

## **General Aviation**

Title: Unmanned Aircraft Operator Qualification and Training Requirements

Description of Requirements:

to support the rapidly growing industry of Unmanned Aerial Vehicles (UAVs) as they transition from military to non-military surveillance and cargo applications. Historically, flight operations assumed an onboard pilot controlling an aircraft to ensure safe operation in the National Airspace System (NAS). An unmanned aerial vehicle may be controlled by a pilot or operator from a distant ground station, and in some cases, operate autonomously where the UAV's flight path is based on pre-programmed global position system waypoints and the ground pilot or operator has very limited control over the aircraft flight movements. UAVs offer exciting opportunities for civil aviation; however before non-military UAV operations are fully integrated into the NAS, the FAA's General Aviation and Commercial Aviation Division (AFS-800) needs to define operator qualification and training requirements.

Background:

Unmanned Aerial Vehicles (UAV) or a more appropriate term Unmanned Aircraft (UA) is an aircraft without an onboard pilot. The military has used unmanned aircraft for several decades with various levels of success and more recently there has been an increase in demand for non-military unmanned aircraft operations. Within the last couple years, commercial unmanned aircraft operations have concentrated on surveillance and advertisement, but several companies have expressed an interest in using unmanned aircraft for commercial operations. Aviation analysts state that unmanned aircraft operations will transform the aviation industry and the recent proliferation of requests to use unmanned aircraft in the national air space is not a fad. Although, unmanned aircraft refers to pilot-out-of-the-aircraft operation, the human operator is still a critical element in the success of an unmanned aircraft operation. Not surprisingly, the largest contributing factor for unmanned aircraft mishaps is human error (Draper, Calhoun, Ruff, Fontejon, and Guilfoos (July 16, 2003), Multi-sensory interface concepts and advanced visualization techniques for UAV systems, presented at Association for Unmanned Vehicle Systems International Conference, Baltimore, MD). In order to achieve the Federal Aviation Administration's Flight Plan 2004-2008, Increased Safety Goal: Objective 2 - reduce the number of fatal accidents in general aviation, Strategy - establish standard procedures and guidelines for general aviation operators, Initiative - develop policies, procedures, and approval processes to enable operation of unmanned aerial vehicles (UAV), the

General Aviation and Commercial Aviation Division needs human factors guidance to assist in the decision of who will operate UAVs and what type of training requirements will be required of these operators. Research may investigate the effects of operator performance by different types of console display interfaces; how UAV flight mission profiles affect operator workload, vigilance, fatigue, and piloting performance; determine whether prior flight experience is important to operate a UAV; determine whether new opportunities present themselves in terms of the inclusion of persons with handicaps that were previously excluded from piloting aircraft but would not have difficulty with UA; and investigate medical and physiological standards are required to operate a UAV.

Output:

Final report will specifies operator training and qualification requirements related to the operation of UAVs within the NAS.

Regulatory Link:

Part 43, 61, 63, 65, 91, 93, 147; Federal Aviation Administration's Flight Plan 2004-2008