

UNMANNED AIRCRAFT SYSTEMS (UAS)  
STANDARD OPERATING PROCEDURES (SOP)  
FOR  
FORT STORY GROUP 1 SUAS

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1. **INTRODUCTION.** This document covers UAS operations at Fort Story VA and over the coastal waters to the North and East of the military reservation. This SOP will be used in conjunction with an approved Airworthiness Release and Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA) for operations at Fort Story VA.

One Pilot in Command (PIC) must be designated at all times and is responsible for the safety of the Unmanned Aircraft (UA) and persons and property along the UA flight path. The PIC maybe a Vehicle Operator (VO) or Mission Operator (MO). The PIC will be held accountable for controlling their aircraft to the same standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, Careless and Reckless Operation, apply to UAS pilots.

Unmanned Aircraft Systems operations at Fort Story Military Reservation will be conducted in Class E and G airspace. As depicted in figure 1 below, the UAS operations area is divided into two areas; UAS Ops Area A Class G airspace - surface up to but not including 700 feet MSL to the North and UAS Ops Area B Class E/G - surface up to but not including 1000 feet MSL to the East. While over land the UAS will not be operated with 1000 feet of Highway 60, see figure 2. Operations will be conducted a maximum of 5 times a week, and up to 12 one-hour flights per day. Operations will be conducted in VMC during the hours of sunrise to sunset. Visual observers will remain in contact with the PIC and will be positioned so that they remain within .5 to 1 nautical mile horizontally and 500 to 1000 feet vertically (based on operating in Area A or B and specific system in operation) of the UAS during all operations. Boats will be used by operators and observers during off shore operations.

2. **FLIGHT SCHEDULING AND NOTAMS.** UAS operations within Fort Story Class G airspace will be scheduled a minimum of 24 hours prior with the Fort Story Military Operations Center and coordinated with the Norfolk Terminal Radar Approach Control Facility (TRACON) at 757/460-5142. The schedule shall include, at a minimum, the following for each flight:
  - A. Takeoff time (all times local)
  - B. Estimated land time
  - C. FM Net and/or ATC call sign of PIC and/or observer.
  - D. Observer name or initials
  - E. Observer cell phone number (back-up comm)

A NOTAM will be requested NLT 24 hours prior to UAS operations. The PIC will request a NOTAM via the Automated Flight Service Station (AFSS) at 1-800-487-6867. The following information, as a minimum, will need to be passed to the NOTAM representative:

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- A. Date/time UAS activity will begin and end.
- B. A description of the operational area using a radial and DME from the Norfolk Airport (KORF) VORTAC. More than one radial and DME may be used to describe the area.
- C. The altitudes affected.
- D. Duration of the operation.
- E. Record the AFSS representative initials here:  
\_\_\_\_\_.

1. **FREQUENCY AUTHORIZATION AND DECONFLICTION.** A list of frequencies that will be utilized will be provided to the Fort Story Military Operations Center and Norfolk TRACON for deconfliction and approval. Norfolk ATC may issue the frequency to be used/monitored. Radio checks with the appropriate ATC facility (KORF and/or KNTU) will be pre-coordinated and approved by the facility before UAS operations begin.

- A. ATC facility: \_\_\_\_\_. Frequency: \_\_\_\_\_.
- B. ATC facility commercial phone number for back-up comms: \_\_\_\_\_.

A list of system frequencies that will be utilized will be provided to the DOD Regional Air Frequency Coordinator (DSN 342-1194/1532, FAX DSN 342-1200) for deconfliction and approval.

- 3. **FORT STORY PROCEDURES.** The PIC, Observer, or designated team lead will pick-up FM net radios from the Fort Story Military Operations Center and conduct a radio check one-hour prior to ensure the radio is operational, and loud and clear. The same individual will verify that Norfolk TRACON personnel have the UAS flight schedule for that day's UAS operations and that a NOTAM has been issued.
- 4. **UAS OPERATIONAL AREA. (See figures 1&2)** The UAS area is defined as follows:

N 36-59-41.17 W 76-10-58.60  
N 37-04-10.36 W 76-07-41.11  
N 37-04-05.51 W 76-00-20.32  
N 36-59-57.97 W 75-57-29.49  
N 36-53-05.39 W 75-54-03.58  
N 36-51-05.26 W 75-54-03.58  
N 36-51-01.62 W 75-54-32.56

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|               |               |
|---------------|---------------|
| N 36-49-33.00 | W 75-55-28.01 |
| N 36-50-36.00 | W 75-55-40.19 |
| N 36-51-24.83 | W 75-56-00.08 |
| N 36-52-13.38 | W 75-56-31.18 |
| N 36-52-30.08 | W 75-56-46.70 |
| N 36-53-02.87 | W 75-57-17.59 |
| N 36-53-43.90 | W 75-58-15.20 |
| N 36-54-15.45 | W 75-59-23.80 |
| N 36-54-56.09 | W 75-59-31.63 |
| N 36-55-18.12 | W 76-03-00.39 |
| N 36-55-11.32 | W 76-03-12.90 |
| N 36-55-03.55 | W 76-03-28.15 |
| N 36-54-55.78 | W 76-03-49.19 |
| N 36-54-48.74 | W 76-04-34.03 |
| N 36-54-47.48 | W 76-04-44.89 |
| N 36-54-53.47 | W 76-04-46.24 |
| N 36-55-07.24 | W 76-04-49.60 |
| N 36-55-19.54 | W 76-04-54.51 |
| N 36-55-34.43 | W 76-05-00.45 |
| N 36-55-55.76 | W 76-05-08.74 |
| N 36-56-31.53 | W 76-05-30.25 |
| N 36-56-51.64 | W 76-05-42.35 |
| N 36-57-46.82 | W 76-06-33.15 |
| N 36-58-34.69 | W 76-07-36.55 |
| N 36-59-08.03 | W 76-08-42.94 |
| N 36-59-29.84 | W 76-09-50.34 |
| N 36-59-39.88 | W 76-10-44.66 |

Op Areas A and B are established to provide common reference and situational awareness to ATC and UAS operators as well as a line to transition altitudes. These areas are delineated by the W 76° line that runs north to south.

- 1) **Ft. Story Op Area A:** This area underlies the KORF Runway 14 approach path. The eastern boundary is delineated by the 76° line. UAS may operate at or below 700' MSL.
- 2) **Ft. Story Op Area B:** This area underlies the KNTU Runways 14 approach path. The western boundary is delineated by the 76° line. UAS may operate at or below 1000' MSL.

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5. **PRE-FLIGHT BRIEFINGS.** Prior to any UAS operations, the operator will conduct a crew and safety briefing. The briefing will include, at a minimum, the following:
- A. **Mission overview.**
  - B. **Weather.** (current and forecasted)
  - C. **Flight route/area.** Ensure Fort Story operations area is loaded in FalconView.
  - D. **Airspace surveillance procedures.**
    - 1) Pilots responsibilities.
    - 2) Observer's responsibilities.
    - 3) Pilot responsibilities in the event of ATC notification of observed aircraft in vicinity of UA operations not in two-way communication.
    - 4) Pilot/Observer responsibilities when they observe an aircraft in vicinity of UA operations.
  - E. **Required items, mission equipment, and personnel.**
  - F. **Crew actions, duties, and responsibilities.** (Modes of flight, who will make radio calls, identification of recovery team, etc.)
    - 1) Emergency actions.
    - 2) Mission considerations and actions to be performed by VO/MO.
  - G. **General crew duties.**
    - 1) Vehicle Operator (VO).
      - a. Fly the air vehicle.
      - b. Avoid traffic and obstacles.
      - c. Cross check display symbology, messages, wind velocity/ direction.
    - 2) Mission Operator (MO)
      - a. Assist in traffic and obstacle avoidance.
      - b. Manage radios.
      - c. Navigate.
      - d. Cross check display symbology, messages, wind velocity/direction
      - e. Read and complete checklist items as required.
      - f. Set/adjust pages/switches and systems as required.
      - g. Note takeoff time.
      - h. Log events
      - i. Calculate and monitor times for holding and approaches. When on approach, watch for the air vehicle. Be prepared to direct the VO for a missed approach procedure, if required.
      - j. When visual is acquired direct VO to the ground if needed.
    - 3) Observer
      - a. Must remain within .5 nautical miles horizontally and 500 feet vertically (Wasp), .5 nautical miles horizontally and 1000 feet vertically (Raven), and 1

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    nautical mile horizontally and 1000 feet vertically (Puma AE) of the UAS during all operations.

- b. Must keep the UAS in sight at all times.
- c. Maintain two-way contact with the VO/MO to warn of potential hazards.
- d. Provide VO/MO with instructions to steer clear of any potential collisions.

H. **Analysis of the aircraft.** Logbook and preflight deficiencies.

I. **Risk assessment considerations.**

J. **Comments:** Instructor, Mission commander, Crew member, Observer questions, comments, and acknowledgment of the mission briefing.

6. **PRE-FLIGHT PROCEDURES.** SUAS are particularly sensitive to adverse weather conditions such as moderate to blowing sand and dust, rain, severe turbulence, storms and lightening, and wind gusts. SUAS operators will be responsible to routinely check current and forecasted conditions. It will be the responsibility of the PIC to ensure weather conditions do not exceed system limitations as described in Operator's Manual. All flight operations will be conducted in Visual Meteorological Conditions (VMC) under Visual Flight Rules (VFR). The PIC will complete the Preflight checklist in Operator's Manual.

7. **LAUNCH and FLIGHT.** The PIC will complete, at a minimum, the following:

- A. Follow procedures outlined in the Operator's Manual.
- B. Inform Norfolk Terminal Radar Approach Control Facility (TRACON) that the SUAS is airborne.
- C. SUAS shall remain within COA airspace of the Ft. Story (figures 1 and 2).
- D. Operations will be conducted over a non-populated area.

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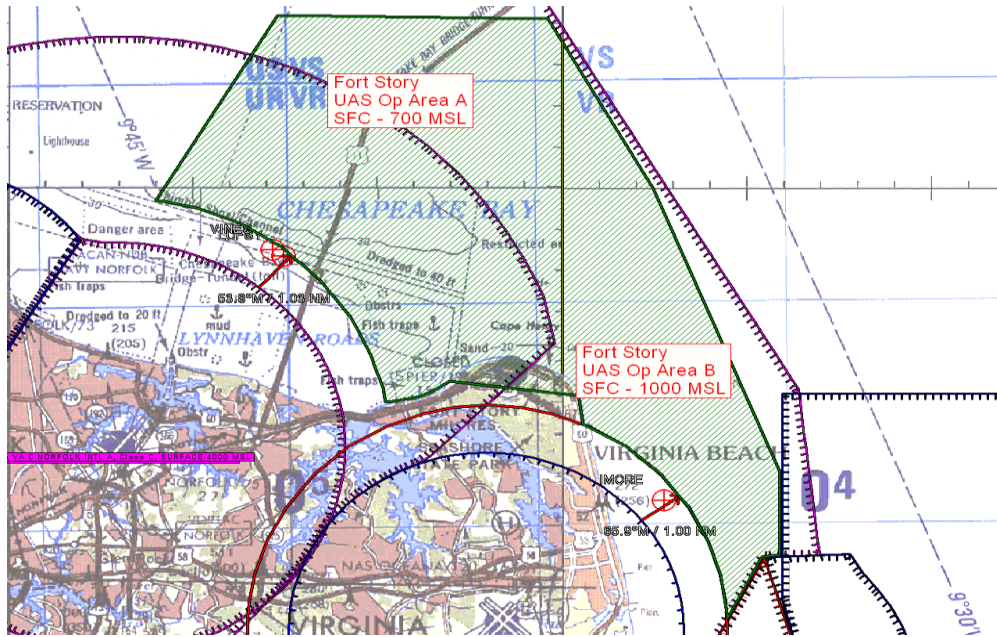


Figure 1. Group 1 UAS operation area / Fort Story COA defined Class E/G Airspace

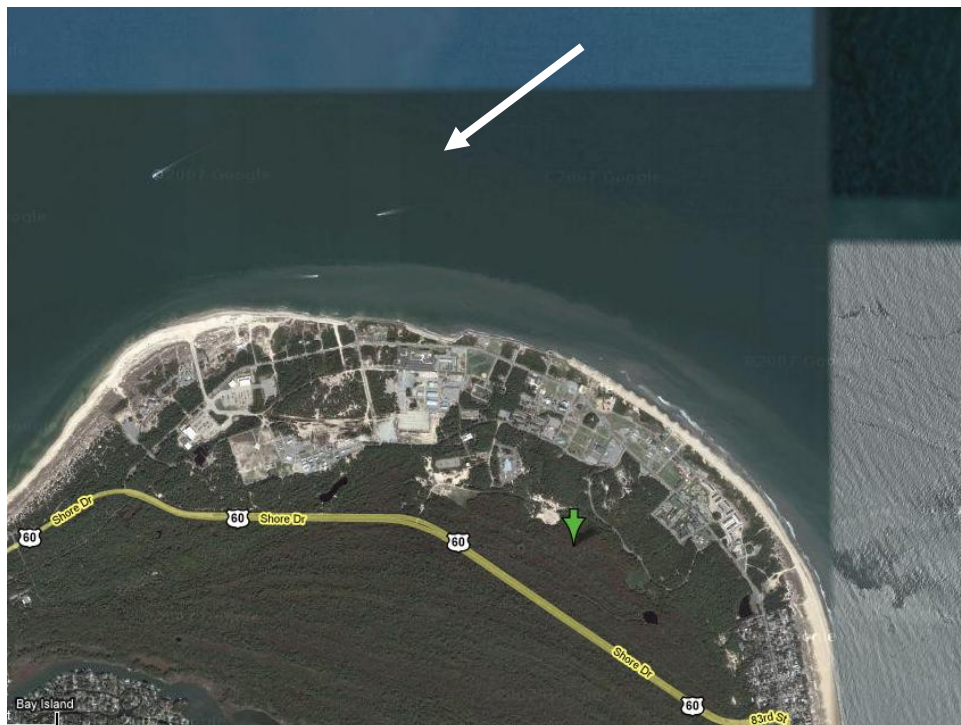


Figure 2. Group 1 UAS operation area / Fort Story Military Reservation.



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8. **POST FLIGHT PROCEDURES:** The PIC will complete, at a minimum, the following:
- A. Notify Norfolk TRACON upon completion of each sortie.
  - B. Inventory and account for all equipment
  - C. Report any discrepancies
  - D. Conduct a visual and functional equipment inspection
  - E. Complete an entry to the flight log
  - F. Last flight of day. Notify Norfolk TRACON upon completion of daily activities.
9. **EMERGENCY PROCEDURES.** Preventing a mishap or SUAS loss or damage depends on early recognition of dangerous flight conditions or malfunctions followed by appropriate corrective action. Both the VO and MO will memorize the immediate action items of each emergency procedure outlined in the Operator's Manual. Mission planning must include alternative courses of action available for each phase of the proposed flight. To the extent possible, planned courses of actions for emergencies should be made before the flight begins to include ensuring the Rally waypoint (in the event of loss-of-link) and waypoint "E" (for routine landings) are within the designated COA airspace. During flight, both operators must maintain situational awareness and VO should always know which direction to fly to escape hazard. MO: Should always know UA position relative to hazards and be ready to give VO headings and altitudes to fly to safety. Those steps that must be performed immediately in an emergency are underlined and in bold print in the Operator's Manual. The operators must be able to perform these steps without referencing the checklist or manual. Non-underlined steps can be accomplished with use of the checklist. During an emergency, the PIC will complete, at a minimum, the following:
- A. Follow procedures outlined in Operator's Manual.
  - B. Immediately notify Norfolk TRACON and advise them of the nature of the emergency situation and/or any other pertinent information.
10. **LOST LINK PROCEDURES.** The UA will be programmed "go-to rally" and autoland. The "rally" point will be located over the Ground Control Station (GCS) within approved COA airspace. A secondary option is available to the UA operator to program the UA to "End Flight" upon lost-link which will cause the immediate termination of the flight. All lost link procedure must be contained within the approved COA airspace and remain below highest altitude for the op area.
11. **LOST COMMUNICATIONS.** In the event that two-way communications are lost or become unavailable, the operator will execute "go-to rally" and autoland or "end flight"

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within the approved COA airspace below highest altitude for the op area. (Note: Use of telephones as a primary means of two-way communication is at the sole discretion of Norfolk TRACON.)

**12. MISCELLANEOUS.**

- A. The United States Special Operations Command and/or its representatives are responsible at all times for collision avoidance with non-participating aircraft and the safety of persons or property on the surface with respect to the UAS.
- B. Incident / Accident Reporting: The following information is required to document unusual occurrences associated with UAS activities in the National Air Space System.
  - 1) The proponent for the COA shall provide the following information to [Donald.E.Grampp@faa.gov](mailto:Donald.E.Grampp@faa.gov) on a monthly/annual basis (Note: reporting is not required until the first flight occurs. Then reporting must continue on a monthly/annual basis even when no flights are executed):
    - Number of flights conducted under this COA.
    - Pilot duty time per flight.
    - Unusual equipment malfunctions (hardware/software).
    - Deviations from ATC instructions.
    - Operational/coordination issues.
    - All periods of Loss of Communications.
    - All spill outs from COA airspace.
  - 2) The following shall be submitted to [Donald.E.Grampp@faa.gov](mailto:Donald.E.Grampp@faa.gov) within 24 hours:
    - Deviations from the “Special Provisions” contained in the COA.
    - All periods of Loss Link, including duration.
    - All incidents involving the UAS as defined in 49 CFR 830.
    - All accidents involving the UAS as defined in 49 CFR 830.