

## Massive Ordnance Penetrator (MOP)

### Executive Summary

- In March 2016, the Air Force successfully completed one weapon drop from the B-2 aircraft, and in June 2016, completed three weapon drops from two B-2 aircraft on a representative target. These tests, conducted at the White Sands Missile Range, New Mexico, demonstrated weapon effectiveness after the Air Force incorporated the Enhanced Threat Response (ETR) Phase 3 enhancements. ETR Phase 3 testing is complete and ETR Phase 4 testing will begin in FY17.
- DOT&E published a classified Early Fielding Report summarizing the ETR Phase 3 test results in September 2016.

### System

- The GBU-57 Massive Ordnance Penetrator (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 a SECDEF special interest effort and is under DOT&E oversight.



### Mission

Combatant Commanders use the B-2 equipped with 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

- In March 2016, the Air Force conducted one live weapon drop at the White Sands Missile Range, New Mexico, on a representative target to evaluate weapon functionality with the ETR-3 modifications. An Air Force B-2 aircraft flew the mission.
- In June 2016, the Air Force conducted a three-weapon test on a representative target. This testing was to evaluate weapon effectiveness. Two Air Force B-2 aircraft each flew one sortie to complete the mission.
- These events completed the ETR Phase 3 test.
- DOT&E submitted a classified Early Fielding Report in September 2016 detailing the results of ETR Phase 3.
- Nonetheless, significant differences between pre-test modeling predictions and actual test results indicate the need for provision of additional modeling capacity, such as that available using the Department's High-Performance Computing facilities.
- The Air Force will continue with ETR Phase 4 testing in FY17.

### Recommendations

- Status of Previous Recommendations. There were no previous recommendations for this program.
- FY16 Recommendations. None.

### Assessment

- The ETR Phase 3 testing was successful in demonstrating weapon effectiveness with the current weapon configuration.

# FY16 AIR FORCE PROGRAMS