

Massive Ordnance Penetrator (MOP)

Executive Summary

- DOT&E published a classified Massive Ordnance Penetrator (MOP) Early Fielding Report in April 2012 and an update in January 2013, which summarized testing during FY08 through FY12, including the successful re-design of certain aspects of the weapon system.
- The Air Force, between April and July 2013, successfully completed two additional weapon drops from the B-2 aircraft on representative targets. The tests, conducted at the White Sands Missile Range, New Mexico, demonstrated weapon behavior in a GPS jamming environment after planned enhancements were incorporated.
- DOT&E published a classified Early Fielding Report in September 2013 to summarize the FY13 testing of the Enhanced Threat Reduction Phase 1 effort.

System

- The GBU-57 MOP is a large, GPS-guided, penetrating weapon with the ability to attack deeply buried and hardened bunkers and tunnels. The warhead case is made from a special high-performance steel alloy and its design allows for a large explosive payload while maintaining the integrity of the penetrator case during impact.
- The B-2 Spirit is the only aircraft in the Air Force programmed to employ the MOP.
- The GBU-57 warhead is more powerful than its predecessors, the BLU-109 and GBU-28.
- The MOP is an Air Force-led, Quick Reaction Capability that is on DOT&E oversight as well as a Secretary of Defense special interest effort.



Mission

Combatant Commanders use MOP to conduct pre-planned, day or night attacks against defended point targets vulnerable to blast and fragmentation effects and requiring significant penetration, such as hardened and deeply-buried facilities.

Major Contractor

The Boeing Company, Defense, Space & Security – St. Louis, Missouri

Activity

- Prior to the live-flight missions, the Air Force flew two captive-carry missions to validate the hardware and software changes implemented in the MOP. Both of the missions were successful and allowed the program to proceed to live weapons employment.
- Between May and July 2013, the Air Force executed two weapon drops at White Sands Missile Range, New Mexico, on representative targets. This testing was to evaluate the effect of the Enhanced Threat Reduction modification to the weapon system performance. An Air Force B-2 aircraft flew four missions to complete two planned drops with live warheads.
- During the mission on May 13, the Air Force aborted a weapon drop due to a fault in the Monitor and Control Equipment. The analysis uncovered a poorly soldered wire in the Monitor and Control Equipment that prevented the solenoids from receiving the command to release. The fault

- has been isolated to MOP-unique aircraft equipment. Further inspections did not identify the failure to be a systemic fault.
- During the mission on June 13, the B-2 had a recessed connector pin that failed to complete the release circuit. The Air Force aborted the mission when the aircrew could not receive a valid release signal to employ. The Air Force determined that the fault was inside the connector and was not associated with any MOP-unique equipment.

Assessment

In the September 2013 Early Fielding report, DOT&E concluded that the MOP is capable of effectively prosecuting selected hardened, deeply buried targets. The captive-carry missions and two weapon drops indicate that the weapon modification is adequate for the successful prosecution of all of the elements of the currently defined target set.

AIR FORCE PROGRAMS

Recommendations

- Status of Previous Recommendations. While there were no previous recommendations for this program, the Air Force addressed all recommendations in the September 2013 Early Fielding Report.
- FY13 Recommendations. None.