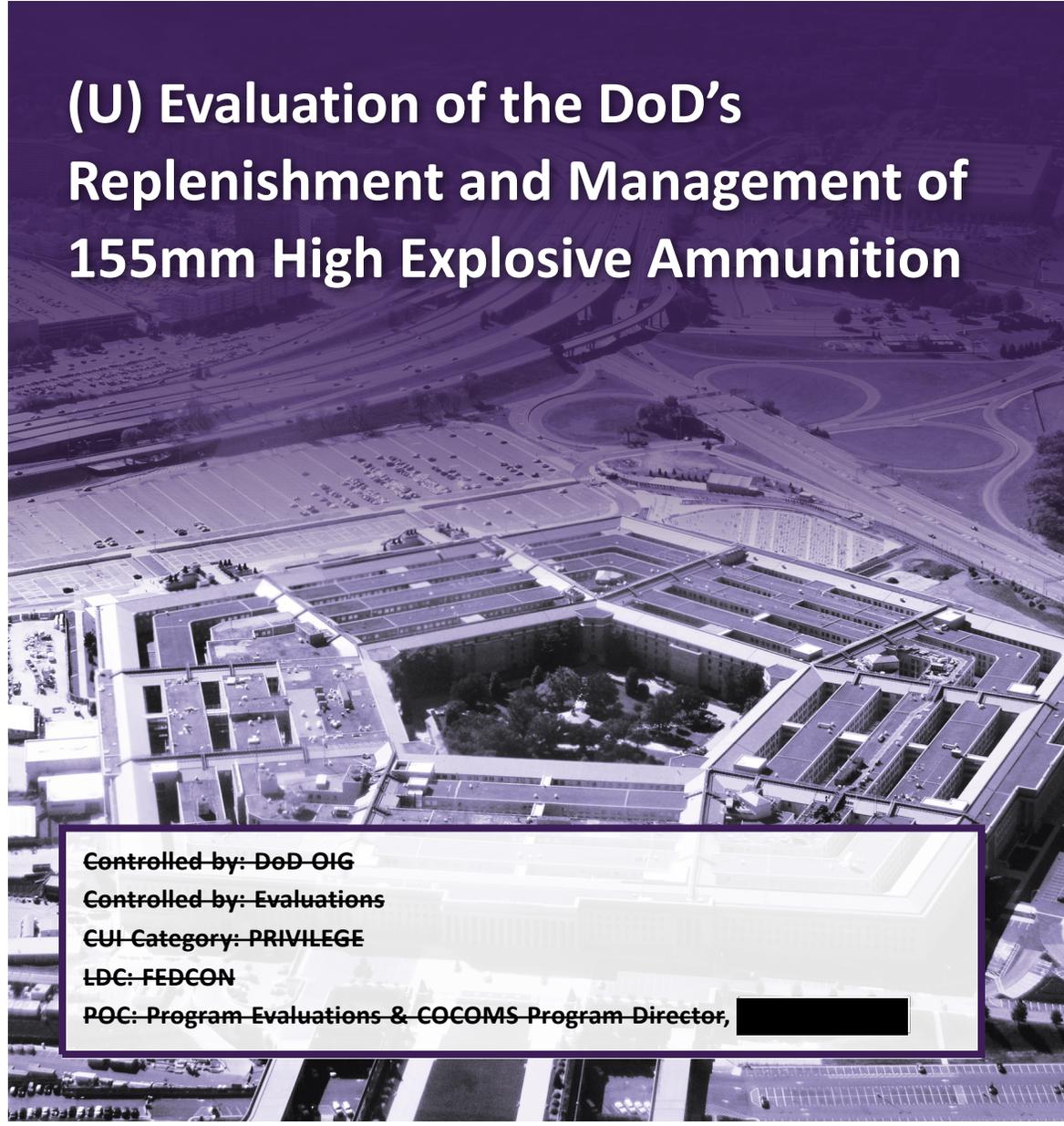


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INSPECTOR GENERAL

U.S. Department of Defense

JULY 24, 2024



(U) Evaluation of the DoD's Replenishment and Management of 155mm High Explosive Ammunition

Controlled by: DoD-OIG

Controlled by: Evaluations

CUI Category: PRIVILEGE

LDC: FEDCON

POC: Program Evaluations & COCOMS Program Director, [REDACTED]

INDEPENDENCE ★ INTEGRITY ★ EXCELLENCE ★ TRANSPARENCY

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(U) Results in Brief

(U) Evaluation of the DoD's Replenishment and Management of 155mm High Explosive Ammunition

July 24, 2024

(U) Objective

(U) The objective of this evaluation was to determine whether the DoD developed an effective strategy to meet the 155mm High Explosive (HE) ammunition total munitions requirements, balancing war reserve, training, and testing requirements for 155mm HE ammunition.

(U) Background

~~(CUI)~~ In FY 2022 through FY 2024, the United States funded security assistance packages using supplemental appropriations, including Presidential Drawdown Authority. From August 2021 through March 2024, the President authorized 55 drawdowns of equipment and services from DoD stocks and defense services for the Government of Ukraine. The DoD authorized the transfer of three types of 155mm HE ammunition to the Government of Ukraine from Army and Marine Corps stockpiles. As of March 12, 2024, the President authorized the transfer of [REDACTED] rounds of 155mm HE ammunition to the Government of Ukraine using presidential drawdowns.

(U) DoD Instruction 3000.04 requires the U.S. Armed Forces to establish a Total Munitions Requirement in accordance with the Munitions Requirements Process. The Total Munitions Requirement consists of all munition requirements for war reserve, training, and testing. The training and testing requirements are the munitions required to train the force and support Military Department programs, ensuring that

(U) Background (cont'd)

(U) weapons and platforms deliver the intended effectiveness. The war reserve munitions requirements component of the Total Munitions Requirement consists of the global floor and the strategic readiness requirement.

(U) Finding

(U) Army and Marine Corps officials implemented an effective strategy for managing Army and Marine Corps on hand inventory to support war reserve, training, and testing requirements for 155mm HE ammunition. Specifically, Army officials prioritized their on-hand inventory to support training and testing requirements while Marine Corps officials prioritized war reserve requirements. When test and training objectives did not require a primary ammunition, Army officials substituted an older variant of 155mm HE ammunition for the newer variant to preserve the newer version for on-hand inventory. Additionally, Army, Marine Corps, and Joint Staff officials compared worldwide inventories against global floor requirements on a weekly basis. Furthermore, Army officials invested in the industrial base to increase production of 155mm HE ammunition.

(U) As a result, Army and Marine Corps officials maintained sufficient 155mm HE ammunition to meet threats to vital U.S. national security interests. As of September 2023, the Army and Marine Corps' on-hand inventory of 155mm HE ammunition exceeded the global floor requirements. Of the 1,272 Army unit status reports we reviewed for FY 2022 and FY 2023, we found no instances in which a unit reported a lack of 155mm HE ammunition available for training. Of the 404 Marine Corps unit status reports reviewed for FY 2022 and FY 2023, only 7 reports indicated that the reporting unit lacked sufficient 155mm HE ammunition for training. Furthermore, we reviewed testing requirements, authorizations, and expenditures from FY 2020 to FY 2023 and determined that Army officials had sufficient on-hand inventory of 155mm HE ammunition for testing, such as, for capability, stockpile reliability, and armament rebuilding.

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

July 24, 2024

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR POLICY
SECRETARY OF THE ARMY
COMMANDER, UNITED STATES MARINE CORPS
AUDITOR GENERAL, DEPARTMENT OF THE ARMY
AUDITOR GENERAL, DEPARTMENT OF THE NAVY

SUBJECT: (U) Evaluation of the DoD's Replenishment and Management of 155mm High Explosive Ammunition (Report No. DODIG-2024-113)

(U) This final report provides the results of the DoD Office of Inspector General's evaluation. We did not make any recommendations; therefore, no management comments were required.

(U) We coordinated a discussion draft of this report with officials from the Under Secretary of Defense for Policy, the Joint Staff, and the Departments of the Army and Headquarters, Marine Corps. The Under Secretary of Defense for Policy and the Departments of the Army and Marine Corps responded with informal comments concurring with our report. The Under Secretary of Defense for Policy and the Department of the Army provided technical comments, which we incorporated, as appropriate.

(U) If you have any questions, please contact [REDACTED]

FOR THE INSPECTOR GENERAL:

A handwritten signature in black ink that reads "Bryan Clark".

Bryan T. Clark
Assistant Inspector General for Evaluations
Programs, Combatant Commands, and Operations

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(U) Introduction

(U) Objective

(U) The objective of this evaluation was to determine whether the DoD developed an effective strategy to meet the 155mm High Explosive (HE) ammunition total munitions requirements (TMR), balancing war reserve, training, and testing requirements for 155mm HE ammunition.¹

(U) Background

~~(CUI)~~ As of March 2024, the United States had provided approximately \$47 billion in security assistance for training and equipment to the Government of Ukraine (GoU) from 2014, when Russia first invaded the country, through the current conflict following the full-scale invasion in 2022. In FY 2022 through FY 2024, the United States funded security assistance packages using supplemental appropriations, including Presidential Drawdown Authority. The Presidential Drawdown Authority allows the President to respond to unforeseen emergencies and other requirements without the prerequisite of additional legislative authority or appropriations. From August 2021 through March 2024, the President authorized 55 drawdowns of equipment and services from DoD stocks and defense services for the GoU. As of March 12, 2024, the President authorized the transfer of [REDACTED] rounds of the 155mm HE ammunition to the GoU using presidential drawdowns.

(U) The DoD uses the 155mm HE ammunition with the M109A6 Paladin Self-Propelled Howitzer, the Lightweight M777A2 Towed Howitzer, and the M198 Series Howitzer weapon systems. The M109A6 Paladin 155mm Self-Propelled Howitzer is a tracked combat vehicle that provides the primary indirect-fire support to Armored Brigade Combat Teams. The M777A2 is a lightweight howitzer that replaced the M198 155mm weapon. It provides artillery fire support to maneuver forces. The Army and Marine Corps are the only Services that use the 155mm HE ammunition. The DoD authorized the transfer of three types of 155mm HE ammunition to the GoU from Army and Marine Corps stockpiles.

- (U) 155mm HE Rocket Assisted Projectile M549—The DoD designed the Rocket Assisted Projectile to extend the range and improve the effectiveness of the 155mm Howitzer. The DoD used the 155mm HE

¹ (U) This report contains information that has been modified because it was identified by the Department of Defense as Controlled Unclassified Information (CUI) that is not releasable to the public. CUI is Government-created or owned unclassified information that allows for, or requires, safeguarding and dissemination controls in accordance with laws, regulations, or Government-wide policies.

(U) In this report, we define effective as the ability for the DoD to meet war reserve, training, and testing requirements for 155mm HE ammunition.

(U) Rocket Assisted Projectile for fragmentation and blast effects against personnel and materiel. The M549 model has been in the DoD stockpile for over 30 years.²

- (U) 155mm HE M795 with trinitrotoluene or insensitive munitions explosive—The M795 has been part of the Joint Program Executive Office, Armaments and Ammunition, ammunition inventory since 1999 and is still in production. The M795 is an artillery projectile employed against personnel, trucks, electronic surveillance and target acquisition devices, supply points, command and control and communications installations, and mechanized and armed forces. The M795 is filled with either trinitrotoluene or insensitive munitions explosive.³
- (U) 155mm HE M107 HE projectile—The M107 is a legacy munition and is no longer in production. The DoD used the M107 for blast effect and fragmentation in support of ground forces.⁴

(U) The 155mm HE M795 trinitrotoluene or insensitive munitions explosive, HE RAP M549 and M549A1, are primary ammunitions. A primary ammunition is the most modern-approved capability that is available and is the variant of a capability that the Army places requirements on and would procure in support of its war-reserve, training, and testing requirements. We reviewed the munitions requirements for the 3 projectiles provided to the GoU in the first 41 drawdowns from August 2021 through June 2023. See Table 1 for the quantity of 155mm HE by projectile type and service authorized for transfer to the GoU for the first 41 drawdowns.

~~(CUI)~~ Table 1. Quantity of 155mm HE Ammunition Transferred to the Government of Ukraine by Service from August 2021 through June 2023

(CUI) Ammunition	Quantity from the Army	Quantity from the Marine Corps	Total Quantity
155mm HE M795 Trinitrotoluene/ Insensitive Munitions Explosive	██████	██████	██████
155mm HE RAP M549 & M549A1	██████	██████	██████
155mm M107 High Explosive Projectile	██████	█	██████
Total	██████	██████	██████ (CUI)

(U) Source: The DoD OIG, based on Presidential drawdowns 1 through 41.

² (U) The M549 has two versions of the M549: M549 and M549A1. Both versions of the M549 share the same DoD Identification Code.

³ (U) Trinitrotoluene is a highly explosive and insensitive munition explosive is more stable.

⁴ (U) A deep fuze cavity is an intrusion variant that permits the use of the M782 Multi-Option Fuze.

(U) DoD Munitions Requirements Process

(U) DoD Instruction 3000.04 requires the U.S. Armed Forces to establish a TMR in accordance with the Munitions Requirements Process (MRP).⁵ The MRP is a 2-year process which includes a pre-program objective memorandum sufficiency assessment and a post-program objective memorandum assessment. The Military Services use the MRP to develop their munition requirements in coordination with the Combatant Commanders for input to the TMR. The TMR consists of all munition requirements for war reserve, training, and testing. The training and testing requirements are the munitions required to train the force and support Military Department programs, ensuring that weapons and platforms deliver the intended effectiveness. Testing requirements for TMR include operational, stockpile reliability, and armament rebuilding and do not include testing of items in research and development. We reviewed the 155mm HE munition requirements beginning 2 years before (2019) to the first drawdown for the GoU through the 41st drawdown in June 2023.

(CUI)

See Appendix B for the connection between the GF, the strategic readiness requirement, and on-hand inventory.

(U) Global Floor

(U) The GF is an inventory sufficiency measure, by munition item, derived from short-term and long-term munitions requirements calculations.⁶ The GF consists of the following: homeland defense requirements, counter violent extremist organizations requirements, deterrence stocks, OPLAN completion beyond deterrence, and swing stocks calculated by munitions type and inclusive of all Services using the munition.

- (U) Homeland defense requirements are munitions required to arm allocated forces for U.S. territories and possessions defense missions.
- (U) Counter violent extremist organizations requirements are the sum of the munitions required to arm forces to conduct current counterterrorism operations and continue predicted steady state operations.

⁵ (U) DoDI 3000.04, "DoD Munitions Requirements Process (MRP)," September 24, 2009 (Incorporating Change 2, August 31, 2018).

⁶ (U) Near year-unconstrained (short-term), is defined as ammunition assessment based on inventories available by fiscal year end of the execution year. Short-term is constrained by operation plan force structure and is not limited to current funding but is limited to maximum industrial base capabilities. Out year unconstrained (long-term), is defined as an ammunition assessment based on projected inventories. Long-term is defined as the optimal mix of ammunitions to execute out-year phased threat distribution, limited by end-of-Future Years Defense Plan force structure and the maximum industrial base capabilities, but not limited by funding.

- (U) Deterrence stocks are munitions stocks for forces currently operating forward in theater to deter aggression.
- (U) OPLAN completion beyond deterrence stocks are munitions required to successfully execute the commander's operational plan beyond those that have been identified as deterrence stocks for that theater.
- (U) Swing stocks are war reserve munitions inventories that are pre-positioned on a lift-capable platform or platforms for forward movement to or within a theater of operations. As such, swing stocks are staged ashore or afloat to support war reserve requirements of more than one contingency in more than one theater.

(U) Strategic Readiness Requirement

(U) The strategic readiness requirement is the quantity of munitions needed to arm forces not committed to support combat operations, and forces in the strategic reserve. The requirement includes additional munitions requirements generated from treaties or statutory obligations to allies.

(U) On-Hand Inventory

(U) On-hand inventory is assets located in a DoD facility, under DoD control, or in a DoD contractor-managed inventory point or location.

(U) DoD Roles and Responsibilities

(U) Multiple DoD organizations participate in the MRP process, including the Under Secretary of Defense for Acquisition and Sustainment; Under Secretary of Defense for Policy; Director of Cost Assessment and Program Evaluation; Secretaries of the Military Departments; and Chairman of the Joint Chiefs of Staff.⁷ In addition, the Single Manager for Conventional Ammunition (SMCA) is responsible for coordinating and integrating logistics functions for U.S. forces.

(U) Under Secretary of Defense for Acquisition and Sustainment

(U) The Under Secretary of Defense for Acquisition and Sustainment oversees the compliance of the DoD MRP. The Under Secretary is responsible for developing and distributing a DoD MRP Implementation Guidance memorandum in coordination with the Under Secretary of Defense for Policy and the Chairman of the Joint Chiefs of Staff.

⁷ (U) In 2018 the DoD eliminated the Under Secretary of Defense for Acquisition, Technology, and Logistics position and divided its responsibilities among two new positions, the Under Secretary of Defense for Acquisition and Sustainment and the Under Secretary of Defense for Research and Engineering.

(U) In addition, the Under Secretary of Defense for Acquisition and Sustainment collects and distributes phased threat distributions and TMRs to MRP participants, as appropriate.

(U) Under Secretary of Defense for Policy

(U) The Under Secretary of Defense for Policy, in coordination with the Chairman of the Joint Chiefs of Staff and the Heads of the DoD Components, identifies both the current-year and future-year scenarios; and the forward presence and current operational demands for use in the MRP.

(U) Cost Assessment and Program Evaluation

(U) The Director of Cost Assessment and Program Evaluation is responsible for ensuring that all relevant and identified munitions issues being validated in the munitions assessments are reflected in the joint programming guidance.⁸ The Director of Cost Assessment and Program Evaluation is also responsible for reviewing the Military Services' Program Objective Memorandum munitions programs to ensure the programs are consistent with the DoD MRP process and provide balance among munitions, force structure, and modernization programs.

(U) Military Departments

(U) The Secretaries of the Military Departments are responsible for reviewing all products of the MRP. They ensure that the Military Departments work directly with the Combatant Commanders and the DoD Components to develop near-year and out-year munitions requirements.⁹ In addition, they ensure that the Military Services develop a set of near-year munitions requirements using "unconstrained" inventories and an additional set of near-year munitions requirements using "constrained" inventories.¹⁰

⁸ (U) The Joint Programming Guidance, also referred to as the Defense Planning Guidance, is the final document of the planning process. It is issued each year and contains fiscally constrained programmatic guidance and performance measures. The Joint Programming Guidance drives the development of the Program Objective Memorandum and Budget Estimate Submissions.

⁹ (U) The near-year is the time period leading up to the start of the Future Years Defense Plan in question (for example, Program Objective Memorandum FY 2010, the near-year ends October 1, 2009). The out year is the last-year of the Future Years Defense Plan in questions (for example, for Program Objective Memorandum FY 2010, the Future Years Defense Plan is 2010 through 2015, and the out-year is 2015).

¹⁰ (U) Constrained requirements are the munitions requirements limited by projected inventory. Unconstrained requirements are the munitions requirements, not limited by projected inventory or funding. However, unconstrained requirements may be limited by reasonable production capacity, weapon system capabilities (integration), and externally defined caps on procurement (outside the TMR provider).

(U) Chairman of the Joint Chiefs of Staff

(U) The Chairman of the Joint Chiefs of Staff reviews all products of the MRP. They develop policy guidance for the MRP in coordination with Under Secretary of Defense for Policy and other DoD Component Heads. In addition, the Joint Chiefs of Staff distributes the near-year and out-year munitions requirements to the appropriate Combatant Commands, the Under Secretary of Defense for Acquisition and Sustainment, and other appropriate DoD MRP participants.

(U) Single Manager for Conventional Ammunition

(U) DoDI 5160.68 assigns the SMCA responsibilities to the Secretary of the Army.¹¹ The Secretary of the Army delegated the SCMA responsibility to the Assistant Secretary of the Army (Acquisition, Logistics and Technology), according to Army regulation 700-28.¹² The Assistant Secretary of the Army (Acquisition, Logistics and Technology) through the Joint Program Executive Office Armaments and Ammunitions (JPEO A&A):

- (U) serves as the SMCA executor;
- (U) at the direction of the SecDef and through HQDA, acquires conventional ammunition in the DoD and integrates logistics functions for U.S. forces;
- (U) oversees project manager (PM) combat ammunition systems, PM close combat systems, PM maneuver ammunition systems, and PM towed artillery systems; and
- (U) serves as the project director of joint services and project director of joint products.

(U) The JPEO A&A is responsible for the life cycle management of conventional ammunition. JPEO A&A consists of seven project offices which includes PM combat ammunition systems. Under the SMCA responsibilities, the PM combat ammunition systems procures ammunition for the Army and the Marine Corps, as well as executes the duties of life cycle program manager for artillery. This would include the 155mm HE ammunition that is used by the Army and Marine Corps. The PM combat ammunition systems conducts most of the artillery ammunition testing for the Army.

(U) The SMCA leads in the development and publication of an overarching conventional ammunition industrial base strategic plan, which supports the Military Department and U.S. Special Operations Command conventional ammunition

¹¹ (U) DoDD5160.68, "Single Manager for Conventional Ammunition," March 15, 2022.

¹² (U) Army Regulation 700-28, "Ammunition Management," October 9, 2020.

(U) requirements as reflected in the Future Years Defense Plan.¹³ The SMCA annually identifies and prioritizes production-base deficiencies and formulates corrective actions to minimize those deficiencies.

(U) The four major goals of the SMCA industrial base strategic planning are:

- (U) ensuring readiness while balancing acquisition management and industrial base risks,
- (U) ensuring depot logistics readiness while balancing stockpile requirement (operational readiness) and financial management risks,
- (U) transforming the industrial base to meet current and future requirements, and
- (U) operating effectively and efficiently.

¹³ (U) The Defense industrial base is defined as the Department of Defense, Government, and private sector worldwide industrial complex with capabilities to perform research and development and design, produce, and maintain military weapon systems, subsystems, components, or parts to meet military requirements.

(U) Finding

(U) The DoD Has Implemented an Effective Strategy for Managing Army and Marine Corps On-Hand Inventory to Support War Reserve, Training, and Testing Requirements for the 155mm HE Ammunition

(U) Army and Marine Corps officials implemented an effective strategy for managing Army and Marine Corps' on-hand inventory to support war reserve, training, and testing requirements for the 155mm HE ammunition. Specifically, Army officials prioritized their on-hand inventory to support training and testing requirements while Marine Corps officials prioritized war reserve requirements. When test and training objectives did not require a primary ammunition, Army officials substituted an older variant for a newer variant of the 155mm HE ammunition to preserve the newer version for on-hand inventory. Additionally, Army, Marine Corps, and Joint Staff officials compared worldwide inventories against GF requirements on a weekly basis to verify that enough 155mm HE ammunition was available to support operational plans in accordance with the National Defense Strategy. Furthermore, Army officials invested in the industrial base to increase production of 155mm HE ammunition.¹⁴

(U) As a result, Army and Marine Corps officials maintained sufficient 155mm HE ammunition to meet threats to vital U.S. national security. As of September 2023, the Army and Marine Corps on-hand inventory of 155mm HE ammunition exceeded the GF requirements. Of the 1,272 Army unit status reports we reviewed for FY 2022 and FY 2023, we did not identify that a unit reported the lack of 155mm HE ammunition available for training.¹⁵ Of the 404 Marine Corps unit status reports we reviewed for FY 2022 and FY 2023, only 7 reports (3 reports from one unit and 4 from another unit) indicated that the reporting unit lacked sufficient 155mm HE ammunition for training.¹⁶ Specifically, two units reported that an ammunition shortage affected training from February 2023 through August 2023. Furthermore, we reviewed testing requirements, authorizations, and expenditures from FY 2020 to FY 2023 and determined that Army officials had sufficient 155mm HE ammunition available for testing on-hand inventory.

¹⁴ (U) The Army executing the mission of the SMCA.

¹⁵ (U) The Services report on their readiness in the Defense Readiness Reporting System.

¹⁶ (U) The 7 Marine Corps unit status reports were 1.7 percent of Marine Corps unit status reports reviewed.

(U) DoD Officials Implemented a Strategy for Managing 155mm HE Ammunition

(U) Army and Marine Corps officials implemented a strategy for managing Army and Marine Corps on-hand inventory to support war reserve, training, and testing requirements for the 155mm HE ammunition.¹⁷ Specifically, Army and Marine Corps officials prioritized their on-hand inventory and substituted munitions for training and testing. Additionally, Army, Marine Corps, and Joint Staff officials compared worldwide on-hand inventories against the global floor to ensure availability of sufficient WRM. Furthermore, DoD officials invested in the industrial base to increase production of 155mm HE ammunition.

(U) The Army and Marine Corps Prioritized Use of their On-hand Inventory

(U) Army and Marine Corps officials prioritized the use of their on-hand inventory in accordance with Service policy to support training, testing, and their ability to support the Combatant Commands. Specifically, the Army prioritized training requirements over war reserve requirements. According to Army policy, prioritization involves establishing the relative importance of one validated requirement over another. Prioritization is a key element of the munitions management process because it specifies which munitions requirements must be resourced first or at a higher level than other munitions requirements.¹⁸ According to Army officials, and our analysis of training requirements and authorizations, the Army prioritized training over war reserve and at times pulled stock from its war reserve to support drawdowns of 155mm HE ammunition for the GoU. Specifically, we compared the quantity of 155mm HE ammunition requested for training for FY 2021 through FY 2023 with the quantity of the projectiles authorized for training during the same period. From FY 2021 through FY 2023, Army officials authorized all 155mm HE ammunition requested for training.

(CUI) [REDACTED]

[REDACTED] According to Marine Corps policy the “Ammunition Working Group shall evaluate the impact of the Marine Corps Class V(W) inventory to support the TMR.” In addition, the Deputy Commandant, Plans, Policies, and Operations publishes the Ground Ammunition Class V(W) Prioritization Policy annually, and the Program Manager Ammunition provides operational flexibility data necessary to ensure the Class V(W) requirement is

¹⁷ (U) We reviewed unit identification codes that required the use of live 155mm HE rounds in training as determined through a review of the request within the Total Ammunition Management Information System.

¹⁸ (U) AR 5-13, “Army Munitions Requirements, Prioritization, and Authorizations Management Policy,” March 31, 2021.

(~~CUI~~) logistically supportable.¹⁹ We reviewed the Marine Corps' annual Ammunition Working Groups briefing for FY 2023, which included the Class V(W) prioritization list. The briefing showed that [REDACTED]

However, Marine Corps officials minimized the impact to training by prioritizing live fire munitions training for units preparing for deployment.

(U) The Army Used Older Ammunition for Training and Testing

(U) When testing and training objectives did not require a primary ammunition, Army officials substituted an older variant of 155mm HE ammunition for a newer variant to preserve the newer variant for the war reserve. A primary ammunition is the most modern approved capability that is available and is the variant of a capability that the Army places requirements on and would procure in support of training and testing requirements. The 155mm HE M795 trinitrotoluene or insensitive munitions explosive, HE RAP M549, and M549A1 are primary ammunitions. Before the drawdowns for Ukraine, Army officials used the 155mm M795 with trinitrotoluene as its main ammunition for training. When the drawdowns put a strain on supply, Army officials used older variants of 155mm HE ammunition for M795 rounds in training, when possible, to preserve the M795 inventory. For example, Army officials stated that they used the 155mm M1122 training round, ammunition that has not been provided to the GoU, and the 155mm HE M107 projectile, as substitute munitions for training. The Army used the 155mm M1122 training round and the 155mm HE M107 projectile round as substitutes for some tests originally planned for the 155mm HE M795 with trinitrotoluene.

(U) DoD Officials Compared On-hand Inventories Against Global Floor Requirements

(U) Army, Marine Corps, and Joint Staff officials compared worldwide inventories of 155mm HE ammunition against GF requirements on a weekly basis to verify that enough ammunition was available to support operational plans in accordance with the National Defense Strategy.²⁰ See Appendix B for a discussion of on-hand inventory of 155mm HE ammunition.

¹⁹ (U) Marine Corps Order 8000.8, "Class V(W) Total Life Cycle Management," March 14, 2012. The 155mm HE is a Class V(W) munition.

²⁰ (~~CUI~~) [REDACTED]

(U) The Army Invested in the Industrial Base and Production

(U) As a part of the long-term mitigation strategy for the 155mm HE ammunition, Army officials invested in the industrial base to increase production of new and existing 155mm HE ammunition. As of January 2024, Ukraine Security Assistance Supplemental and Replenishment Funding totaled \$3.3 billion, which included \$1.9 billion for the expansion of the industrial base for the 155mm HE ammunition. The Army expanded existing production facilities in Pennsylvania and is currently building a new production facility in Texas. In September 2023, Army officials awarded contracts to meet their goal of delivering more than 80,000 155mm HE ammunition per month by the end of FY 2025.

~~(CUI)~~ In addition to increases to the industrial base, the Army plans to use programmed and supplemental funding to increase its production in current facilities. We found that the Army’s plan to replenish 155mm HE ammunition would provide sufficient ammunition for training, testing, and war reserve requirements. Specifically, we reviewed the current program funding along with the current production plans, by fiscal year, and found that on-hand inventory would meet TMR by FY 2026.

[REDACTED]

(U) The DoD Maintains Sufficient 155mm HE Ammunition to Meet Vital National Security Threats

(U) Army and Marine Corps officials maintained sufficient 155mm HE ammunition to meet threats to U.S. national security. As of September 2023, Army and Marine Corps officials maintained on-hand inventory of 155mm HE ammunition that exceeded the GF requirements. See classified Appendix B for a discussion of on-hand inventory of 155mm HE ammunition. Additionally, the Army met all its training and testing requirements while the Marine Corps only reported seven instances (1.7 percent) where a unit reported a lack of 155mm HE ammunition.

(U) The Army Reported No Instances Where the Units Lacked Ammunition to Achieve Training Requirements

(U) Of the 1,272 Army unit status reports we reviewed, we did not identify any instances where a unit reported the lack of 155mm HE ammunition available for training. Specifically, we reviewed a statistical sample of unit status reports from 54 units from a population of 121 units that had 155mm HE ammunition training

(U) requirements for FY 2019 through FY 2023.²¹ The 54 units had 1,272 training requirements. We reviewed the unit status reports for the 1,272 training requirements to determine the number of training requirements that Army units did not complete due to the lack of 155mm HE ammunition.²² The 54 units reported no instances where a unit did not complete training due to the lack of 155mm HE ammunition.

(U) The Marine Corps Reported Only Seven Instances of Missed Training Due to Lack of Ammunition

(U) Of the 404 Marine Corps unit status reports we reviewed for FY 2022 and FY 2023, units reported the lack of 155mm HE ammunition available for training in only 7 reports (1.7 percent). Therefore, a shortage of 155mm HE ammunition did not significantly affect Marine Corps training. The shortages negatively affected 2 of the 17 Marine Corps units in our review. To further minimize shortages, Marine Corps officials prioritized live fire training for units preparing for deployment in accordance with the Marine Corps strategy.

(U) The Army Had Sufficient 155mm HE Ammunition Available for Testing

(U) Between FY 2020 and FY 2023, Army officials had sufficient 155mm HE ammunition available for testing. We reviewed testing requirements, authorizations, and expenditures from FY 2020 to FY 2023. Army officials submit estimated test requirements with overage amounts 6 to 18 months before testing. Testing is sometimes delayed, cancelled, or not conducted for various reasons. Because of these reasons, expenditures are often low in comparison to requirements and authorizations. Officials from the following Army program offices submitted over 90 percent of the testing requirements for the 155mm HE ammunition from FY 2020 to FY 2023:

- (U) Project Manager, Combat Ammunition Systems;
- (U) Program Manager, Towed Artillery Systems;
- (U) Project Office, Multi-Mission Surveillance Systems; and
- (U) Project Manager, Self-Propelled Howitzer Systems.

²¹ (U) A reporting unit in the Army is a unit registered in the Defense Readiness Reporting System-Army with a parent unit identification code (a unit identification code ending with AA). Parent units are reporting unit battalions down to separate companies, detachments, or like organizations with their unit identification code ending in AA. All Army units are required to submit a unit status report.

²² (U) We requested the training requirements for all units with 155mm HE-training requirements in the Total Ammunition Management Information System for FY 2019 through FY 2023.

(U) From FY 2020 through FY 2023, these Army program office officials requested approximately 119,000 155mm HE ammunition for testing, and officials from the Army G-3/5/7 authorized 100,357 projectiles to fulfill these requests.²³ Officials from program offices return authorizations as the year of execution progresses to reduce demands on the stockpile. The Army program office officials expended 14 percent (14,160) of the 100,357 155mm HE ammunition authorized for testing. Therefore, officials from the Army offices had excess 155mm HE ammunition available for testing. Based on our review of the testing data and statements made by Army officials, we determined that Army officials had sufficient 155mm HE ammunition available for testing and testing was not impacted by the drawdowns.

(U) The DoD Has a Strategy for Managing Army and Marine Corps War Reserve, Training and Testing Requirements for 155mm HE Ammunition

(U) As a result of DoD officials implementing a strategy for managing Army and Marine Corps war reserve, training, and testing requirements for 155mm HE ammunition, DoD officials kept sufficient 155mm HE ammunition to respond to future national security threats while also meeting Army and Marine Corps training and testing requirements. Therefore, we are not making any recommendations to the DoD in this report.

²³ (U) Deputy Chief of Staff for Operations, Plans, and Training, G-3/5/7 is the lead Army agency for the development, validation, and prioritization of Army munitions requirements.

(U) Appendix A

(U) Scope and Methodology

(U) We conducted this evaluation from June 2023 through June 2024 in accordance with the “Quality Standards for Inspection and Evaluation,” published in December 2020 by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that we adequately plan the evaluation to ensure that objectives are met and that we perform the evaluation to obtain sufficient, competent, and relevant evidence to support the findings, conclusions, and recommendations. We believe that the evidence obtained was sufficient, competent, and relevant to lead a reasonable person to sustain the findings, conclusions, and recommendations.

(U) We identified and reviewed laws, policies, directives, and orders to determine DoD’s roles and responsibilities for the 155mm HE ammunition total munitions requirements, balancing war reserve, training, and testing requirements for the 155mm HE ammunition. Specifically, we reviewed the following criteria.

- (U) DoD Instruction 3000.04, “DoD Munitions Requirements Process (MRP),” September 24, 2009 (Incorporating Change 2, August 31, 2018).
- (U) DoD Instruction 5160.68, “Single Manager for Conventional Ammunition,” March 15, 2022.
- (U) DoD Directive 5160.65, “Single Manager for Conventional Ammunition (SMCA),” August 1, 2008 (Incorporating Change 2, August 31, 2018).
- (U) Army Regulation (AR) 5-13, “Army Munitions Requirements, Prioritization, and Authorizations Management Policy,” March 31, 2021.
- (U) AR 700-28, “Ammunition Management,” October 9, 2020.
- (U) Marine Corps Order (MCO) 8000.7A, “Marine Corps Munitions Requirements Process (MCMRP),” February 7, 2013.
- (U) MCO 8011.5B, “Class V(W) Ammunition Policies, Procedures and Information for Training, Programmed Testing and Security,” January 8, 2021.

(U) We interviewed officials to discuss their roles and responsibilities in the munitions requirements process, the management of the Total Ammunition Management Information System, and drawdown impacts to the 155mm HE. Specifically, we interviewed officials from the following organizations:

- (U) Under Secretary of Defense for Acquisitions and Sustainment;
- (U) Joint Chiefs of Staff, J8 Force Structure, Resources, and Assessment Directorate;

- (U) Army G-37/Training Ammunition;
- (U) Army G-4 Munitions Division;
- (U) Headquarters Marine Corps, Combat Development & Integration, Capabilities Development Directorate;
- (U) Headquarters Marine Corps, Plans, Policies and Operations; and
- (U) Headquarters Marine Corps, Marine Corps Systems Command.

(U) We also met with officials from the Joint Program Executive Office, Armaments and Ammunition, to determine the testing requirements and the testing requirements process for the 155mm HE.

(U) War Reserve Munitions Requirements

(U) To determine whether the Army and Marine Corps had an effective strategy for managing on-hand inventory to support war reserve and munitions requirements, we reviewed the Joint Staff's readiness briefs and other supporting documentation showing the Army and Marine Corps' on-hand ammunition for the end of FY 2023. We used the on-hand ammunition along with the GF requirements to determine if the 155mm HE inventories would meet the National Defense Strategy requirements. In addition, we compared the historical expenditures of 155mm HE ammunition for FY 2023 with the actual production and the reported deliveries to the Army and Marine Corps to ensure that production exceeded expenditures and were trending up rather than down.

(U) Training Requirements

(U) To determine the impact of the drawdowns of 155mm HE ammunition on training, we reviewed Army and Marine Corps unit status reports for training readiness; compared training requirements to the TMR; calculated training requirements as a percentage of the TMR; and compared training requirements to authorizations and expenditures to assess how the Army and Marine Corps prioritized training.

(U) For the Army, we used a statistical sample that was based on 121 units with 155mm HE ammunition training requirements for the 5-year fiscal period of 2019 through 2023 that we obtained from data provided by the Army G-3/5/7. The DoD OIG Quantitative Methods Division developed a statistical sample of 54 units from the population of 121. We used a 90 percent confidence interval and a 5 percent margin of error to calculate the sample size. To determine the impact of the drawdowns, we reviewed the training readiness status from the 1,272 monthly unit status reports for the sample of 54 units for FYs 2022 through 2023. We did not identify any errors during our review. Therefore, we did not project our results.

(U) For the Marine Corps, we obtained data from the Combat Development & Integration, Capabilities Development Directorate of units with 155mm HE ammunition training requirements for the 5-year fiscal period of 2019 through 2023. The data showed 57 units with 155mm HE munition training requirements that report their training readiness through 17 units. To determine the impact of the drawdowns, we reviewed the training readiness status from the 404 monthly unit status reports for the 17 units for FYs 2022 through 2023.

(U) Testing Requirements

(U) To determine the impact to testing readiness considering the affects from the drawdowns of the 155mm HE ammunition transferred to the GoU, we compared the historical testing requirements with the testing expenditures for FY 2020 through FY 2023.

(U) Use of Computer-Processed Data

(U) We did not use computer-processed data to perform this evaluation.

(U) Use of Technical Assistance

(U) We received technical assistance from the DoD OIG Quantitative Methods Division in the design of the statistical sample plan for the Army FY 2019 through FY 2023 training requirements.

(U) Prior Coverage

(U) During the last 5 years, the DoD Office of Inspector General (DoD OIG) issued one report discussing replenishment and the management of the 155mm HE ammunition.

(U) Unrestricted DoD OIG reports can be accessed at <http://www.dodig.mil/reports.html/>.

(U) DoD OIG

(U) Report No. D2022-DEV0PA-0149.000, "Evaluation of the DoD's Replenishment Plans for Equipment and Munitions Provided to the Government of Ukraine," August 2023

(CUI) [REDACTED]

[REDACTED]

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[REDACTED]

(U) Appendix B

(U) The Army and Marine Corps' On-hand Inventory Exceeded the Global Floor Requirement

(U) This classified appendix contains information about the Army and Marine Corps' on-hand inventory of 155 HE ammunition. To request access to Appendix B, please file a Freedom of Information Act request online at <https://www.dodig.mil/FOIA/Submit-FOIA/>.

(U) Acronyms and Abbreviations

GF	Global Floor
GoU	Government of Ukraine
HE	High Explosive
MRP	Munitions Requirement Process
PM	Project Manager
RAP	Rocket Assist Projectile
SMCA	Single Manager for Conventional Ammunition
TMR	Total Munitions Requirement

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