

Department of Defense Responses to Questions about Landmine Policy

1. Question: What has changed since 2014 that required the U.S. to reverse the previous landmine policy?

Answer: The strategic environment has changed since the previous policy was announced in 2014 and formalized in 2016. We face an era of strategic competition that requires our military to become more lethal, resilient, and ready for future contingencies, including potentially in areas outside of the Korean Peninsula. The current policy also recognizes the critical military utility provided by non-persistent landmine systems that were prohibited for use outside the Korean Peninsula under the previous policy, while still meeting the intent of limiting the risk of harm to non-combatants.

2. Question: Do either the U.S. Army Europe Operational Needs Statement (ONS) #18-22702 or the Joint Service Operational Requirement (JSOR) #0683 directly specify the necessity for the future use of victim-activated landmines? Alternatively, are either focused on the use of anti-vehicle mines to counter a mounted enemy threat in high-intensity operations? Please provide copies of both.

Answer: Joint Service Operational Requirement (JSOR) #0683 (Revision 2, April 2020; UNCLASSIFIED) directly specifies that “anti-personnel mines are necessary to discourage hand breaching of minefields.”

The potential threats related to Europe and northeast and southwest Asia are characterized by tank-heavy, numerically superior forces that would be able to take offensive action with little or no buildup. JSOR #0683, the Volcano mine dispenser, is being developed to satisfy the urgent operational requirement of light infantry divisions for a helicopter-delivered mining capability and to provide airborne and airmobile forces with an airlift-deployable, ground vehicle-delivered, high-volume scatterable mine dispenser. The air and ground dispensers will use common anti-tank landmines and common anti-personnel landmines with three self-destruct times. The 5:1 anti-tank landmine to anti-personnel landmine mix is the most cost-effective mix for scatterable landmine systems, as confirmed in previous Family of Scatterable Mines (FASCAM) programs. Anti-personnel landmines are necessary in “mixed systems” to discourage and delay adversaries from hand clearing of minefields intended to block, fix, or channel enemy tanks and vehicles.

U.S. Army Europe (USAREUR) Operational Needs Statement (ONS) #18-22702 (October 2017; SECRET) specifically required the system to be compliant with the then-current U.S. Landmine Policy (PPD-37), and focused on counter-mobility obstacles, including the use of anti-vehicle landmines.

3. Question: The 2014 policy set the goal of the U.S. joining the Mine Ban Treaty (Ottawa Convention) in the future. Does the 2020 policy abandon that goal in perpetuity?

Answer: Until a capability can be developed that provides the same or greater capabilities as anti-personnel landmines, including in “mixed systems,” acceding to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction would be contrary to military requirements. Anti-personnel landmines provide a critical military utility that is currently not capable of being replicated with other capabilities, particularly in a cost-effective manner. Future administrations will always have the right to review the policy and make any changes they deem necessary in support of U.S. national security interests.

4. Question: U.S. arguments about the “safety” of its self-destruct/self-deactivating mines have been explicitly rejected by our closest allies for more than three decades. As far as we are aware, there have been no material advances in such technology during that time. What has changed that now enables DoD to insist on the safety and desirability of such mines?

Answer: The self-destruction mechanisms and self-deactivating features of landmines in U.S. inventories help appropriately limit the risk of harm to non-combatants, including in locations where it might be necessary to do so outside the Korean Peninsula. The safety features required by the previous policy and the current policy, augmented by our broader military capabilities, and our continued adherence to international legal obligations in Amended Protocol II annexed to the Convention on Certain Conventional Weapons, appropriately mitigate the risk to civilians. Landmines in U.S. inventories can be employed with high levels of accuracy and can be set to remain active for very short periods of time – in some cases, only hours. The probability of a U.S. landmine remaining a long-term explosive hazard is 6-in-one million per device. We face an era of strategic competition that requires our military to become more lethal, resilient, and ready for future contingencies, including potentially in areas outside the Korean Peninsula. The technological features of the U.S. landmine inventory, combined with appropriate operational controls, allow commanders to balance appropriately mitigating operational risk and mitigating humanitarian risks.

5. Question: Why has the authorization for the use of antipersonnel mines been changed to a lower level, from the President (since 1996) to a four-star general or admiral acting as a regional commander?

Answer: The previous policy did not state that the President would need specifically to authorize the use of anti-personnel landmines in areas where their use was not otherwise prohibited (*i.e.*, on the Korean Peninsula). During this Administration, the President determined that management of policies related to the acquisition and use of landmines by DoD was squarely within the Secretary of Defense’s responsibilities and could be responsibly addressed by the Secretary of Defense. Allowing the Secretary of Defense to manage the policy for

landmines, including by requiring Combatant Commander approval before their use, aligns this policy with the policies for all other conventional weapons, which are overseen by the Secretary of Defense. Of course, the President, as the Commander in Chief of the U.S. Armed Forces, could either specifically authorize or restrict the use of anti-personnel landmines based upon the specific operational context, under either the previous policy or the current policy.

6. Question: How does DoD define or determine the “exceptional circumstances” under which landmines are now permitted to be used? What criteria will be applied?

Answer: The requirement for Combatant Commanders only to use non-persistent landmines when necessary for mission success in “major contingencies” and “other exceptional circumstances” indicates that the use of landmines will not be a default option. Rather, landmines provide a unique capability, and Combatant Commanders are authorized to use them when necessary for mission success in these select circumstances, which will be context-specific. U.S. use of landmines would be subject to rules of engagement for the operation and informed by training and doctrine for their responsible use. Any U.S. use of landmines would also be in compliance with the law of war, including U.S. obligations under Amended Protocol II annexed to the Convention on Certain Conventional Weapons.

7. Question: How many landmine-related reports has DoD produced since the 2014 policy announcement of the Obama Administration? Please provide copies of such reports.

Answer: A report and a study have most recently been produced, as listed below, which we will provide separately.

2016 Department of Defense Report on the Utility of and Alternatives to Anti-Personnel Landmines and Cluster Munitions (January 2016; SECRET//NOFORN).

2018 U.S. Army Training and Doctrine Command Analysis Center Anti-Personnel Landmines/Cluster Munitions (APL/CM) Study (May 2018; SECRET//NOFORN).

8. Question: Please provide details on the “high fidelity” study on possible alternatives to mines on the Korean Peninsula that was cited in the 2014 Obama policy.

Answer: The “high fidelity” study called for in the 2014 policy decision is the 2016 Department of Defense Report on the Utility of and Alternatives to Anti-Personnel Landmines and Cluster Munitions (January 2016; SECRET//NOFORN). See the answers to questions 7 and 9 for more details about the 2016 Report.

9. Question: What was the purpose and outcome of the 2016 DoD report cited at the time of the 2020 announcement? When did it start, what were its terms of reference, and when was it completed?

Answer: The 2016 Department of Defense Report on the Utility of and Alternatives to Anti-Personnel Landmines and Cluster Munitions (January 2016; SECRET//NOFORN) was supplemented by the 2018 U.S. Army Training and Doctrine Command Analysis Center Anti-Personnel Landmines/Cluster Munitions (APL/CM) Study (May 2018; SECRET//NOFORN). See the answer to question 10 for more details about the 2018 Study.

Purpose -- Terms of Reference for the 2016 Report:

The Senior Steering Committee for the 2016 Report established four integrated lines of effort (LOE):

LOE 1 performed modeling, simulation, and tabletop wargaming to explore the effectiveness of current systems and the potential for existing technology, forces, and tactics to offset the need for anti-personnel landmines and cluster munitions. Tactical- and campaign-level scenarios were examined for Korea and the Levant. The results of using current anti-personnel landmines and cluster munitions in these scenarios were compared with results from not using anti-personnel landmines and cluster munitions, as well as the results of using cluster munitions and potential future alternative technologies to anti-personnel landmines.

LOE 2 examined how non-material concepts such as changes in tactics, rules of engagement, and command and control solutions could mitigate the loss of anti-personnel landmines and cluster munitions.

LOE 3 explored existing and future technological options that might replace, in full or in part, the capabilities provided by anti-personnel landmines and cluster munitions.

LOE 4 provided an assessment by the Commander, U.S. Forces Korea, regarding the likely Republic of Korea reaction to U.S. accession to the Ottawa Convention.

Outcomes of the 2016 Report:

Anti-personnel landmines and cluster munitions are often used in concert to produce greater effects on enemy forces. However, the inventory of Department of Defense policy-compliant cluster munitions available for use after 2018 is expected to be low. Consequently, it was prudent for the Department to study the potential consequences of eliminating anti-personnel landmines in combination with the expected limited inventory of cluster munitions stocks available for use as tools in the U.S. military arsenal, and to explore reliable, effective mitigation options.

No alternatives to anti-personnel landmines are currently fielded, and the loss of anti-personnel landmines and cluster munitions cannot be mitigated by non-material solutions. However, with

sufficient time, resources, and technology maturation, several material alternatives demonstrate some potential. The current estimated expenses to develop and field a new Ottawa-compliant anti-personnel landmine alternative and policy-compliant cluster munitions technologies are an additional \$10-15 billion over a period of 15+ years.

Military Risk (the likelihood of not accomplishing operational plans and achieving military objectives): Loss of anti-personnel landmines and cluster munitions capabilities increase risk to both U.S. forces and mission success. U.S. forces will face a longer, more intense fight with increased personnel and materiel losses. The loss of fires effectiveness and efficiency creates increases in munitions expenditures across all cases, with a resultant increased, and potentially unmanageable, logistics burden. This increased logistics burden will hinder the tempo of operations and further extend the campaign and combat exposure for U.S. forces.

Technology Risk (the likelihood of new systems not being developed within the required time, including the determination of solutions for currently known technical shortcomings): Most of these alternative capabilities are technologically immature or are not now technologically feasible and will require 10-15 years of development and production time to produce the capabilities and quantities required.

Alliance Risk (the likelihood of U.S. influence with Allies being reduced): Modeling showed that the United States would be increasing risk to the civilian population in Korea with the loss of anti-personnel landmines and cluster munitions, placing further stress on the Alliance relationship.

10. Question: What was the purpose and outcome of the 2017-2018 DoD report cited at the time of the 2020 announcement? When did it start, what were its terms of reference, and when was it completed?

Answer: The relevant study is titled the 2018 U.S. Army Training and Doctrine Command Analysis Center Anti-Personnel Landmines/Cluster Munitions (APL/CM) Study (May 2018; SECRET//NOFORN).

In 2017, then-Secretary of Defense James Mattis ordered an internal Department of Defense review that was completed in 2018.

Purpose -- Terms of Reference for the 2018 Study:

The U.S. Army Training and Doctrine Command (TRADOC) Analysis Center led the anti-personnel landmines and cluster munitions 2018 Study supported by partner agencies that included the Army Material Systems Analysis Activity, Center for Army Analysis, and TRADOC G-2. Support from the Fires Center of Excellence, Maneuver Center of Excellence, National Training Center, U.S. European Command (USEUCOM), U.S. Army Europe, U.S. Air Forces in Europe, and U.S. Marine Corps Forces Europe were especially critical for the Map Exercise and the USEUCOM Seminar Wargame.

Outcome of the 2018 Study

Study issues (operational impacts; logistical implications; intelligence, surveillance, and reconnaissance (ISR); and political/military considerations) and alternatives were prescribed in broad terms in the May 2017 Secretary of Defense Guidance memorandum. This study assessed four alternatives (in all cases anti-vehicle landmines were assumed to be available).

All current U.S. landmines have a highly reliable, timed self-destruct mechanism and self-deactivation feature to minimize the chance of post-conflict non-combatant casualties.

11. Question: When and why did the U.S. last use antipersonnel mines, and with what result?

Answer: During Operation ANACONDA, Afghanistan, in March 2002, special operations forces employed anti-personnel landmines (pursuit deterrent munitions) while awaiting extraction from a helicopter pick-up zone to cover an enemy avenue of approach that could not be observed or covered with direct fire.

During Operation IRAQI FREEDOM, Iraq, in March-April 2003, as the 3d Infantry Division advanced towards Baghdad, it was prepared to employ Volcano Family of Scatterable Mines (FASCAM) (mix of anti-vehicle landmines and anti-personnel landmines) as flank obstacles in anticipation of an Iraqi Republican Guard armored counterattack; ultimately, the counterattack did not occur, and the landmines were not employed.

12. Question: What alternative weapons, tactics, and strategies enabled DoD to agree in 2014 to ban the use of antipersonnel mines everywhere except on the Korean peninsula?

Answer: During the White House-led policy review that led to the 2014 prohibition on the use of anti-personnel landmines outside the Korean Peninsula, DoD assessed and articulated particular risks to mission and force that would result from such a prohibition, and for which sufficient risk mitigations did not exist (*e.g.*, alternative weapons and tactics). The President nonetheless decided to proceed with a policy that would prohibit the use of anti-personnel landmines outside the Korean Peninsula.

13. Question: Where does DoD now envision that it might use existing stockpiles of antipersonnel mines, outside of the Korean Peninsula?

Answer: The Department of Defense's new policy allows planning for and use of anti-personnel landmines in future potential conflicts without focusing narrowly on the Korean Peninsula or expressing blanket geographic limitations. If the use of anti-personnel landmines became necessary, appropriate geographic limitations would be formulated based on the specific

operational context and would be reflected in relevant rules of engagement, consistent with existing DoD policy and practice.

14. Question: How do “terrain shaping area denial munitions” differ from antipersonnel mines?

Answer: “Terrain shaping area denial munitions” are any munitions designed and employed to shape terrain and deny geographic areas for operational purposes. Such munitions can include, but are not limited to, anti-personnel landmines.

15. Question: Would any future “terrain shaping area denial munitions” be consistent with the Ottawa Convention banning antipersonnel mines?

Answer: Any future “terrain shaping area denial munitions” would be consistent with the U.S. landmine policy at that time, including the U.S. policy with respect to anti-personnel landmines.

16. Question: Is DoD contemplating re-opening production lines for existing antipersonnel mines, for example, the Gator and ADAM systems? If so, when?

Answer: DoD is not currently contemplating re-opening production lines to procure additional quantities of types of anti-personnel landmines that are already in the U.S. active inventory.

17. Question: Under the 2020 policy, will DoD replace and/or extend the life of the batteries in existing antipersonnel mine stocks?

Answer: No. The design of the landmines in the U.S. stockpile (both anti-personnel landmines and anti-vehicle landmines) makes the batteries within the landmines inaccessible for replacement.

Maintenance is not performed to extend the “shelf-life” of anti-personnel landmines. Most anti-personnel landmines do not have an established “shelf-life”; rather, Ammunition Stockpile Reliability Program (ASRP) testing is conducted on them, on a cyclical basis, and the munitions are deemed serviceable until the ASRP determines that they are not.

18. Question: Does DoD foresee production of new “terrain shaping area denial munitions” in the next few years?

Answer: Yes. Development of terrain shaping area denial munitions is currently taking place, and, in fiscal year (FY) 2022, production of the initial capabilities will commence in response to USAREUR Operational Needs Statement (ONS) #18-22702. Development of the next

generation of terrain shaping area denial munitions that can be leveraged for use at all operational ranges will begin in FY 2022 with production starting in FY 2025.

19. Questions: Will the Standoff Activated Volcano Obstacle (SAVO) program only develop a system capable of only using Ottawa-compliant M87A1 Volcano anti-vehicle mine canisters?

Answer: No. The Standoff Activated Volcano Obstacle (SAVO) system will be capable of using all current policy-compliant Volcano landmine canisters.

20. Question: Do the modernization plans for the M7 Spider Networked Munition include re-introducing the “battlefield over-ride switch” that allows for the victim-activation of munitions it controls? Previously, Congress received assurances from the U.S. Army Vice Chief of Staff that Spider would only be procured in a configuration that only allowed command-detonation. Does the new policy nullify this commitment?

Answer: No. The modernization of the M7 Spider Networked Munition system does not include introducing a “battle over-ride switch” for its munitions. The U.S. Army is not considering re-introducing a “victim-activated” feature to the M7 Spider Networked Munition system.

21. Question: Are CBU-78 and CBU-89 Gator air-delivered landmines, a mixed system containing anti-vehicle and antipersonnel mines, now considered to be the Deep Terrain Shaping Obstacle (DTSO)? Budget justification materials state that existing stocks of this system have a life expectancy of 36 years (losing capability in 2025) and the methods used to make this determination were unknown to DoD. It is our understanding that approximately \$2 million in FY17 Army-wide RDT&E appropriations were used to test “the actual life expectancy and effectiveness of the current Deep Terrain Shaping Obstacle system in order to decide when a replacement capability needs to be fielded. In parallel, evaluation [of] the technical data package and determining the cost of producing additional units of the current Deep Terrain Shaping Obstacle.” Can DoD provide documentation of the findings and conclusions of this effort/program? Ref: Army-wide RDT&E Budget Activity 7, Program Element 0607131A / Weapons and Munitions Product Improvement Programs, Project ER2 / Close Combat Technology.

Answer: The U.S. Navy CBU-78 and the U.S. Air Force CBU-89 variants of the GATOR mine system are part of the Family of Scatterable Mines (FASCAM) and currently are the terrain shaping capabilities for the deep operational range.

In the 1990s, a predictive life analysis was done on the GATOR mine system. The primary assumption made during the assessment was that the batteries within the mines were the likely

design limitation, and that based on envisioned storage temperatures, a 36-year predicted life was assessed.

In 2017, the Army revisited the previous analysis to confirm its assessment of the expected life of the GATOR mine system or, based on the latest analysis tools, test history of the stockpile, and accelerated life testing, made an updated assessment of the state of the GATOR mine system inventory. The findings from this effort were not formally documented in a report, but were presented to Army leadership and summarized below.

In 2017, the U.S. Army collaborated with academia, the U.S. Air Force, and various organizations within the U.S. Army to conduct the aforementioned analysis. This analysis consisted of analyzing data from U.S. Air Force stockpile surveillance testing (BLU 91/BLU 92 mines), GATOR mine system battery accelerated life testing and associated predictive life analysis assessment, and GATOR mine system component evaluation from teardowns of units in inventory. The study found that batteries within the GATOR mine system were not the design limitation they were thought to be during the 1990s assessment and thus should not be considered a driver in the life of the GATOR mine system inventory. Based on the performance of the GATOR mine system during stockpile surveillance to date, it is expected that the system will be a viable deep terrain shaping capability through 2030. Annual review of GATOR mine system testing will allow for a regular assessment of its continued viability for use.

22. Question: Does DoD's statement that the 2020 "policy encourages the Military Departments to explore acquiring landmines and landmine alternatives that could further reduce the risk of unintended harm to non-combatants" reverse the previous landmine policy prohibition on acquisition of any type of antipersonnel mines? What specific types of mines or alternatives are contemplated?

Answer: DoD is now able to consider a range of possibilities because of the new policy. Although efforts are at the beginning stages, DoD is looking to develop capabilities that meet or exceed the capabilities that anti-personnel landmines in the U.S. active inventory currently provide, while continuing to minimize collateral damage of all kinds. At this time, DoD has not identified for acquisition any specific types of landmines or landmine alternatives.

23. Question: As part of the 2020 policy, does DoD envisage importing antipersonnel mines for operational use? If so, from where would it acquire the mines?

Answer: DoD currently has no plans to import anti-personnel landmines.

24. Question: Is DoD committed to continuing to uphold the legislative prohibition on the export and transfer of antipersonnel mines?

Answer: The current landmine policy explicitly states that DoD will not seek to transfer landmines except as provided for under U.S. law. DoD currently has no plans to export or transfer anti-personnel landmines.

25. Question: Please provide details on the size and composition of the current U.S. stockpile of antipersonnel mines.

Answer: As of February 2020, the main systems that contain anti-personnel landmines in the U.S. active inventory are:

Area Denial Artillery Munition (ADAM) - This is a 155mm artillery delivered projectile that consists of 36 anti-personnel landmines. There are two variants of ADAM, and the difference between the two variants is the self-destruct time (48 hours vs. 4 hours). There are currently 34,040 projectiles (1,225,440 anti-personnel landmines) with a 48-hour self-destruct time, and 62,218 projectiles (2,239,848 anti-personnel landmines) with a 4-hour self-destruct time, in the U.S. active inventory.

M87 Volcano - This is a mine canister system. It consists of both anti-tank landmines (5) and an anti-personnel landmine (1) in each canister. There are currently 78,204 M87 Volcano mine canisters (78,204 anti-personnel landmines) in the U.S. active inventory.

GATOR - This is a fixed wing delivered mine system. There is a U.S. Air Force-variant that consists of both anti-tank landmines (72) and anti-personnel landmines (22) in each bomb unit, and a U.S. Navy-variant with anti-tank landmines (45) and anti-personnel landmines (15) in each bomb unit. In the U.S. active inventory, there are currently 8,794 of the U.S. Air Force-variant (193,468 anti-personnel landmines) and 1,033 of the U.S. Navy-variant (15,495 anti-personnel landmines).

Modular Pack Mine System (MOPMS) - This is a man portable anti-tank and anti-personnel mine system. It consists of both anti-tank landmines (17) and anti-personnel landmines (4). There are currently 2,139 MOPMS (8,556 anti-personnel landmines) in the U.S. active inventory.

26. Question: How many, and what types of, mines have been made inactive and/or destroyed since 2014?

Answer: At the beginning of 2016, 570,153 persistent landmines in the inactive U.S. inventory were scheduled for demilitarization/destruction. As of February 2020, 438,871 of such persistent landmines remain to be demilitarized/destroyed over the next two years. In fiscal year 2020, 389,349 of such persistent landmines are scheduled for demilitarization/destruction. In fiscal year 2021, 49,522 of such persistent landmines are scheduled for demilitarization/destruction.

27. Question: As the shelf-life of U.S. self-destruct/self-deactivating antipersonnel mines decreases with each year, when will the existing stockpile expire and no longer be usable? Previously, DoD has indicated a date in the early 2030s.

Answer: Most anti-personnel landmines do not have an established “shelf-life.” Ammunition Stockpile Reliability Program (ASRP) testing is conducted on anti-personnel landmines on a cyclical basis, and the munitions are deemed serviceable until the ASRP determines that they are not. For example, in the 1990s, a predictive life analysis of the GATOR mine system (CBU-78 and CBU-89) assessed it had a 36-year predicted life; a 2017 study and ASRP stockpile surveillance expect the current GATOR mine system to be viable through 2030. Maintenance is not performed on anti-personnel landmines to extend their predicted life. Based on the design of the existing anti-personnel landmines in the U.S. active inventory, the batteries within the landmines are not accessible for replacement.

In closing, the studies on landmines conducted during this Administration, as well as that conducted under the preceding Administration, demonstrated the military and operational utility of landmines in certain operational contexts. The studies determined, for example, that in major combat operations – particularly against near-peer adversaries involving major ground campaigns - landmines allow commanders to reduce a critical gap in operational capability and shorten the duration of conflict while minimizing the risk to civilians. Any decision to employ landmines in the future would necessarily balance consideration of strategic, operational, and humanitarian risks; therefore, the new policy maintains that decision at the four-star Combatant Commander-level.