Heavy Equipment Transporter (HET) Urban Survivability Kit (HUSK)

Executive Summary
- The Heavy Equipment Transporter (HET) Urban Survivability Kit (HUSK) is designed to protect the crew against small arms, IEDs, artillery rounds, and blast mines at the Mine Resistant Armor Protected (MRAP) Capability Production Document 1.1 levels.
- In FY16, the Army completed LFT&E of the HUSK demonstrating that the armored cab:
  - Provides protection against Key Performance Parameter threats at threshold levels and some objective levels
  - Includes impediments to egress due to post-attack fuel fires outside the cab that could be mitigated with additional design changes
- The Army plans to award a production contract for 60 HUSKs to be built to production-level technical data package specifications. The program intends to make a decision in FY18 to build HUSK either at a government depot or contract with industry.

System
- The HET A1 is a combat support battlefield operating system assigned to combat heavy equipment transport companies.
- In May 2013, an Acquisition Decision Memorandum authorized the Army to develop and acquire armored replaceable cabs for HET A1, leading to the HUSK. HUSK is designed to protect the crew against small arms, IEDs, artillery rounds, and blast mines at the MRAP Capability Production Document 1.1 levels.
- The HUSK interior survivability features include energy attenuating seats, a floating floor, blast-mitigating floor mats, and an automatic fire extinguishing system. The exterior is constructed of 5059 aluminum and it is attached to the frame rails of the vehicle chassis. The cab can accommodate six soldiers: the driver, the assistant driver, and four crew of the transported vehicle.

Mission
Army commanders will employ military units equipped with HUSK to support operational and tactical moves by evacuating and transporting heavy tracked and wheeled equipment – primarily the combat-loaded M1 Abrams main battle tank – while providing crew protection against operational threats.

Major Contractor
None yet. The U.S. Army Tank Automotive Research, Development and Engineering Center designed and built the test articles using a production-level technical data package.

Activity
- The Army conducted the LFT&E program at Aberdeen Proving Ground, Maryland, in accordance with DOT&E-approved test plans, which included:
  - Armor coupon testing from April to May 2016 to assess the protection capabilities of the armor against operationally anticipated threats
  - Armor exploitation testing in May 2016 intended to identify vulnerabilities in the HUSK integrated armor
  - Six full-up system-level live fire tests from June to September 2016 to evaluate crew survivability and vehicle performance against a subset of mines and IEDs
  - Automatic Fire Extinguishing System test in July 2016 to assess its effectiveness
- DOT&E provided a classified report to Congress in June 2017, evaluating the HUSK protection afforded to the crew given by the armor replaceable cab.

Assessment
- HUSK provides increased protection over the legacy HET A1 system.
- HUSK demonstrated the ability to protect the crew against small arms, IEDs, artillery rounds, and blast mines. More specifically, HUSK provides protection against all non-overmatching threshold threats at levels indicated in the MRAP Capability Production Document 1.1.

- Armor exploitation testing revealed HUSK door vulnerabilities. The Army mitigated the vulnerability by correcting the design deficiency, and demonstrated, through additional tests, the effectiveness of the system design changes.
- HUSK crew egress could be challenged during post-combat engagement. The roof hatch was accessible as a secondary means to exit the vehicle after each test event.
- HUSK did not introduce any changes that would adversely affect the effectiveness of the Automatic Fire Extinguisher System. The system provided the required fire suppressant concentrations in the crew compartment.
- HUSK protected the crew from fuel fires that Army testers observed outside the cab during full-up system-level live fire tests.

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY17 Recommendations. The Army should:
  1. Conduct exploitation testing on the production HUSK, after contract award, to assess any manufacturing-induced differences not identified in the level III technical data package specifications.
  2. Consider incorporating cab design changes to: (1) improve crew protection against underbody blast mines beyond threshold levels, (2) improve crew egress ability post attack by mitigating the risk to combat-induced fires outside the cab.