FY14 ARMY PROGRAMS

Precision Guidance Kit (PGK)

Executive Summary

- The Army conducted a Limited User Test of the Urgent Materiel Release version of the Precision Guidance Kit (PGK) in 2014 to support a Full Materiel Release (FMR). The August 2014 FMR decision supported the use of the Urgent Material Release PGK in training and future contingency operations.
- In September 2014, DOT&E published an Operational Assessment report in support of FMR of the Urgent Material Release PGK. The Urgent Material Release PGK met the Army’s key requirements for accuracy, reliability, and compatibility for early fielding.
- During the Program of Record PGK First Article Acceptance Tests (FAAT), the project manager discovered production quality and process deficiencies at the program’s West Virginia production facility.
- The Army rescheduled the Program of Record PGK IOT&E from 2QFY14 to 3QFY15.
- The contractor moved the Program of Record PGK low-rate initial production (LRIP) to its original location at the contractor’s production facility in Minnesota. LRIP articles produced in Minnesota will undergo FAAT in 1QFY15.

System

- The PGK is a combined fuze and GPS guidance kit that improves the ballistic accuracy of the current stockpile of high-explosive, field artillery projectiles.
- The Army plans to develop PGK for 155 mm, high-explosive projectiles (M795 and M549A1) with threshold accuracy of 50 meters Circular Error Probable and objective accuracy of 30 meters Circular Error Probable.
- The PGK will operate with existing and developmental artillery systems that have digital fire control systems and inductive fuze setters such as the M777A2 Lightweight Towed Howitzer, the M109A6 Paladin Self-Propelled Howitzer, and the M109A7 Paladin Integrated Management Self-Propelled Howitzer.

Mission

Field Artillery units employ PGK-fuzed projectiles in support of maneuver units to provide indirect fires with 50-meter accuracy. PGK-fuzed projectile accuracy allows Field Artillery units to fire fewer projectiles to achieve comparable effects of conventionally-fuzed artillery ammunition.

Major Contractor

Alliant-Techsystems Advanced Weapons Division – Plymouth, Minnesota

Activity

- PGK entered FY14 with two active program tracks. The first track is the Urgent Material Release PGK, which focused on meeting an Army-directed requirement for deployed forces. The second track is the Program of Record PGK with full-rate production planned for 4QFY14.
- In October 2013, the Army successfully completed the final Lot Acceptance Test and Urgent Material Release PGK production. The government accepted nearly 3,135 Urgent Material Release PGKs for the Army and Marines, and fielded just under 1,300 PGKs to deployed units in combat.
- In 1QFY14, the Army announced the planned end of deployed operations and the return of approximately 1,100 Urgent Material Release PGKs to the U.S.
- In February 2014, the Army executed a Limited User Test of the Urgent Material Release PGK at Yuma Proving Ground, Arizona. The authorization to field Urgent
Material Release PGKs to deployed forces restricted the use of these PGKs to support Operation Enduring Freedom. The Army identified the need to obtain an FMR for the Urgent Material Release PGKs so Soldiers could use them in training and future contingency operations. An FMR for the Urgent Material Release PGKs required a favorable Operational Test Agency Evaluation Report.

- The Army approved FMR of the Urgent Material Release PGK in August 2014.
- DOT&E published an Operational Assessment report supporting the FMR of the Urgent Material Release PGK in September 2014.

**Program of Record PGK**

- Following the March 2013 Milestone C Decision Review, which approved the Program of Record PGK for LRIP, the Army moved the PGK production line from Minnesota to the contractor’s planned production facility in West Virginia.
- The Program of Record PGK entered FY14 with a combined PGK and Excalibur Increment 1b IOT&E scheduled for February 2014 at Yuma Proving Ground, Arizona.
- In November 2013, the contractor delivered the First Article sample of Program of Record PGKs from the West Virginia production line to the government. The Army rejected the initial First Article sample because 14 failures occurred in 80 of the PGKs fired.
- The Army cancelled Program of Record PGK participation in the scheduled IOT&E and initiated a comprehensive Failure Analysis and Corrective Actions investigation. The Army moved LRIP back to the Minnesota production facility and rescheduled the Program of Record PGK IOT&E for 3QFY15.
- In April 2014, the PGK Milestone Decision Authority approved an updated PGK Acquisition Program Baseline Agreement. This agreement identified the timeframe for FMR of the Program of Record PGK as September 2015 to May 2016.
- The PGK Program Management Office provided DOT&E an overview of a testing schedule to validate corrective actions and ensure readiness of PGK to enter IOT&E in 3QFY15.
- The Army conducted all testing in accordance with the DOT&E-approved Test and Evaluation Master Plan.

**Assessment**

**Urgent Material Release PGK**

- In operational testing, the PGK fuzes demonstrated, with confidence, accuracy results well within the accuracy requirement of a 50-meter Circular Error Probable. A median radial miss distance of 21.8 meters demonstrated PGK accuracy exceeds the requirement established for obtaining an FMR for the purpose of supporting new equipment training and fielding to the Global Response Force.

**Program of Record PGK**

- The results of the Army’s comprehensive Failure Analysis and Correction Actions attributed failure modes to quality and process deficiencies at the West Virginia production plant facility. The Army has not validated design and production process changes implemented on the Minnesota production line in government testing. FAAT, which is a prerequisite for entry into IOT&E, will be conducted in 1QFY15.

**Recommendations**

- Status of Previous Recommendations. The Army addressed previous recommendations.
- FY14 Recommendations. The Army should:
  1. Continue test planning to validate corrective actions that address performance and production shortfalls and demonstrates PGK’s readiness for IOT&E.
  2. Provide an updated Test and Evaluation Master Plan that documents the program’s strategy for validating corrective actions to address performance and production shortfalls.