81mm Non-Lethal Indirect Fire Munition (IDFM)

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BLUF

- IDFM provides the following capabilities that do not currently exist:
  - The ability to suppress, move, deny area, and mark potential threats, with an indirect fire non-lethal effect, at extended ranges in order to limit significant injury and collateral damage.

- The 81mm Non-Lethal (NL) Indirect Fire Munition (IDFM) Program addresses the following capability gaps:
  - The 2009 Joint Initial Capabilities Document (ICD) for Counter-Personnel (CP) Joint Non-Lethal Effects (JNLE) identified a need for a non-lethal option for engaging insurgents at range who embed themselves among noncombatants.
    - Suppress Individuals (open, few/many)
    - Deny Access Into/Out of an Area to Individuals (open, single/few/many)
    - Move Individuals Through an Area (open, single/few/many)
  - The USMC ICD for Escalation of Force (EoF) Capabilities, MROC DM 45-2009, approved 27 August 2009, identified the requirement to Incapacitate Targeted Individuals and Engage Area Targets with Non-Lethal Effects. IDFM mitigates, in whole or in part, six (6) of 27 gaps from the ICD for EoF Capabilities.
    - Engage area targets with non-lethal effects
    - Distract/disorient individuals
    - Provide area denial
    - Warn vehicles and personnel at safe distances
    - Control targeted individuals by dissuading
    - Register and subsequently positively identify individuals

FAST FACTS

- **Design and Development Contributors**
  - USMC Combat Development & Integration (CD&I)
  - Armament Research, Development and Engineering Center (ARDEC)
  - Naval Surface Warfare Center – Indian Head (NSWC-IHEODTD)
  - Human Effects Center of Excellence (HECOE)
  - Joint Non-Lethal Weapons Directorate (JNLWD)
  - Naval Surface Warfare Center – Dahlgren (NSWCDD) (2012-2015)

- **Ranges**
  - Successfully tested mortar at ranges of 400m to 1,500m
  - Ranges up to 4,200m being tested in 2016 (objective range)

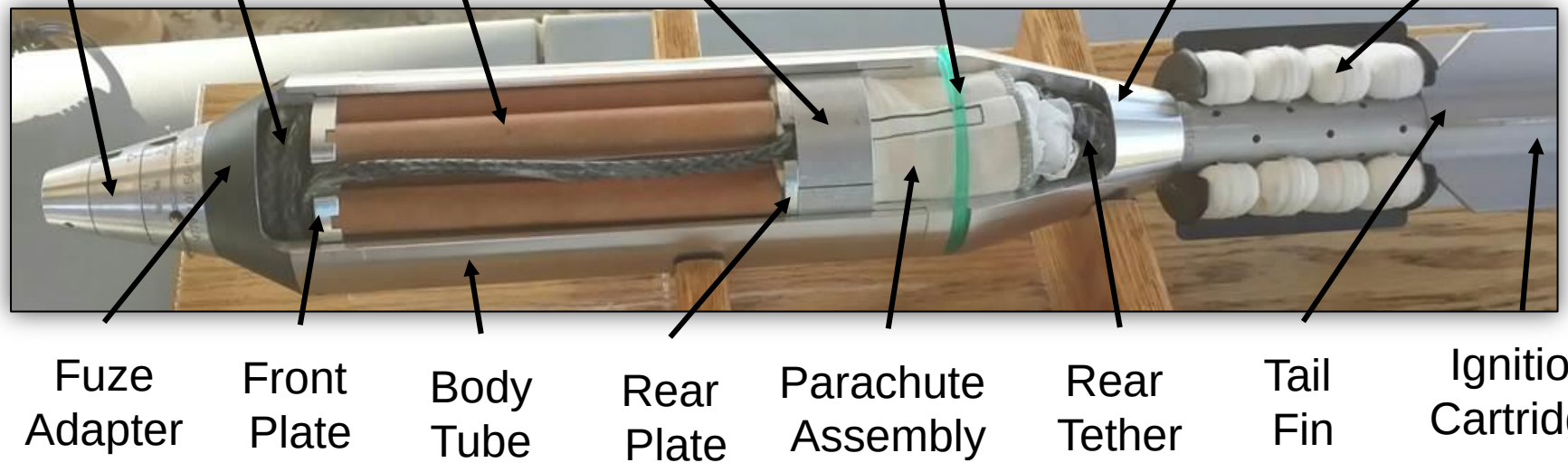
- **Completed Demonstrations**
  - Fort Benning Commanding General (CG) Live Fire Demonstration – October 2014
  - Aberdeen Proving Ground (APG) Demonstration – December 2014

- Technology Readiness Level: 6

- The 81mm Non-Lethal Program will be designated as a Program of Record (POR) in 2016.

- Marine Corps Systems Command, Program Manager, Ammunition (PM Ammo) will be assigned as the Milestone Decision Authority (MDA).

SYSTEM DESCRIPTION

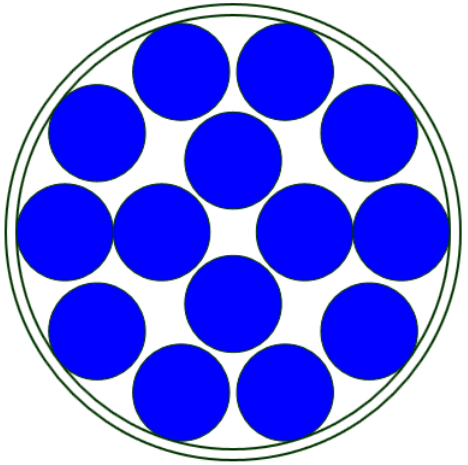


PAYLOAD CONFIGURATION

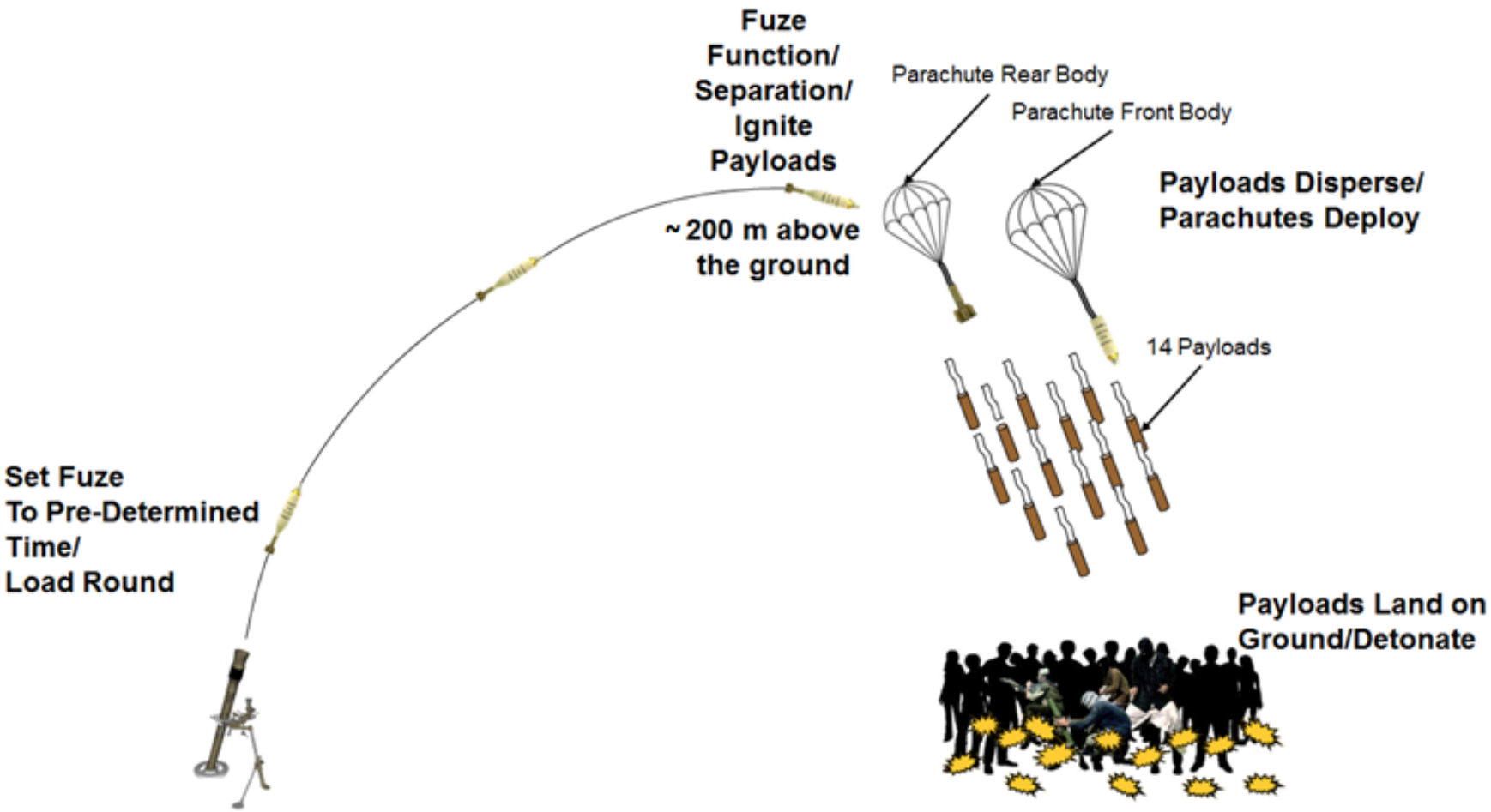
- Each mortar contains 14 payloads
  - Effect payload similar to a flashbang grenade
- Payloads dispersed via separation

  ~200 m above ground.
  - Payloads ignited by the Mortar Fuze.
  - Pyrotechnic delay allows payloads to reach ground before function.
- Area of coverage

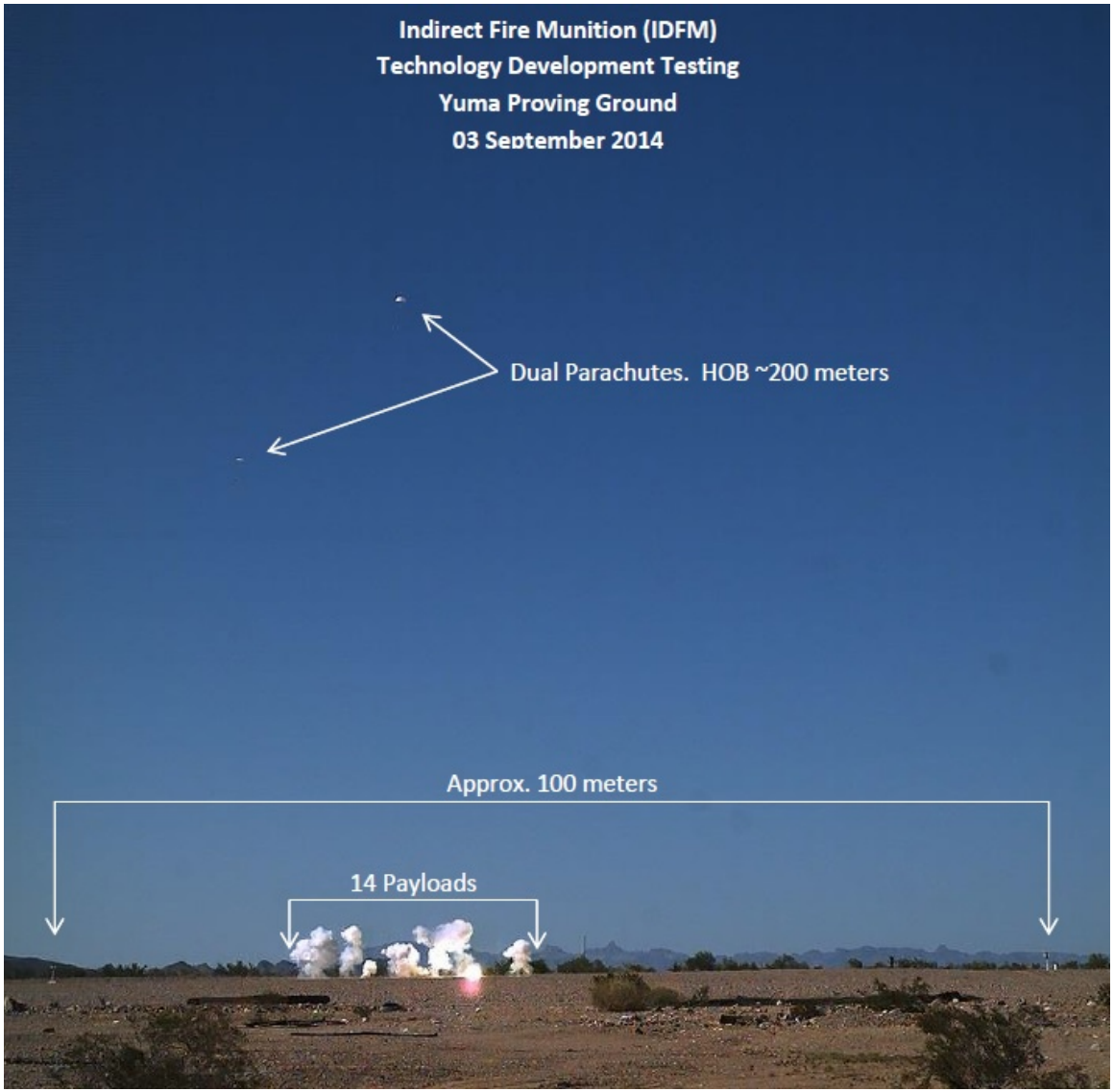
  ~375 square meters



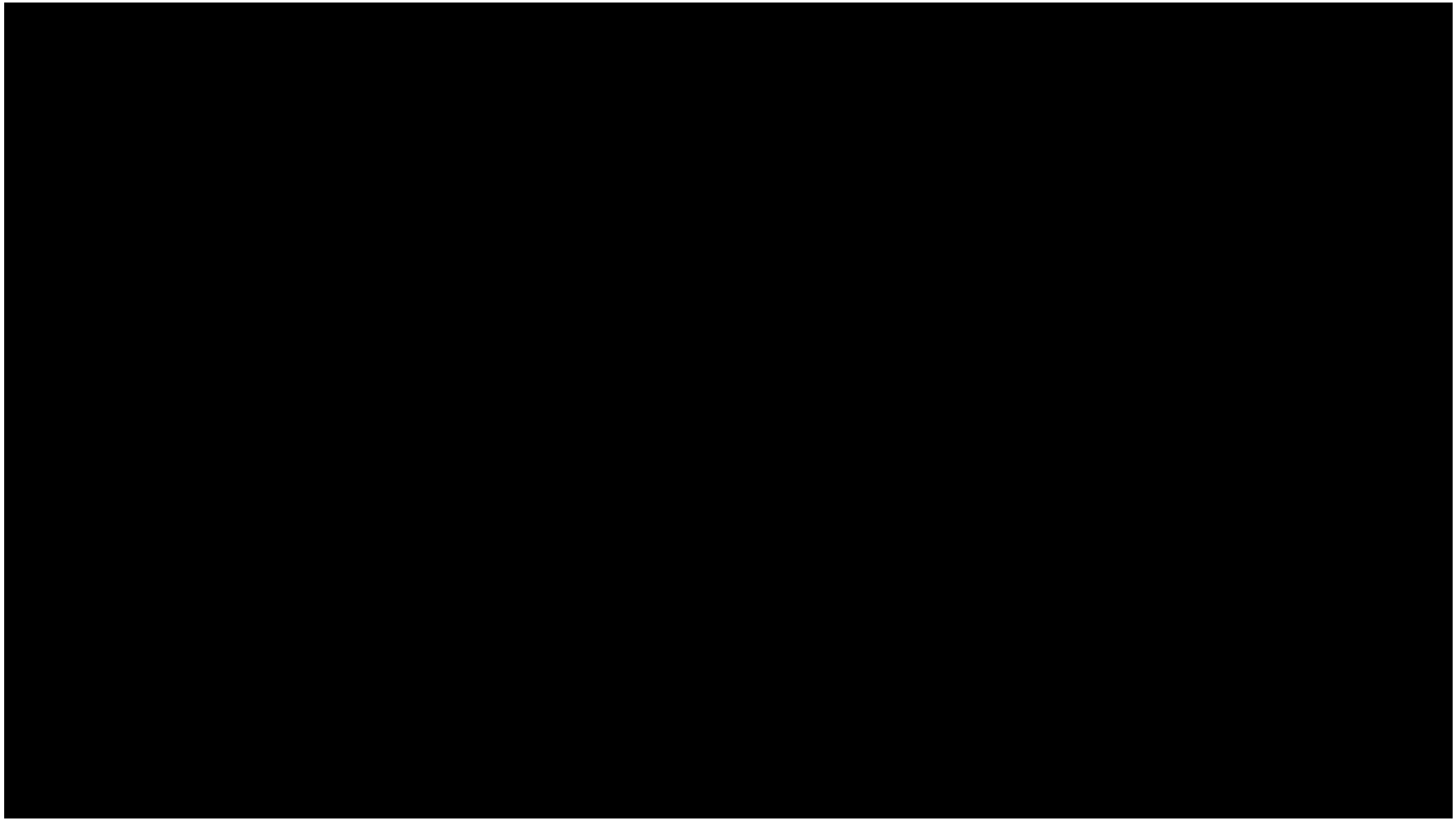
EMPLOYMENT CONCEPT



EMPLOYMENT CONCEPT (CONTINUED)

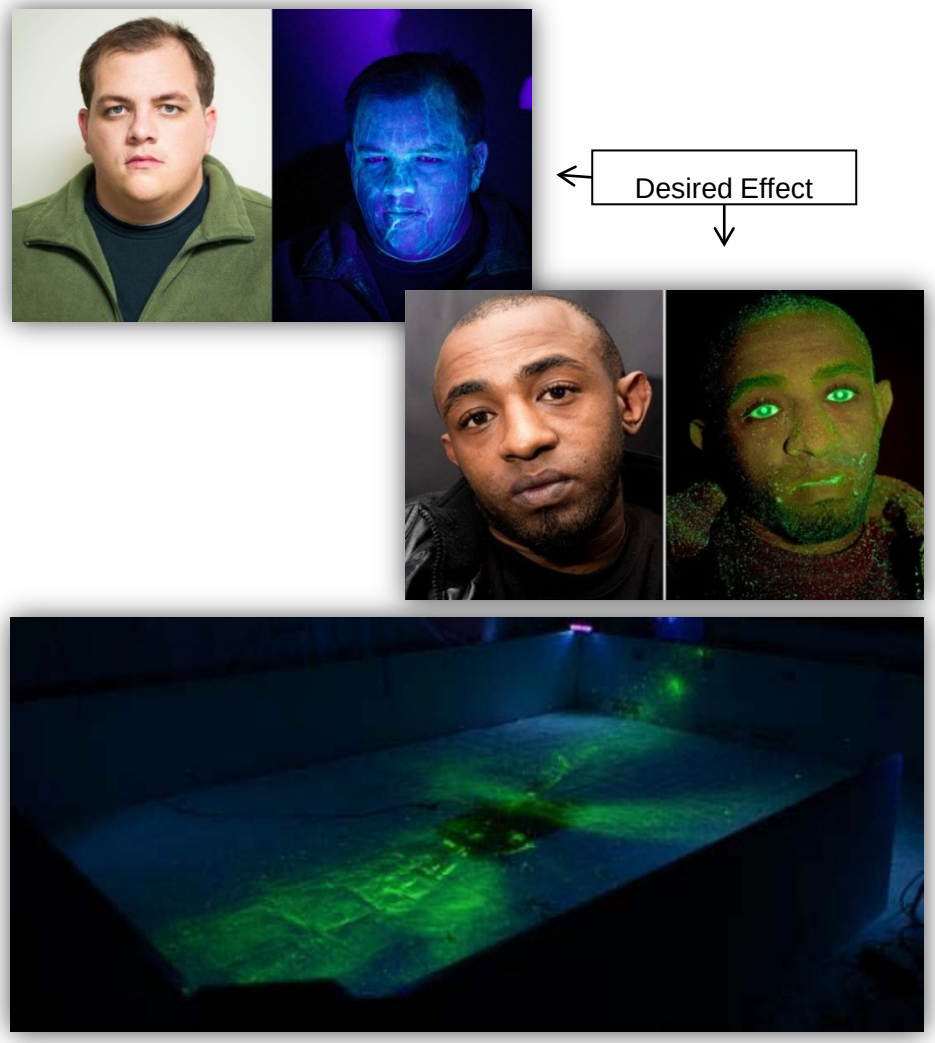


IDFM VIDEO



MARKING DYE INTEGRATION

- Add a marking dye to the existing payloads to mark/paint individuals for later identification.
- Detectable by currently fielded equipment or COTS items.
- Integration of marking dye with current payload will occur in 2016-2017.



60MM NL-IDFM

- ARDEC investigated and determined that it is feasible to incorporate the 81mm IDFM technology into a 60mm mortar cartridge
- Compatible with existing M224 60mm Mortar System
- Expected ranges similar to 60mm High Explosive (HE) Cartridges
- Designs similar to those tested in 81mm Non-Lethal IDFM

CONCLUSION

- The 81mm Non-Lethal IDFM provides the ability to suppress, move, deny area, and mark potential threats, with an indirect fire non-lethal effect at ranges greater than any currently fielded or potential solution.

- IDFM was successfully demonstrated in 2014 at two separate events
  - Fort Benning Live Fire Demonstration – 24 Rounds
  - Aberdeen Proving Ground (APG) Demonstration – 24 Rounds

- Developmental testing and design changes will continue to be performed to improve ranges, reliability, and producibility.

- 81mm IDFM Milestone C/ TC-Standard Approval in FY21

- Program POCs:
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