets. AFSBn-Benelux and AFSBn-Africa are two separate subordinate organizations that directly support the 405th AFSB. AFSBns are units that are responsible for managing APS assets and use a combination of Department of the Army civilians, local national direct hires, and contract service providers to perform Care of Supplies in Storage functions.

405th AFSBn-Benelux

The 405th AFSBn-Benelux manages APS equipment located in Zutendaal, Belgium, and Eygelshoven, Netherlands. The Army opened these two APS sites between 2016 and 2017, with the Zutendaal site receiving equipment beginning in May 2017. The 405th AFSBn-Benelux manages over 3,000 Class VII APS items.

405th AFSBn-Africa

The 405th AFSBn-Africa manages APS equipment at Leghorn Army Depot in Livorno, Italy. According to 405th AFSBn-Africa personnel, Leghorn Army Depot is an established site with Army operations dating back to the 1950s, and U.S. Army Materiel Command took control of the site in 1995 and established it as an APS site. The more than 10,000 Class VII APS items at Leghorn Army Depot primarily support operations in U.S. Africa Command but can support operations worldwide.

Army War Reserve Deployment System

The Army War Reserve Deployment System is an automated system designed to assist in the accountability, inventory, maintenance, and transfer of APS assets to and from deploying units. Army War Reserve Deployment System captures logistics information for all Army requirements, such as capturing costs, requisitioning parts, tracking scheduled and unscheduled services, tracking equipment and its condition, maintaining historical data, and providing a full spectrum of reports, including critical readiness reports. Army War Reserve Deployment System is the warehouse management system and uses a direct real-time interface.

Care of Supplies in Storage Program

The Army's Care of Supplies in Storage program ensures the readiness of the Army's stored supplies by identifying and mitigating exposure to temperature, humidity, and other environmental factors so items in storage remain serviceable and ready to deploy when needed. Army Technical Manual (TM) 38-470 establishes Care of Supplies in Storage maintenance cycles for tactical and combat equipment that the Army is required to implement.[5] TM 38-470 states that APS equipment will be scheduled for cyclical maintenance based on its storage environment. TM 38-470 also prescribes procedures for the storage, maintenance, inspection, preservation, and de-preservation required to support the materiel and supplies designated as APS stocks.

MCPP-N

MCPP-N is a Marine Corps-managed prepositioned program in Norway, maintained in accordance with a memorandum of understanding between the U.S. Government and the Government of the Kingdom of Norway for the storage and maintenance of equipment and supplies of Marine Air Ground Task Forces. The Marine Corps and the Norway government share operating costs. MCPP-N supports the reinforcement of Norway defense and provides crisis response and limited sustainment for Marine expeditionary operations in support of USEUCOM and other geographic combatant commands.

MCPP-N equipment and supplies are stored and maintained in six cave complexes (caves) and two airfield storage facilities in the Troendelag region of central Norway. We reviewed Supply Class VII vehicles and weapons stored in three of the six caves—Bjugn, Frigaard, and Tromsdal—which hold a combined stock of nearly 4,000 Class VII items.

MCPP-N Roles and Responsibilities

MCPP-N is overseen by the Commandant of the Marine Corps; Deputy Commandant for Plans, Policies, and Operations; Deputy Commandant for Installations and Logistics (I&L); Marine Corps Logistics Command Commanding General; Defense Staff Norway; and Norwegian Defense Logistics Organization (NDLO). Maintenance for the majority of MCPP-N equipment is conducted by Norwegian government civilians and supervised by Norwegian military personnel with oversight provided by Marine Corps Logistics Command's Blount Island Command (BICmd).

[5] Army TM 38-470, "Storage and Maintenance of Army Prepositioned Stock Materiel," June 30, 2017.

Commandant of the Marine Corps

The Commandant of the Marine Corps is the designated authority to administer MCPP-N and has overall responsibility for MCPP-N.

Deputy Commandant for Plans, Policies, and Operations.

The Deputy Commandant for Plans, Policies, and Operations serves as the Commandant's executive agent and advocate for Marine Corps prepositioning programs. The Deputy Commandant for Plans, Policies, and Operations establishes operational policies and procedures and serves as the Marine Corps prepositioning program representative to the Office of the Secretary of Defense, Joint Staff, and Department of the Navy.

Deputy Commandant for Installations and Logistics

The Deputy Commandant for I&L serves as the budget and logistics sponsor for Marine Corps prepositioning programs. The Deputy Commandant for I&L leads the planning process that determines the Marine Corps' prepositioning objective, establishes logistics policies and procedures for the prepositioning programs, and updates the Marine Corps prepositioning program logistics TMs and handbook as required.

Commanding General, Marine Corps Logistics Command

Marine Corps Logistics Command serves as the Marine Corps lead for attaining, maintaining, and providing logistics support for Marine Corps prepositioned equipment and supplies. Marine Corps Logistics Command plans, coordinates, and executes the maintenance and material management functions necessary to support the prepositioning program. Marine Corps Logistics Command delegates responsibility to BICmd for the planning, coordinating, and execution of the logistics efforts in support of the Marine Corps' prepositioning programs, as well as the management of equipment and supplies support for MCPP-N.

Defense Staff Norway

Defense Staff Norway is the organization within the Government of the Kingdom of Norway with designated authority to administer MCPP-N. Defense Staff Norway is responsible for providing qualified personnel to man the MCPP-N posts. In addition, Defense Staff Norway is responsible for providing quality control for maintenance and supply procedures for MCPP-N prepositioned equipment and supplies.

Norwegian Defense Logistics Organization

The NDLO is the Norwegian organization responsible for administrative control, accountability, and logistics support for all MCPP-N prepositioned equipment and supplies. NDLO is responsible for managing MCPP-N equipment and supplies in accordance with Marine Corps TM 4790-14/1G.[6] NDLO plans, schedules, and performs maintenance for MCPP-N equipment. NDLO also performs logistics functions, including inventory management, maintenance of technical data, facility utilization planning, training, and computer resource support.

Global Combat Support System–Marine Corps

The Global Combat Support System–Marine Corps (GCSS-MC) system provides a centralized, web-based access point for data input and retrieval supporting MCPP-N supply and maintenance. It is intended to provide a seamless end-to-end chain of logistics information, which allows for less reliance on forward-positioned material and capitalizes on the availability of near real-time logistics information critical to supported and supporting units.

MCPP-N Storage and Maintenance Requirements

Marine Corps Deputy TM 4790-14/1G authorizes procedures and establishes technical instructions that provide logistical support to MCPP-N. TM 4790-14/1G provides general guidance and procedures for the supply and maintenance of MCPP-N equipment. A local bilateral agreement (LBA) between BICmd and the NDLO establishes daily procedures for logistics support of MCPP-N. The LBA outlines NDLO's work to be performed for maintenance of MCPP-N equipment and supplies. The LBA also defines BICmd's tasks to ensure a clear understanding of the overall MCPP-N program and to define the division of responsibilities between BICmd and NDLO. TM 4790-14/1G and the LBA require preventive maintenance checks and services (PMCS) on all equipment.

Review of Internal Controls

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.[7] We identified internal control weaknesses relating to the storage and maintenance of APS-2 vehicles and weapons at Leghorn Army Depot in Livorno, Italy, and MCPP-N vehicles and weapons at the Bjugn, Frigaard, and Tromsdal caves in Norway. We will provide a copy of the report to the senior official(s) responsible for internal controls at AMC, Marine Corps I&L, and the 405th AFSBn-Africa.

[6] U.S. Marine Corps Technical Manual 4790-14/1G, "Logistics Support for Marine Corps Prepositioning Program–Norway," June 28, 2013.

[7] DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

Finding

The Army and Marine Corps Need to Improve Management of Storage and Maintenance of Prepositioned Stocks in the USEUCOM Area of Responsibility

Army and Marine Corps officials did not effectively manage storage and maintenance of prepositioned stocks in the USEUCOM area of responsibility.[8] Specifically, Leghorn Army Depot and Marine Corps BICmd officials did not ensure proper storage facility humidity levels, weapons maintenance, and vehicle maintenance.

Army officials at the Leghorn Army Depot in Livorno, Italy, did not:

- manage the humidity levels in accordance with the Army requirements because AMC did not include clear requirements in TM 38-470 that state who is responsible for maintaining humidity levels or performing the inspections;
- know if the 48-month maintenance cycle used for 65 weapons was the correct maintenance schedule because AMC did not include clear requirements in TM 38-470 that stated how often the weapons should be maintained; and
- ensure required maintenance was performed on 21 of 63 Army vehicles in our nonstatistical sample because the officials did not plan for or consider the potential that unscheduled operational missions could arise that would require additional maintenance.

Marine Corps BICmd officials at the Bjugn, Frigaard, and Tromsdal caves did not:

- control the storage facility humidity levels in accordance with Marine Corps storage and maintenance requirements because the officials did include a requirement in the LBA for Norwegian personnel to control the humidity levels within the caves;

[8] When the Army is discussed in this finding, we are referring only to the Leghorn Army Depot site located in Livorno, Italy.

- maintain 30 of 36 weapons in our nonstatistical sample because the officials did not develop maintenance requirements for weapons stored in Level A packaging, develop standard operating procedures for entering completed maintenance details and documentation into GCSS-MC, and monitor the completion of required weapons maintenance; and
- ensure required maintenance was performed or documented on 124 of 165 vehicles in our nonstatistical sample because the officials did not have a process for monitoring the completion of required vehicle maintenance or develop standard operating procedures for entering completed maintenance details and documentation into GCSS-MC.[9]

As a result, the DoD does not have assurance that the Army and Marine Corps properly stored and maintained at least $203.7 million worth of prepositioned stock at APS-2 and MCPP-N sites in the USEUCOM area of responsibility. While we only reviewed five locations, we believe our findings raise potential concerns regarding the maintenance of prepositioned stock at other USEUCOM locations that follow Army TM 38-470 and Marine Corps TM 4790-14/1G.[10] Without adequately managed prepositioned equipment, the Army and the Marine Corps may not be able to fully support requests to provide immediate crisis response when the need arises in Europe or Africa.

The Army and Marine Corps Need to Improve the Management of Storage and Maintenance of Prepositioned Stocks

Army and Marine Corps officials did not effectively manage storage and maintenance of prepositioned stocks in the USEUCOM area of responsibility. Specifically, Army and Marine Corps officials did not ensure proper storage facility humidity levels, weapons maintenance, and vehicle maintenance.

[9] Level A packaging is protective packaging used for shipment, handling, and storage that must be capable of protecting material from effects of exposure to extreme climates, terrain, and transportation environments.

[10] This conclusion is based on the audit team's nonstatistical sample of APS-2 and MCPP-N sites in USEUCOM area of responsibility.

The Army Did Not Manage Humidity Levels

Leghorn Army Depot personnel in Livorno, Italy, did not manage the humidity levels in their warehouses in accordance with Army regulations.

Leghorn Army Depot personnel in Livorno, Italy, did not manage the humidity levels in their warehouses in accordance with Army regulations. Specifically, Leghorn Army Depot personnel did not control humidity levels to stay below 50 percent as required in Army TM 38-470. TM 38-470 states, "A controlled humidity environment shall have a relative humidity relative humidity level of 40 percent. Care shall be taken to prevent the RH [relative humidity] from dropping below 30 percent or rising above 50 percent during storage and access of equipment." Both the 405th AFSBn-Africa and U.S. Army Installation Management Command documented the relative humidity levels in the warehouses. However, neither of the units took steps to control the relative humidity levels to stay under 50 percent. For example, in one of the buildings, the relative humidity exceeded 50 percent for four consecutive readings over 22 days. This occurred because TM 38-470 does not specify who is responsible for ensuring the relative humidity levels stay within the required range.

Leghorn Army Depot personnel did not manage the humidity levels in the arms room in accordance with TM 38-470, which states, "Structural and dry air system inspections must be performed weekly... and RH [relative humidity] and temperature data will be collected and retained for each facility." From May 2014 to January 2018, neither 405th AFSBn-Africa nor U.S. Army Installation Management Command personnel performed these inspections for the arms room. This occurred because TM 38-470 does not specify who is responsible for the weekly system inspection.

Army Regulation (AR) 750-1 states that one proven technique to reduce corrosion on equipment is to control humidity. Although Leghorn Army Depot officials did not manage the humidity levels or conduct controlled humidity system inspections for over 3 years, we did not observe evidence of corrosion on any of the 65 weapons stored in the arms room, valued at nearly $1 million. However, during our site visit, we observed signs of corrosion on 53 of 104 vehicles, valued at $23.4 million.[11] Figure 2 shows engine corrosion on a full-tracked tractor.

[11] We reviewed 175 vehicles at Livorno, Italy. However, we determined that 6 were not APS vehicles and 65 were sealed and unable to be visually inspected; therefore, only 104 vehicles were visually inspected for corrosion.

Figure 2. Full-Tracked Tractor with Engine Corrosion
Source: The DoD OIG.

To ensure that all controlled humidity systems are inspected and relative humidity levels are maintained in compliance with TM 38-470 requirements, we recommend that the Deputy Chief of Staff of the Army, G-4 (Logistics), in conjunction with the U.S. Army Materiel Command Commander, update Army TM 38-470 to specify who is responsible for maintaining controlled humidity levels and performing inspections for controlled humidity facilities.

The Army May Not Have Performed Adequate Weapons Maintenance

Personnel from the 405th AFSBn-Africa in Livorno, Italy, performed preventive maintenance on the 65 weapons we reviewed on a 48-month (4-year) maintenance cycle. However, 405th AFSBn-Africa personnel did not know if the 48-month maintenance cycle used for these 65 weapons was the correct maintenance schedule because there were discrepancies between applicable weapons criteria. The following are the discrepancies in the criteria.

- TM 38-470 states that tactical and combat equipment stored indoors require maintenance every 48 months. However, TM 38-470 does not specify whether weapons are classified as either tactical or combat equipment.

- AR 750-1 requires annual PMCS for weapons stored in and not removed from a humidity-controlled environment. However, AR 750-1 did not specify whether this applies to prepositioned weapons.
- The TMs for the M2 and MK19 machine guns (stored in Livorno) require quarterly maintenance for both types of weapons.[12] However, the weapon TMs did not specify whether this applies to prepositioned weapons, weapons stored in a humidity-controlled environment and weapons stored for extended periods of time.

Of the applicable criteria—TM 38-470, AR 750-1, and the specific weapons TMs—none provide a clear timeline for the maintenance cycles for APS weapons stored in a controlled humidity environment, such as Leghorn Army Depot.

U.S. Army Sustainment Command officials agreed that there is no specific guidance for PMCS for APS weapons and admitted that other APS locations use different maintenance cycles for their weapons. The purpose of conducting PMCS is to ensure that the equipment is in good operating condition and ready for its primary mission. While we did not find any maintenance issues with the 65 weapons at Leghorn Army Depot, 405th AFSBn-Africa personnel cannot ensure the readiness of APS weapons until clear and specific guidance is established for how often maintenance should occur for APS weapons.

The U.S. Army Sustainment Command Commander drafted an operational order to clarify maintenance guidance for weapons, stating, "Services for all sensitive items will be (in accordance with) Technical Manual (TM) or serviced quarterly." However, the guidance needs to specifically identify the maintenance cycle requirements for weapons. Therefore, we recommend that the Deputy Chief of Staff of the Army, G-4 (Logistics), in conjunction with the U.S. Army Materiel Command Commander, update Army TM 38-470 to include specific requirements that clearly state how often preventive maintenance should be performed for APS weapons, and ensure consistency in other applicable criteria.

[12] The U.S. Military issued the specific TMs.

The Army Did Not Ensure Vehicles Were Properly Maintained

Officials from the 405th AFSBn-Africa did not perform adequate maintenance on 21 of 63, or one-third, of the vehicles in our nonstatistical sample.[13] Specifically, we found 21 vehicles overdue for required preventive maintenance. For example, a full-tracked tractor was due for preventive maintenance on January 16, 2017, and as of March 15, 2018, it still had not received the maintenance—14 months past due. According to 405th AFSBn-Africa officials, the Army did not adequately maintain the vehicles because they did not plan for or consider the potential that unscheduled operational missions could arise that would require additional maintenance. For example, according to 405th AFSBn-Africa personnel, in FY 2018, they had nearly 3,000 pieces of equipment to service outside of the regularly scheduled prepositioned stock maintenance requirements. Specifically, 405th AFSBn-Africa officials stated that Livorno is budgeted by man-hours for only scheduled missions. When time-sensitive, unscheduled equipment moves are requested, these missions take precedence over the scheduled missions because they directly support the warfighter. Equipment for time-sensitive, unscheduled missions must receive maintenance before it can be shipped to its destination. This causes a delay in the preventive maintenance schedules for the regularly scheduled equipment. We recommend that the 405th AFSBn–Africa Commander develop an alternative schedule that considers unscheduled operational missions in the planning process for maintenance of prepositioned stocks.

Officials from the 405th AFSBn-Africa did not perform adequate maintenance on 21 of 63, or one-third, of the vehicles in our nonstatistical sample.

The Marine Corps Did Not Maintain Recommended Humidity Levels in Caves Storing Equipment

Marine Corps BICmd officials did not control storage facility humidity levels in accordance with Marine Corps Order 4790.18C.[14] Although the Marine Corps stored equipment in caves with controlled humidity systems, BICmd officials did not control the relative humidity of the caves to stay below 50 percent as recommended in Marine Corps Order 4790.18C. TM 4790-14/1G requires all prepositioned assets to be stored

Marine Corps BICmd officials did not control storage facility humidity levels in accordance with Marine Corps Order 4790.18C.

[13] We reviewed 175 vehicles at Livorno, Italy. However, we determined that 6 were not APS vehicles, 65 were sealed and did not require maintenance, and 41 were either transferred in or out of Livorno and, as a result, have not been placed on a maintenance schedule.

[14] Marine Corps Order 4790.18C, "Corrosion Prevention and Control," August 21, 2014.

in humidity-controlled facilities. According to Marine Corps Order 4790.18C, maintaining relative humidity below 50 percent eliminates the adverse effects of humidity. According to the Order, the rate of corrosion increases exponentially when relative humidity exceeds 50 percent. At the MCPP-N caves we visited—Bjugn, Frigaard, and Tromsdal—relative humidity levels exceeded 50 percent for extended periods. For example, at the Bjugn cave, relative humidity exceeded 50 percent from May 21, 2016, through October 2, 2016, with relative humidity levels as high as 82 percent. In addition, NDLO and BICmd personnel were unable to provide any relative humidity records for the Bjugn cave for 2017.

We reviewed 1,976 relative humidity readings taken by NDLO between December 2014 and November 2017 for the three caves storing equipment to determine whether the relative humidity was within the recommended range. For 1,512 of 1,976 readings, the relative humidity exceeded the recommended range for the full day. Table 1 shows the number of relative humidity readings that were above the recommended levels for the full day during that period.

Table 1. Marine Corps Relative Humidity Readings from December 2014 to November 2017

Cave	Number of Days with Readings	Readings Outside Range
Bjugn	464	308
Frigaard	516	422
Tromsdal	996	782
Total	**1976**	**1512**

Source: The DoD OIG.

BICmd officials conducted quality assurance reviews for 2016 and 2017 that identified corrosion on equipment and stated that BICmd needs to place special emphasis on improving corrosion control. Although BICmd officials identified corrosion as an issue, they did not control relative humidity levels at the caves. In addition, TM 4790-14/1G and the LBA do not direct NDLO to monitor or control the relative humidity levels of the caves. Headquarters Marine Corps I&L officials stated that they have not assessed the overall degree of corrosion in the caves; however, they indicated that they plan to incorporate a requirement to monitor relative humidity levels within the caves into TM 4790-14/1G.

Excessive relative humidity increases the risk of corrosion and reduces readiness of tactical ground equipment. Therefore, Marine Corps I&L officials, in conjunction with BICmd, should assess the overall degree of corrosion in the caves and update TM 4790-14/1G and the LBA to include requirements for the NDLO to monitor and control the humidity levels within the caves.

The Marine Corps Did Not Perform Adequate Weapons Maintenance

BICmd officials did not maintain 30 of 36 weapons in our nonstatistical sample.

BICmd officials did not maintain 30 of 36 weapons in our nonstatistical sample. Specifically, BICmd officials did not perform PMCS on 30 Level A packaged weapons we reviewed in the armory at the Frigaard cave.[15] TMs for the weapons require quarterly cleanings and establish specific maintenance requirements. For example, the TM for the .50 caliber machine gun provides a field maintenance safety and serviceability inspection and gauging that must be completed quarterly for the weapon to be considered capable of performing its primary mission. BICmd officials stated that weapons stored in Level A packaging were not on a maintenance cycle and did not require PMCS while stored in Level A packaging. However, BICmd officials could not provide documentation supporting that weapons stored in Level A packaging did not require PMCS or documentation stating how long an item is able to be stored in Level A packaging. Furthermore, TM 4790-14/1G and the LBA did not address how Level A packaging affects the preventive maintenance cycle of a weapon.

In addition, Marine Corps officials issued 11 weapons for exercises; however, they were unable to provide any evidence that Marine Corps small arms technical support personnel performed pre-fire inspections and post-exercise preventive maintenance for the weapons issued as required. BICmd officials explained that Marine Corps personnel were deployed to Frigaard to complete the pre-fire inspection and post-exercise preventive maintenance and they were unsure why the Marine Corps personnel who completed the maintenance did not document maintenance for all 11 weapons within GCSS-MC. BICmd officials did not ensure that required weapons maintenance was performed or documented because the officials did not have a process for monitoring completed maintenance cycles. In addition, BICmd officials did not have standard operating procedures for entering maintenance details and documentation into GCSS-MC.

Marine Corps I&L officials should develop guidance in TM 4790-14/1G on the maintenance requirements of weapons stored in Level A packaging. In addition, Marine Corps I&L officials, in conjunction with BICmd, should develop standard operating procedures for recording and documenting completed weapons maintenance within GCSS-MC. Additionally, the officials should develop a process to accurately monitor completed maintenance cycles and include a requirement in the LBA for the NDLO to use the new process.

[15] Level A packaging is protective packaging used for shipment, handling, and storage that must be capable of protecting material from effects of exposure to extreme climates, terrain, and transportation environments.

The Marine Corps Did Not Perform Adequate Vehicle Maintenance

Marine Corps and NDLO personnel did not perform or document all required PMCS on 124 of 165 nonstatistically selected vehicles at Bjugn, Frigaard, and Tromsdal caves in Norway.

Marine Corps and NDLO personnel did not perform or document all required PMCS on 124 of 165 nonstatistically selected vehicles at Bjugn, Frigaard, and Tromsdal caves in Norway.[16] Marine Corps I&L officials stated that PMCS was performed on some of the vehicles; however, the maintenance was not documented in GCSS-MC. For example, Marine Corps I&L officials explained that, when an annual conditioning inspection was completed, the operator also conducted a PMCS; however, the clerk only recorded the annual conditioning inspection.

BICmd officials explained that TM 4790-14/1G PMCS requirements include either a 12-month or 36-month organizational-level maintenance cycle. Equipment on a 36-month schedule also requires 12-month operational-level maintenance during years it is not due for triannual PMCS. In addition, organizational-level maintenance is also required on all items within 180 days of returning from an exercise. According to TM 4790-14/1G, when equipment is issued for an exercise, the post-exercise PMCS replaces the next scheduled organizational-level maintenance cycle. Both, TM 4790-14/1G and the LBA require PMCS on all equipment.

In addition, we observed Class III leaks for 16 of the 53 mission-essential vehicles in our nonstatistical sample.[17] For example, we observed a Class III leak on an armored vehicle for bridge launching, which according to the vehicle TM, would make the equipment incapable of performing its primary mission. Marine Corps Bulletin 3000 states that mission-essential equipment is indispensable for the execution of the unit's mission-essential tasks in support of a combatant commander. Items designated as mission-essential equipment are of such importance that they are subject to continuous monitoring throughout the DoD. Figure 3 shows a Class III leak coming from an armored bridge vehicle that did not receive its 2017 annual PMCS maintenance.

[16] We reviewed the required PMCS maintenance cycle requirements for the vehicles from January 1, 2015, through December 31, 2017.

[17] According to Marine Corps vehicle TMs, a Class III leak is a leak great enough to form drops that fall from the item being checked or inspected.

Figure 3. Armored Bridge Vehicle Class III Leak
Source: The DoD OIG.

BICmd officials did not ensure that required maintenance was performed or documented because the officials did not have a process for monitoring the completion of required maintenance. In addition, BICmd officials did not have standard operating procedures for entering maintenance details and documentation into GCSS-MC. To ensure that required maintenance is performed and properly documented, Marine Corps I&L officials, in conjunction with BICmd, should develop standard operating procedures for entering vehicle PMCS within GCSS-MC. In addition, Marine Corps I&L officials, in conjunction with BICmd, should develop a process to accurately monitor completed maintenance cycles and include a requirement in the LBA for the NDLO to implement the new process.

The Army and Marine Corps Do Not Have Assurance Prepositioned Equipment Will Be Ready When Needed

As a result, the DoD does not have assurance that the Army and Marine Corps properly stored and maintained at least $203.7 million worth of prepositioned stock at APS-2 and MCPP-N sites in the USEUCOM area of responsibility. While we only reviewed five locations, we believe our findings raise potential concerns regarding the maintenance of prepositioned stock in the USEUCOM area of responsibility because the Army and Marine Corps locations in USEUCOM follow the TM 38-470 and TM 4790-14/1G. Vehicles and weapons that are not

properly stored and maintained are less likely to be ready for issuance when needed. Without adequately managed prepositioned equipment, the Army and the Marine Corps may not be able to fully support a request to provide immediate crisis response when the need arises in Europe or Africa.

Recommendations, Management Comments, and Our Response

Recommendation 1

We recommend that the Deputy Chief of Staff of the Army, G-4 (Logistics), in conjunction with U.S. Army Materiel Command Commander, update Army Technical Manual 38-470 to include requirements that:

a. Specify who is responsible for maintaining controlled humidity levels and performing inspections for the controlled humidity facilities.

Army Comments

The Strategic Mobility Division Chief, Office of the Deputy Chief of Staff of the Army, G-4 (Logistics), responding for the Deputy Chief of Staff of the Army, G-4 (Logistics), and the U.S. Army Material Command Commander neither agreed nor disagreed but explained that Technical Manual 38-470 states that all controlled humidity facilities will have a site plan whereby the integrity of each controlled humidity system is periodically evaluated. The Army Material Command will publish directives in the Technical Manual with specific guidance outlining schedules for planned inspections of controlled humidity APS facilities.

Our Response

Comments from the Strategic Mobility Division Chief partially addressed the recommendation; therefore, the recommendation is unresolved. The Strategic Mobility Division Chief's corrective action included the Army Material Command publishing directives in Technical Manual 38-470 outlining schedules for planned inspections of APS controlled humidity facilities. However, the action proposed by the Strategic Mobility Division Chief did not include adding requirements that specify who is responsible for maintaining controlled humidity levels and performing inspections for the controlled humidity facilities. We request that the Deputy Chief of Staff of the Army, G-4 (Logistics), provide additional comments in response to the final report to identify specific actions that the Deputy Chief of Staff plans to take to update the Technical Manual 38-470 requirements specifying who is responsible for maintaining controlled humidity levels and performing inspections of the facilities.

b. Clearly state how often preventive maintenance on APS weapons should be maintained and ensure consistency in other applicable criteria.

Army Comments

The Strategic Mobility Division Chief, Office of the Deputy Chief of Staff of the Army, G-4 (Logistics), responding for the Deputy Chief of Staff of the Army, G-4 (Logistics), and the U.S. Army Material Command Commander, neither agreed nor disagreed but stated that Army Regulation 750-1 states that small arms and crew-served weapons that are maintained in a humidity-controlled area and not removed for any reason at any time during the year will be serviced annually. The Army Material Command will direct Army Sustainment Command to specify maintenance frequencies in Technical Manual 38-470.

Our Response

Comments from the Strategic Mobility Division Chief addressed all specifics of the recommendation, and no further comments are required. Therefore, the recommendation is resolved, but will remain open. We will close this recommendation once we verify that Technical Manual 38-470 has been updated to include preventive maintenance frequencies for APS weapons and is consistent with other applicable criteria.

Recommendation 2

We recommend that the 405th Army Field Support Battalion–Africa Commander develop an alternative schedule that considers unscheduled operational missions into the planning process for maintenance of prepositioned stocks.

Management Comments Required

The 405th Army Field Support Battalion–Africa Commander did not respond to the recommendation in the report. Therefore, the recommendation is unresolved. We request that the Commander provide comments on the final report.

Recommendation 3

We recommend that the Deputy Commandant for U.S. Marine Corps Installations and Logistics, in conjunction with Blount Island Command Commander:

a. Assess the overall degree of corrosion in the caves where U.S. Marine Corps Prepositioning Program-Norway equipment is stored.

USMC Comments

The Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed and stated that the U.S. Marine Corps scheduled a corrosion assessment of the equipment in August 2018.

Our Response

Comments from the Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, addressed all specifics of the recommendations, and no further comments are required. Therefore, the recommendation is resolved, but will remain open. We will close this recommendation once we verify that the corrosion assessment has been completed.

b. Update U.S. Marine Corps Technical Manual 4790-14/1G, "Logistics Support for Marine Corps Prepositioning Program-Norway (MCPP-N)," June 28, 2013, and the local bilateral agreement to include a requirement for the Norwegian Defense Logistics Organization to monitor and control the humidity levels within the caves where equipment is stored.

USMC Comments

The Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed and stated that interim guidance will be released that sets standards and requires monitoring of humidity levels at Marine Corps Prepositioning Program–Norway storage locations. Technical Manual 4790-14/1G and the Local Bilateral Agreement will be updated in 2019. The Technical Manual 4790-14/1G revision will incorporate the interim guidance, and the Local Bilateral Agreement revision will include the management and implementation of the surveillance program.

Our Response

Comments from the Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, addressed all specifics of the recommendations, and no further comments are required. Therefore, the recommendation is resolved, but will remain open. We will close this recommendation once we verify that Technical Manual 4790-14/1G and the Local Bilateral Agreement have been updated and approved to include requirements for monitoring humidity levels at Marine Corps Prepositioning Program–Norway storage locations and implementation of the surveillance program.

c. Develop maintenance requirements for weapons stored in Level A packaging.

USMC Comments

The Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed and stated that U.S. Marine Corps Installations and Logistics is reviewing established policy to determine whether additional guidance is required.

Our Response

Comments from the Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, partially addressed the recommendation; therefore, the recommendation is unresolved. The Head, Audit Coordination, agreed with the recommendation and stated that U.S. Marine Corps officials would review established policy to determine whether additional guidance is required. However, a Blount Island Command official and Headquarters Marine Corps Installations & Logistics official stated in March and April 2018 that guidance did not exist for maintenance requirements for weapons stored in Level A packaging. Therefore, we request that the Deputy Commandant for U.S. Marine Corps Installations and Logistics, provide additional comments in response to the final report that identify specific actions that U.S. Marine Corps officials plan to take to ensure that maintenance requirements are developed for weapons stored in Level A packaging.

d. Develop standard operating procedures for recording and documenting completed weapons and vehicle maintenance within Global Combat Support System–Marine Corps.

USMC Comments

The Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed and stated that U.S. Marine Corps officials will continue to reinforce maintainer adherence to recording and documenting weapons and vehicle maintenance actions and will develop standard operating procedures that summarize existing Global Combat Support System–Marine Corps procedures for ease of reference and standardization.

Our Response

Comments from the Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, addressed all specifics of the recommendations, and no further comments are required. Therefore, the recommendation is resolved, but will remain open. We will close this recommendation once we verify that standard operating procedures for recording and documenting completed weapons and vehicle maintenance within Global Combat Support System–Marine Corps have been developed.

e. Develop an automated process for monitoring completed maintenance cycles and include a requirement for the Norwegian Defense Logistics Organization to utilize the new process in the local bilateral agreement.

USMC Comments

The Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, responding for the Deputy Commandant for U.S. Marine Corps Installations and Logistics, agreed and stated that the Norwegian Defense Logistics Organization Marine Expeditionary Brigade Section is implementing a Microsoft Project application to schedule and validate all maintenance required on Marine Corps Prepositioning Program–Norway equipment to be fully implemented during 2019. The local bilateral agreement will be updated to incorporate the Microsoft Project application requirements in 2019.

Our Response

Comments from the Head, Audit Coordination, Office of the Director, U.S. Marine Corps Staff, addressed all specifics of the recommendations, and no further comments are required. Therefore, the recommendation is resolved, but will remain open. We will close this recommendation once we verify that U.S. Marine Corps officials have developed an automated process for monitoring and validating completed maintenance cycles and included the new process in the local bilateral agreement.

Appendix

Scope and Methodology

We conducted this performance audit from September 2017 through July 2018 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 audit objectives.

To determine whether the Army properly maintained and stored APS-2 Supply Class VII vehicles and weapons, we interviewed personnel from the G-4, AMC, Army Sustainment Command, and USEUCOM to obtain background information about APS and to identify each organization's responsibilities related to APS-2. We also conducted site visits to Zutendaal, Belgium, from December 5, 2017, to December 7, 2017, and Leghorn Army Depot, Livorno, Italy, from January 23, 2018, to February 2, 2018. During the site visits, we inspected the maintenance conditions and storage environments of APS-2 equipment and interviewed personnel at the site to identify their roles and responsibilities.

To determine whether the Marine Corps properly maintained and stored MCPP-N Supply Class VII vehicles and weapons, we interviewed personnel from Headquarters Marine Corps Installations and Logistics, Marine Corps Logistics Command, and the NDLO to gain background information about MCPP-N and to identify each organization's responsibilities related to MCPP-N. We also conducted site visits at Bjugn, Frigaard, and Tromsdal caves, from November 27, 2017, to December 8, 2017. During the site visits, we inspected the maintenance conditions and storage environments of MCPP-N equipment and interviewed personnel at the sites to identify their roles and responsibilities.

We reviewed the following DoD, Army, and Marine Corps criteria.

- DoD Instruction 3110.06, "War Reserve Materiel (WRM) Policy," June 23, 2008, Incorporating Change 1, September 28, 2017
- AR 750-1, "Army Materiel Maintenance Policy," August 3, 2017
- AR 740-1, "Storage and Supply Activity Operations," August 26, 2008
- Army Techniques Publication No. 3-35.1, "Army Pre-Positioned Operations," October 27, 2015

- TM No. 38-470, "Storage and Maintenances of Army Prepositioned Stock Materiel," June 30, 2017
- Local Bilateral Agreement Between BICmd and NDLO, April 29, 2015
- U.S. Marine Corps TM 4790-14/1G, "Logistics Support for Marine Corps Prepositioning Program–Norway (MCPP-N)," June 2013
- Marine Corps Order 4790.18C, "Corrosion Prevention and Control (CPAC) Program," August 21, 2014
- Marine Corps Order 3000.17, "Marine Corps Prepositioning Programs," October 17, 2013

We created inspection checklists based on the referenced guidance and inspected the sampled items to identify maintenance issues, such as corrosion, leaks, or physical damage. We also created an inspection checklist based on the referenced guidance for the storage facilities in which the sample items were stored to document the storage environment and identify facility deficiencies, such as humidity levels in the buildings. We obtained and reviewed maintenance records and PMCS schedules for the sampled items to determine whether the Army and Marine Corps were maintaining the items in accordance with applicable guidance.

We obtained and reviewed APS-2 and MCPP-N locations in the USEUCOM area of responsibility. We focused on Supply Class VII major end items because Supply Class VII represents the highest value of all prepositioned supply classes. Specifically, we focused on vehicles because they represent the highest value of major end items, and we focused on weapons to remain consistent with an ongoing prepositioned stock project. We nonstatistically selected five locations. For APS-2, we selected Zutendaal, Belgium, and Leghorn Army Depot, Livorno, Italy. For MCPP-N, we selected the Bjugn, Frigaard, and Tromsdal caves in Norway. We selected these locations because they contained a majority of the prepositioned vehicles and weapons. For APS-2, we excluded three sites—Coleman Worksite, Germany; Dulmen, Germany; and Eygelshoven, Netherlands—because they were inspected by the AMC Inspector General in June 2017.

Army Sample

We reviewed 222 of 3,086 vehicles and 65 of 65 weapons for a total of 287 items. Specifically, we reviewed 47 wheeled vehicles at the Zutendaal, Belgium, site and 83 wheeled vehicles, 92 tracked vehicles, and 65 weapons at the Leghorn Army Depot site in Livorno, Italy.[18]

[18] Tracked vehicles were determined by the item category column found in Army War Reserve Deployment System and include items such as tractors and loaders.

We did not include the 47 wheeled vehicles at the Zutendaal, Belgium, site in our finding because the location only recently (May 2017) began receiving equipment and therefore was not yet conducting maintenance on the equipment. As a result, we could not determine whether the Army maintained and stored APS-2 in accordance with established maintenance schedules and storage requirements at this site. However, we reviewed the Army order that required PMCS service for all equipment shipped to Zutendaal, which would allow Army officials at Zutendaal 2 years to establish maintenance operations to keep the equipment in compliance with appropriate maintenance schedules.

Marine Corps Sample

We reviewed 165 of 655 vehicles and 36 of 173 weapons for a total of 201 items. Specifically, we reviewed 33 wheeled vehicles and 2 tracked vehicles at the Bjugn cave; 44 wheeled vehicles, 27 tracked vehicles, and 30 weapons at the Frigaard cave; and 48 wheeled vehicles, 11 tracked vehicles, and 6 weapons at the Tromsdal cave.

Use of Computer-Processed Data

We used computer-processed data to perform this audit. Specifically, we used inventory records from Army War Reserve Deployment System for APS-2 and GCSS-MC for MCPP-N to identify our audit universes for Army and Marine Corps prepositioned stock in USEUCOM. We used these universes to develop our samples, which we used to test the effectiveness of maintenance and storage for prepositioned stocks in USEUCOM. We verified that the serial numbers of items in our sample matched the serial numbers on the items during our site visit equipment inspections. As a result, we determined that the universe data were sufficiently reliable for the purpose of this report. In addition, we used maintenance records from GCSS-MC to test whether maintenance was performed in accordance with required maintenance cycles for the MCPP-N sample items. However, based on our analysis, we determined that the maintenance records from GCSS-MC were not reliable. We discuss the problems with accurately entering completed maintenance records in GCSS-MC in the Finding.

Use of Technical Assistance

We consulted with the DoD Office of Inspector General (DoD OIG) Quantitative Methods Division (QMD) on the selection of our nonstatistical random sample of 287 of 3,151 APS-2 items and 201 of 828 MCPP-N items. The audit team provided the APS-2 universe in Livorno and Zutendaal and the MCPP-N universe in Bjugn, Frigaard, and Tromsdal to the QMD with the parameters to only include

Supply Class VII, and item categories of weapons and vehicles to obtain the APS-2 and MCPP-N listing for our maintenance and inventory review. QMD provided a nonstatistical random sample of Supply Class VII items in Livorno and Zutendaal for APS-2; and Bjugn, Frigaard, and Tromsdal for MCPP-N.

Prior Coverage

During the last 5 years, the DoD OIG and the Army Audit Agency (AAA) issued two reports discussing the management of storage and maintenance of prepositioned stocks. Unrestricted DoD OIG reports can be accessed at http://www.dodig.mil/reports.html/. Unrestricted Army Audit Agency reports can be accessed from .mil and gao.gov domains at https://www.aaa.army.mil/.

DoD OIG

Report No. DODIG-2018-132, "Management of Army Equipment in Kuwait and Qatar," June 29, 2018

> The DoD OIG found that the Army did not ensure that URS Federal Services personnel properly maintained the prescribed cyclic maintenance schedules for APS-5 vehicles and weapons systems stored in Kuwait and Qatar. Specifically, 401st AFSB personnel relied on the contractor to adhere to prescribed maintenance schedules and did not verify that the contractor's maintenance schedules complied with Army TM 38-470 and contract requirements. In addition, accountability officers at the 401st AFSB did not consistently account for APS-5 equipment.

Army

Report No. A-2014-0050-ALE, "Army Prepositioned Stocks Leghorn Army Depot Livorno, Italy," March 5, 2014

> The Army Audit Agency found that, although the Army had enough space at AFSBn-Italy to meet current storage requirements, the 3rd Battalion, 405th AFSB, could better maximize its use of the controlled humidity space to accommodate future requirements and reduce equipment maintenance cost. In addition, the relative humidity and physical security of the facilities were not sufficient to ensure proper storage and protection of equipment. Specifically, Installation Management Command did not maintain and sustain the humidity-control system, or conduct a risk analysis and physical security inspections.

Management Comments

Deputy Chief of Staff of the Army, G-4 (Logistics)

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-4
500 ARMY PENTAGON
WASHINGTON, DC 20310-0500

DALO-OPM

27 July 2018

MEMORANDUM FOR THE U.S. ARMY AUDIT AGENCY (USAAA) – Audit Coordination & Follow-up Office

SUBJECT: Response to DODIG Report: Management of Army Equipment in U.S. European Command (Project No. D2017-D000RE-0197.000) (TMT Tasker: HQDA20180720TIQE8T)

1. Objective: The Department of Defense Inspector General (DoDIG) conducted an audit on Army Prepositioned Stocks (APS) in U.S. European Command to determine whether prepositioned stocks were maintained and stored in coordination with (IAW) established maintenance schedules to include storage requirements. This DoDIG Audit began in March 2018 and concluded July 2018.

2. Draft Audit Report dated 20 July 2018 (received 25 July) for Headquarters Department of the Army (HQDA) G4 review IAW Headquarters Army Materiel Command (HQAMC) to address recommendation 1, which has two findings listed as (a & b). They are listed below with accompanying corresponding responses:

   DoDIG Recommendation 1: We recommend that the Deputy Chief of Staff of the Army, G-4 (Logistics), in conjunction with the Commander, U.S. Army Materiel Command (USAMC), update Army Technical Manual (TM) 38-470 to include requirements that:

   a. Specify who is responsible for maintaining controlled humidity (CH) levels and performing inspections for the controlled humidity facilities.

      Findings from the DoDIG draft report state that Leghorn (Livorno, Italy) Army Field Support battalion – Africa (AFSBn-Africa) officials did not maintain relative humidity levels. TM 38-470 does not specify who is responsible.

      AMC/DA-G4 coordinated response: TM 38-470 paragraph 2.2.h states, "All CH facilities will have a site plan whereby the integrity of each CH system is periodically evaluated." AMC corrective action will be to publish directives in the current update cycle to TM 38-470 with specific guidance outlining schedules for planned inspections of CH APS facilities.

Deputy Chief of Staff of the Army, G-4 (Logistics) (cont'd)

DALO-OPM
SUBJECT: DODIG Report: Management of Army Equipment in U.S. European Command (Project No. D2017-D000RE-0197.000)

b. Clearly state how often the preventative maintenance on the APS weapons should be maintained and ensure consistency in other applicable criteria.

Findings from the draft DoDIG report state that officials did not specify in the TM 38-470 how often personnel should perform preventive maintenance on the Army Prepositioned Stock weapons.

AMC/DA-G4 coordinated response: AR 750-1 Section 4-2.h. (7) states, "Small arms and crew-served weapons (machine guns and mortars) that are maintained in a humidity-controlled area and not removed for any reason at any time during the year will be serviced annually." AMC corrective action will direct Army Sustainment Command (ASC) to specify maintenance frequencies in TM 38-470.

3. My point of contact is [redacted], or [redacted]

E. LEE ENGLISH
COL, LG
Chief, Strategic Mobility Division

2

U.S. Marine Corps Installations and Logistics

DEPARTMENT OF THE NAVY
HEADQUARTERS, UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON, DC 20350-3000

IN REPLY REFER TO:
7500
DMCS-A
21 Aug 18

From: Head, Audit Coordination, Office of the Director, Marine Corps Staff
To: Program Director for Readiness and Global Operations, Office of Inspector General, U.S. Department of Defense

Subj: MANAGEMENT OF ARMY AND MARINE CORPS PREPOSITIONED STOCKS IN U.S. EUROPEAN COMMAND (OFFICIAL DRAFT AUDIT REPORT PROJECT NO. D2017-D000RE-0197.000 DATED JULY 20, 2018)

Ref: (a) DODIG Memorandum for Distribution dtd July 20, 2018

Encl: (1) U.S. Marine Corps Official Responses

1. Reference (a) requested U.S. Marine Corps management comments to the subject audit report and its recommendations no. 3.a. through 3.e.

2. Enclosure (1) provides the requested responses from the Headquarters Marine Corps (HQMC) Deputy Commandant for Installations and Logistics.

3. We appreciate the opportunity to respond to the report.

4. For questions regarding the enclosure, I can be reached at [redacted] or HQMCAuditLiaisons@usmc.mil.

CHARLES K. DOVE

Copy to:
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U.S. Marine Corps Installations and Logistics (cont'd)

"MANAGEMENT OF ARMY AND MARINE CORPS PREPOSITIONED STOCKS IN U.S. EUROPEAN COMMAND"

UNITED STATES MARINE CORPS COMMENTS TO THE DODIG RECOMMENDATIONS

RECOMMENDATION 3.a.: DODIG recommends that the Deputy Commandant, Marine Corps Installations and Logistics, in conjunction with Commander, Blount Island Command:

a. Assess the overall degree of corrosion in the caves where Marine Corps Prepositioning Program-Norway equipment is stored.

DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS RESPONSE – AUGUST 2018: Concur. Representatives from Marine Corps Systems Command (Corrosion Prevention and Control (CPAC) Program Management Office) and Blount Island Command (BICmd) are scheduled to perform a corrosion assessment of Marine Corps Prepositioning Program-Norway (MCPP-N) equipment at storage locations in Norway during August 2018. The assessment will be performed in accordance with established Marine Corps policy.

RECOMMENDATION 3.b.: DODIG recommends that the Deputy Commandant, Marine Corps Installations and Logistics, in conjunction with Commander, Blount Island Command:

b. Update U.S. Marine Corps Technical Manual 4790-14/1G, "Logistics Support for Marine Corps Prepositioning Program-Norway (MCPP-N)," June 28, 2013, and the local bilateral agreement to include a requirement for the Norwegian Defense Logistics Organization to monitor and control the humidity levels within the caves where equipment is stored.

DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS RESPONSE – AUGUST 2018: Concur. Interim guidance will be released by Headquarters, U.S. Marine Corps, Installations and Logistics Department (HQMC, I&L) that sets standards and requires monitoring of humidity levels at MCPP-N storage locations. Establishment of these standards and procedures have already been socialized with our Norwegian partners during a bilateral meeting in April 2018 and initial concurrence gained. Technical Manual (TM) 4790-14/1G is undergoing a revision by HQMC, I&L that will incorporate this interim guidance and is expected to be published in 2019. The Local Bilateral Agreement (LBA) will be updated by BICmd and is anticipated to be released in 2019, stating how the surveillance program is to be managed and implemented. The TM and LBA are bilateral documents between the U.S. and Norway requiring coordination and approval by both countries.

RECOMMENDATION 3.c.: DODIG recommends that the Deputy Commandant, Marine Corps Installations and Logistics, in conjunction with Commander, Blount Island Command:

c. Develop maintenance requirements for weapons stored in Level A packaging.

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U.S. Marine Corps Installations and Logistics (cont'd)

DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS RESPONSE – AUGUST 2018: Concur. HQMC, I&L is reviewing established Marine Corps maintenance and Level A packaging policy with Marine Corps Logistics Command (MARCORLOGCOM) and BICmd in order to determine if additional guidance is required to address the unique challenges of storage and maintenance requirements within our Prepositioning Programs while not limiting availability of prepositioned equipment to support exercises and/or operational support requirements.

RECOMMENDATION 3.d.: DODIG recommends that the Deputy Commandant, Marine Corps Installations and Logistics, in conjunction with Commander, Blount Island Command:

d. Develop standard operating procedures for recording and documenting completed weapons and vehicle maintenance within Global Combat Support System-Marine Corps.

DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS RESPONSE – AUGUST 2018: Concur. In accordance with established Marine Corps policy, BICmd will continue to reinforce maintainer adherence to existing Service-wide procedures in order to record and document weapons and vehicle maintenance actions performed on MCPP-N equipment in Global Combat Support System-Marine Corps (GCSS-MC). Standard operating procedures will be developed by BICmd for ease of reference and standardization that summarize existing GCSS-MC procedures for maintainers supporting MCPP-N.

RECOMMENDATION 3.e.: DODIG recommends that the Deputy Commandant, Marine Corps Installations and Logistics, in conjunction with Commander, Blount Island Command:

e. Develop an automated process for monitoring completed maintenance cycles and include a requirement for the Norwegian Defense Logistics Organization to utilize the new process in the local bilateral agreement.

DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS RESPONSE – AUGUST 2018: Concur. Norwegian Defense Logistics Organization, Marine Expeditionary Brigade Section (NDLO/MEB Section) is implementing a Microsoft (MS) Project application to schedule and validate all maintenance required on MCPP-N equipment in Norway. The MS Project initiative commenced on 1 January 2018 and is expected to be fully implemented during 2019. The LBA will be updated by BICmd and will incorporate MS Project application requirements in the next revision, which is anticipated for bilateral approval and release in 2019.

Acronyms and Abbreviations

AFSB	Army Field Support Brigade
AFSBn	Army Field Support Battalion
AMC	Army Materiel Command
APS	Army Prepositioned Stock
APS-2	Army Prepositioned Stock – Europe and Africa(G
AR	Army Regulation
BICmd	Blount Island Command
GCSS-MC	Global Combat Support System–Marine Corps
I&L	Installations and Logistics
LBA	Local Bilateral Agreement
MCPP-N	Marine Corps Prepositioning Program–Norway
NDLO	Norwegian Defense Logistics Organization
PMCS	Preventive Maintenance Checks and Services
TM	Technical Manual
USEUCOM	U.S. European Command

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