EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

MQ-1L PREDATOR S/N 99-3062

DEPLOYED LOCATION

17 AUGUST 2004

On 17 August 2004, at 0920 local time, an MQ-1L Predator, S/N 99-3062, call sign BUGSY 24, 15th Reconnaissance Squadron, crashed while flying in the CENTCOM Area of Responsibility (AOR) supporting the air base defense mission of a deployed airfield. Fire in the aft section of the aircraft caused the right tailboard to depart the aircraft. The aircraft departed controlled flight and was destroyed upon impact with the loss valued at $4,288,000. No one was injured in the accident and there was no damage to government or private property. Media interest was minimal.

The mishap mission was the first flight out phase after accomplishing the 60 hour engine and 120 hour airframe inspection. Approximately 28 minutes after takeoff, the aircrew received numerous warning tones at once indicating the engine failure, alternator failure and engine fire amongst other failure warnings. Visual observation from the sensor ball clearly showed a fire consuming the aft section of the aircraft. Over the next few minutes, the fire became catastrophic, with fire burning the propeller area, top of the engine area and the right tailboard servo area. The aircraft became uncontrollable during this period. The right tailboard departed the aircraft and the aircraft departed controlled flight and crashed.

**There is clear and convincing evidence that this mishap was caused by a fire in the engine compartment.** There is substantial evidence the fire was caused by the non-standard routing of the oil pump supply line bringing oil from the oil cooler to the oil pump. The line was routed over the engine block around #3 cylinder head and then to the oil pump. The location of the fire, routing of the oil line, condition of the oil line, flammability characteristics of the oil, and condition of the engine components tend to indicate that the oil supply line failed and the subsequent oil leak was the ignition point of the fire. The hose is made of a material that when exposed to the normal heat from the turbocharger or contact of the oil line to cylinder #3 exhaust would failed over time and expose oil to very hot surfaces, thus starting a fire. The fire, fed by airflow from the air scoops and fuel or coolant lines that were burned, grew to encompass the propeller area, and affected the structural integrity of Bulkhead 10 causing the right tailboard to depart the aircraft. The aircraft departed controlled flight and was destroyed upon impact. There is substantial evidence that two additional factors contributed to this mishap: (1) the maintenance technical orders do not give clear guidance on how to route the hoses; and (2) the very high Ops TEMPO for both the operations and maintenance crews.