

Crusader Howitzer and Resupply Vehicle

Crusader was to have been the Army's next-generation, 155mm Self-Propelled Howitzer (SPH) and its companion re-supply vehicle (RSV), either tracked (RSV-T) or wheeled (RSV-W). Crusader would have been the indirect fire support system for Army armored and mechanized forces.

The Crusader SPH employed Advanced Solid Propellant Armament using a modular propellant charge system, auto-settable multi-option fuze, automated ammunition handling, Global Positioning System (GPS)-based position location, and azimuth reference system. The SPH was designed to deliver unassisted munitions at ranges up to 30 kilometers and assisted munitions up to 40 kilometers, provide a maximum rate of fire of 10 to 12 rounds per minute for three to five minutes, and a sustained rate of fire of three to six rounds per minute. It was required to have the agility and mobility to keep up with the supported maneuver force of the M1 Abrams tanks and Bradley fighting vehicles. It had to be able to complete a survivability move of 750 meters within 90 seconds of identifying a potential threat. There were to be an equal mix of RSV-Ts and RSV-Ws with automated ammunition and fuel re-supply functions and GPS-based navigation system. The SPH and RSV-T each had a crew of three, and the RSV-W had a two-man crew.

The Crusader SPH and RSV program, formerly the Advanced Field Artillery System and Future Ammunition Re-supply Vehicle, began in 1992. Crusader Operational Requirements Documents were approved in June 1993. In November 1994, the program completed a successful Defense Acquisition Board Milestone I review and entered the Program Definition and Risk Reduction phase. In 1997, a decrement in program funding caused the program manager to revise the Acquisition Program Baseline (APB) and slip the Milestone B review to 2001.

In FY00, the program was again restructured to address software development/integration problems, a funding reduction, and a change in the Army's priorities. Crusader re-entered the preliminary design phase to make it lighter (38 to 42 tons per vehicle) enabling both C-5s and C-17s to transport two SPHs without weight waivers. The program restructure added an RSV-W with an automated re-supply module mounted on a palletized load system carrier. Crusader also joined the Abrams program in seeking a common engine. The Milestone B Review slipped to FY03, with the Initial Operational Test and Evaluation and first unit equipped in 2008. In August 2000, DOT&E approved a Crusader Test and Evaluation Master Plan (TEMP).

In May 2002, the Secretary of Defense directed the Army to terminate the Crusader program.

TEST & EVALUATION ACTIVITIES

During FY02, the Self-Propelled Howitzer-1 Emulator (SPH1E) underwent propellant handling and firing tests at Yuma Proving Ground, Arizona. SPH1E included the chassis, armament, and ammunition handling equipment hardware of a heavy Crusader prototype with emulation electronics and software. SPH1E achieved a 40-kilometer range, fired a ten-round mission at the maximum rate of fire, and demonstrated a four-round, multiple-round-simultaneous-impact fire mission.



Crusader would have been the indirect fire support system for Army armored and mechanized forces.

ARMY PROGRAMS

United Defense, the prime contractor, integrated armament and ammunition handling test stands, crew stations, electronics, and tactical software into a Crusader Integrated Test Station to exercise fire missions, re-supply, upload/download, and inventory management functions for both the SPH and RSV.

In FY02, the Crusader LFT&E Integrated Product Team (IPT) reached consensus on the details of the vulnerability Live Fire Test and Evaluation (LFT&E) strategy and received DOT&E approval to integrate the strategy into the Crusader TEMP for final approval at Milestone B. During FY02, DOT&E continued to participate in IPT activities refining the LFT&E strategy and planning the post-Milestone B Ballistic Hull and Turret test. All LFT&E IPT activity ceased after termination of the Crusader program.

TEST & EVALUATION ASSESSMENT

Test firings with the SPH1E showed that Crusader had the potential to meet its range and rate-of-fire requirements. However, technical problems delayed the SPH1E testing that was intended to demonstrate that Crusader could consistently achieve those requirements.

OSD directed the Army to take appropriate action to retain Crusader technologies under development that present potential benefits to other programs. DOT&E will assist in evaluating those programs that receive the Crusader technologies.