



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND

26 Aug 10

MEMORANDUM FOR HQ AFSOC/A3OUI

FROM: AFSOC/A3OU

SUBJECT: Airworthiness Safety Release (ASR), Qualification Level 3, for Operation of the Expeditionary Unmanned Aircraft System (EUAS) - Viking 400 at/or near Gatesville Municipal Airport, TX.

1. Scope: This memorandum constitutes an Airworthiness Safety Release (ASR), Qualification Level 3, authorizing operation of the EUAS - Viking 400 for operations at/or near Gatesville Municipal Airport, TX. This ASR is intended to support the issuance of a Certificate of Waiver or Authorization (COA) from the Federal Aviation Administration (FAA).

2. Validity: This ASR is valid for the period of performance of the approved COA and subsequent renewals. This ASR is terminated upon changes in configuration of the subject equipment beyond authorized payload changes, or upon issuance of a later Airworthiness Safety Release, whichever occurs first. This ASR is valid only for operations specified within the approved Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA) area at/or near Gatesville Municipal Airport, TX.

3. List of Appendices:

Appendix A – Restrictions and Operating Information

Appendix B – Configuration and Installation Detail

Appendix C – Inspections, Maintenance, and Logbook Instructions

Appendix D – References List

4. Points of contact (POC) are (b) (6), (b) (3) 10 USC 130b
(b) (6), (b) (3) 10 USC 130b

(b) (6), (b) (3) 10 USC 130b

(b) (6), (b) (3) 10 USC 130b

(b) (6), (b) (3)
10 USC 130b

Unmanned Systems Branch

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Appendix A - Restrictions and Operating Information

WARNING

The EUAS - Viking 400 is susceptible to radiated emissions. Loss of link, loss of GPS, loss of video, and possible loss of vehicle control are likely in proximity to emitters. Operators shall avoid known high intensity Electromagnetic Interference (EMI) areas.

WARNING

Accidental operation of the EUAS - Viking 400 outside of approved airspace shall be immediately reported to Air Traffic Control (ATC). The operator shall make immediate actions to correct the flight path and/or follow ATC direction.

WARNING

The EUAS - Viking 400 does not have a sense and avoid system. Mid-air collision is a risk. All flight operations shall be conducted to ensure that manned and unmanned aircraft shall maintain proper separation. Airspace deconfliction shall be accomplished using local ATC procedures and procedures identified in the FAA COA.

WARNING

The EUAS - Viking 400 has not completed full airworthiness qualification. All flight operations shall be conducted in a manner to minimize exposure to manned aircraft and populated ground areas.

WARNING

The EUAS - Viking 400 has not undergone SOF Explosive Atmosphere testing. A serious fire or explosion may result if the aircraft is powered while flammable vapors are present during ground or flight operations. Do not operate the system in the presence of flammable vapors.

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WARNING

The operator must coordinate frequencies with any other UAS operators in the area in accordance with (IAW) the operator's manual and Local Spectrum Manager procedures. Failure to coordinate frequencies with other users could result in loss of vehicle control and possible loss of the air vehicle.

WARNING

When concurrently operating multiple air vehicles with multiple GCS units (i.e., one air vehicle per GCS), ensure that adequate physical and/or frequency separation exists between the GCS units and the air vehicles they are controlling. Failure to do so could result in inadvertent control of an air vehicle by the incorrect GCS possibly resulting in loss of air vehicle and subsequent injury and/or collateral damage.

CAUTION

Operation of the Viking 400 GPS shall be verified prior to each flight. The GPS shall be free of degrading interference (i.e. interference that would result in a loss of GPS) prior to flight.

CAUTION

Noise characterization testing has not been completed on this system. Prolonged exposure to engine noise at close proximity may contribute to hearing loss. It is recommended that ear protection be worn during the launching and recovery stages of the UA.

1. Operate the EUAS - Viking 400 IAW references D-1, D-2 and D-3, except as modified by this ASR.
 - a. Flights shall be conducted by operators trained, qualified, and current in the operation of the EUAS - Viking 400. Operator training, qualification, and currency shall be documented.

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b. Flights shall be conducted IAW local regulations, the provisions of the DoD/FAA MOA, Operation of DoD UAS in the National Airspace System, or as specified within an approved Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA).

c. Flight over populated areas, buildings, or an open-air assembly of people shall be avoided.

d. Observers are required during the launch and recovery phases of the operation. The observer's responsibility is to aid in visual airspace deconfliction. Both the observer and operator shall be instructed on proper procedures, responsibilities, and voice commands for visual airspace deconfliction.

2. Functional checks of the EUAS - Viking 400 and associated payload shall be accomplished IAW References D-1, D-2 and D-3 before each flight. Launch of the UA with any known system failures, discrepancies, or degraded performance characteristics is prohibited.

a. Upon any failure during flight, vehicle operators must fly the UA back to the recovery location or utilize built in fail-safe features to recover the UA.

b. Temporary loss of GPS satellites is not considered a failure condition.

3. If a systematic failure occurs, resulting in the departure of the UA from the approved flight area(s), flight operations under this ASR are to be terminated. Every attempt will be made to immediately bring the UA back into the approved area and make a normal recovery, but if unable to gain control of the UA, flight termination shall be initiated as soon as possible.

4. All test results, analyses, and safety assessments shall be documented, reviewed, and configuration managed as part of the aircraft and test configuration.

5. All site deconfliction activities (air and ground) shall be completed before flight (such as, but not limited to, frequency/channel usage, airspace management, air vehicle separation, FAA coordination, emergency responsibilities, etc).

6. Flight is restricted to the approved operating area(s) defined in the approved FAA COA.

7. Emergency procedures: The emergency procedures for the UAS are outlined in Reference D-1 (operator's manual).

8. Summary Highlights:

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- a. The EUAS - Viking 400 has not completed full airworthiness qualification. An ASR has been granted through a Level 3 airworthiness evaluation. A Level 3 ASR establishes a minimum level of safety for UAS operations. Strict adherence to the operator's manual, local Standard Operating Procedure for UAS, and this ASR is required to reduce risk loss of the aircraft, property damage and personal injury.
- b. Coordination of channel selection with other systems operating in the area is critical to reducing accident rates.
- c. This ASR process review was limited to the specific system configuration listed in Appendix B. Engineering assessment has been conducted primarily to ensure safety of flight in the immediate environment of all personnel involved in the flight operations of the UAS. Major air vehicle or system modifications invalidate the ASR. For the purposes of this ASR, a major modification is defined as any configuration change/alteration to an item(s) that implements a capability change and/or expanded mission/usage or would result in a hazard associated with departure of the air vehicle from the flight boundaries defined in Appendix A.
- d. The probability of loss of the EUAS - Viking 400 air vehicle is accepted by the user's command. Any air vehicle loss experienced during flight operations conducted under this ASR must be reported to Higher Headquarters IAW paragraph 3-5 of USSOCOM DIRECTIVE 350-9 and the user's individual component's SOP; which can be found on the SUASMAN (<https://webapps.hurlburt.af.mil/suasmgr/default.aspx>) web application.
- e. Range and airspace clearance is the responsibility of the operators. Compliance with airspace coordination and de-confliction requirements identified in the FAA COA supporting these flight operations is **MANDATORY**.
- f. Procedures to establish a reasonable level of physical security for the flight operations areas prior to and during all flights must be developed and implemented during each flight to preclude inadvertent access to the area by non-authorized personnel.
- g. Determination of the requirements for operator qualification, maintainer qualification, configuration management, established flight practices, and other associated procedures is beyond the scope of this ASR, but must be addressed by an appropriate authority to ensure an acceptable level of safety for the UAS and to minimize the risk to ground personnel and property.
- h. Data collected as part of these flight operations should be made available to assist in the effort to address future airworthiness assessment of this UAS. This data includes, but is not limited to, dates of flights, flight durations, and any discrepancies noted during flights. It is the responsibility of the operator to record this data IAW paragraph 6-6 of USSOCOM DIRECTIVE 350-9.

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Appendix B – Configuration and Installation Detail

1 Configuration details, other specific equipment, and drawings:

The EUAS - Viking 400 is defined in reference D-1 & D-2.

2 Special installation instructions:

None

3. Installation verification and quality checks:

None

Appendix C – Inspections, Maintenance, and Logbook Instructions

1. Conduct inspections and maintenance as specified in reference D-1, D-2 and D-3.

Appendix D – References List

1. EUAS - Viking 400 Operator's Manual, SOFFW1-09-COPM-00963-00, dated 23 Apr 10.
2. EUAS - Viking 400 Maintenance Manual, SOFFW1-09-C20P-0008-00, dated 23 Apr 10.
 - a. Volume 1 – Aircraft and Ground Support Equipment Maintenance
 - b. Volume 2 – GCS Maintenance
 - c. Volume 3 – System Illustrated Parts Breakdown
 - d. Volume 4 – Zanzottera 498i Engine Maintenance
4. EUAS - Viking 400 System Checklist, SOFFW1-09-CGEN-00349-00, dated 23 Apr 10.