

Unmanned Aircraft System Operations

00.11.00.00

11.05.00 Organization and Administration.

The Unmanned Aircraft Systems (UAS) Lieutenants shall be responsible to the Assistant Chief Pilot for administrative control and direction/oversight of the Aircraft Section UAS Program. It will be the responsibility of the UAS Lieutenants to assign UAS operation base locations, approve missions, develop Departmental UAS Program policy, submit annual budget requests/purchases for approval, and to review and submit to all Federal Aviation Administration (FAA) required reports.

The designated UAS Team Leaders shall be responsible to the UAS Lieutenants for the direction and coordination of UAS Team missions and training activities. The UAS Team Leaders will be responsible for tracking team missions and currency, and for completing the required monthly and annual FAA reports for submission to the UAS Lieutenants.

11.10.00 Operating Procedures.

10.01 Weather Operating Limitations. Without the prior approval of the Chief or Assistant Chief Pilots, Department UAS will not be operated with less than a 1000' ceiling and 3 miles visibility.

10.02 Mission Activation Procedures. Requests for Department UAS resource deployment should be directed to the UAS Team Leaders for submission to the UAS Lieutenants for approval. The UAS Team Leaders, or their designee, will contact the requesting agency and gather the information and details necessary to apply for the Certificate of Authorization (COA) application and approval. This will be accomplished by completing the Emergency COA – Data Requirements (**Annex 1**). The UAS Team Leaders, or their designee, shall assign UAS equipment and minimum of two UAS operators to complete approved missions.

10.03 Emergency COA Application The Team Leaders, or their designee, make the request to the FAA, by providing the COA application information, and scope of request.

11.15.00 Training & Standardization.

Department UAS Operator training and standardization will consist of the following.

15.01 Initial UAS Training. Conducted by UAS Instructors as approved by the Chief Pilot.

15.02 Instructor UAS Training. Conducted by the Manufacturer – attendees selected by the UAS Lieutenants based on recommendations of the Team Leaders.

15.03 Department UAS Team Training. Conducted by the Team quarterly, at minimum, as designated by the Team Leaders.

15.04 Department UAS Operator Currency Requirement. Team members are required to have 3 landings every 90 days to remain current as Department UAS Vehicle Operators.

15.05 Department UAS Standardization and Evaluation.

1. Unless otherwise approved by the Aircraft Section Chief Pilot, Assistant Chief Pilot or UAS Lieutenants, Department UAS Operators shall comply with the manufacturer's operator's manual in all Department UAS operations.

2. All Department UAS Team members shall undergo annual Mission Operator and Vehicle Operator evaluation/qualification, as determined by the Team Leaders.

11.20.00 UAS Maintenance Program

Any maintenance discrepancies will be noted on the Manufacturer's and DPS flight logs, and reported to the UAS Team Leaders, as soon as practical. Maintenance on Department UAS will only be accomplished by the personnel and facilities, and to the extent listed below, unless otherwise approved.

20.01 Department UAS Operators. Authorized to conduct field repairs in which they have received instruction.

20.02 Other repairs will be performed by authorized service providers as approved by the Chief Pilot.

11.25.00 Reports.

25.01 Records Maintenance All UAS operators shall complete both the Manufacturer's and DPS flight logs, any time a Aircraft Section UAS is operated.

25.02 Required Reporting Procedures.

The following information is required to document unusual occurrences associated with UAS activities in the NAS (National Air Space).

1. The Texas Department of Public Safety Aircraft Section shall provide the following information to the FAA - Required Report Contact listed in Annex 1, on a monthly/annual basis, using the report form (Annex 2):

- a. Number of flights conducted under this COA
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware / software).
- d. Deviations from ATC instructions.
- e. Operational/coordination issues.
- f. All periods of loss of link (telemetry), command and or control.

2. The following shall be reported via email or phone (202) 385-4542, cell (443) 569-1732 to the FAA - Required Report Contact listed in Annex 1 within 24 hours.

- a. All accidents or incidents involving UAS activities, including lost link.
- b. Deviations from "Special Provisions" contained in the COA.

11.30.00 Florence and Thrall Training COAs

30.01 DPS COA Responsibilities. The COAs assigned to the Texas Department of Public Safety Aircraft Section does not in itself, waive Federal Aviation Regulation (FAR) nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the Texas Department of Public Safety Aircraft Section to resolve the matter. The COAs do not authorize flight within Special Use Airspace without approval from the using agency. **Texas Department of Public Safety Aircraft Section is authorized to operate the UAS in the operations area depicted in the shaded area of the Aeronautical sectional chart "San Antonio" (See Annex 3).**

30.02 Activity. Operation of the UAS in class G airspace at or below 400 feet AGL (Above Ground Level) is under the jurisdiction of the Austin Approach Control (ATC).

30.03 Purpose. To prescribe UAS operating requirements, outside of Restricted and / or Warning Area airspace in the NAS for the purpose of training and/or operational flights.

11.35.00 Renewal of Training COAs.

Renewal of the Texas Department of Public Safety Aircraft Section Training COAs shall be applied for by advising the FAA, in writing, no later than 60 days prior to the requested effective date.

11.40.00 General Provisions.

The review of the UAS activities is based on the current understanding of the FAA of UAS operations, and the impact of such operations in the NAS, therefore such review should not be considered a precedent for future operations. As changes occur in the UAS industry, or in the understanding of the FAA of it, there may be changes to the limitations and conditions for similar operations in the future. All personnel connected with the UAS operation must comply with the contents of the COA and its provisions. The COA will be reviewed by the FAA and amended as necessary to conform to changing FAA UAS policy and guidance.

11.45.00 Safety Provisions.

Unmanned aircraft (UA) have no on-board pilot to perform see-and-avoid responsibilities, and therefore, when operating outside of restricted areas, special provisions must be made to ensure an equivalent level of safety exists for operations, as had a pilot been on board. In accordance with 14 CFR Part 91, General Operating and Flight rules, subpart J-waivers, 91.903, policy and procedures, the following provisions provide acceptable mitigation of 14 CFR Part 91.113 and must be complied with.

For the purpose of see and avoid, visual observers must be utilized at all times except in Class A airspace, restricted areas, and warning areas. The observers may either be ground based or in a chase plane. The UA must remain within a lateral distance of no more than 1/4 nautical mile and 400' vertically from the visual observer. UAS pilots will ensure there is a safe operating distance

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between manned and unmanned aircraft at all times in accordance with 14 CFR 91.111, *Operating Near Other Aircraft*, and 14 CFR 91.113, *Right of Way Rules*. Cloud clearances and VFR visibilities for Class E airspace will be used regardless of class of airspace. Additionally, UAS operators are advised to operate well clear of all known manned aircraft operations. The dropping or spraying of aircraft stores, or carrying of hazardous materials outside of active Restricted, Prohibited, or Warning Areas is prohibited unless specifically authorized in the Special Provisions of this COA.

11.50.00 Airworthiness Certification Provisions.

Unmanned aircraft must be shown to be airworthy to conduct flight operations in the NAS. Public use aircraft must maintain one of the following; A civil airworthiness certification from the FAA, or a statement specifying that the Department of Defense Handbook "Airworthiness Certification Criteria" MIL-HDBK-516 as amended, was used to certify the aircraft or an equivalent method of certification.

11.55.00 Pilot / Observer Provisions.

Pilot Qualifications - Unmanned aircraft pilots interacting with Air Traffic Control (ATC) shall have sufficient expertise to perform that task readily. Pilots must have an understanding of and comply with FAA Regulations and Military Regulations applicable to the airspace where the UA will operate. Pilots must have in their possession a current second class medical or higher airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol and Drugs, applies to UA pilots.

11.60.00 Aircraft and Operations Requirements.

Flight below 18,000 feet mean sea level (MSL) – UA operations below 18,000 feet MSL in any airspace generally accessible to aircraft flying in accordance with visual flight rules (VFR) require visual observers, either airborne or ground based. Use of ATC radar alone does not constitute sufficient collision risk mitigation in airspace where uncooperative airborne operations may be conducted.

Flights at or above 18,000 feet Mean Sea Level (MSL) when operating on an instrument ATC clearance, the unmanned aircraft pilot in command must ensure that an ATC clearance has been filed, obtained and followed. Positional information shall be provided in reference to established NAS fixes,

NAVAIDS, and waypoints. Use of Latitude/Longitude is NOT authorized.

11.65.00 Observer Qualifications.

Observers must have been provided with sufficient training to communicate clearly to the pilot any turning instructions required to stay clear of conflicting traffic. Observers will receive training on rules and responsibilities described in 14 CFR 91.111, *Operating Near Other Aircraft*, 14 CFR 91.113 *Right of Way Rules*, cloud clearance, in-flight visibility, and the pilot controller glossary including standard ATC phraseology and communication. Observers must have in their possession a current second class medical or higher airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA observers.

11.70.00 Pilot in Command (PIC) Visual Flight Rules (VFR) as Applicable.

The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC.

The PIC operating a UA in line of site must pass at a minimum the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105, and must keep their aeronautical knowledge up to date. There is no intent to suggest that there is any requirement for the UAS PIC to be qualified as a crew member of a manned aircraft.

Pilots flying a UA on other than instrument flight plans beyond line of sight must possess a minimum of a current private pilot certificate, or military equivalent in the category and class, as stated in 14 CFR 61.105.

11.75.00 Instrument Flight Rules (IFR) as Applicable.

The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC. The PIC must be a certified pilot (minimum of private pilot) of manned aircraft (FAA or military equivalent) in category and class of aircraft flown. The PIC must also have a current/appropriate instrument rating (manned aircraft, FAA or military

equivalent) for the category and class of aircraft flown.

11.80.00 Pilot Proficiency – VFR/IFR as Applicable.

Pilots will not act as a VFR/IFR PIC unless they have had three qualified proficiency events within the preceding 90 days. The term “qualified proficiency event” is a UAS-specific term necessary due to the diversity of UAS types and control systems. A qualified proficiency event is an event requiring the pilot to exercise the training and skills unique to the UAS in which proficiency is maintained. Pilots will not act as an IFR/PIC unless they have had 6 instrument qualifying events in the preceding 6 calendar months (an event that requires the PIC to exercise instrument flight skills unique to the UAS).

11.85.00 PIC Responsibilities.

Pilots are responsible for a thorough preflight inspection of the UAS. Flight operations will not be undertaken unless the UAS is airworthy. The airworthiness provisions of 14 CFR 91.7, Civil Aircraft Airworthiness, or the military equivalent, apply. One PIC must be designated at all times and is responsible for the safety of the UA and persons and property along the UA flight path. 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.

11.90.00 Standard Provisions.

These provisions are applicable to all operations unless indicated otherwise in the Special Provisions section.

The UA PIC will maintain direct two-way communication with ATC and have the ability to maneuver the UA per their instructions. The PIC shall comply with all ATC instructions and/or clearances. If equipped, the UA shall operate with an operational mode 3/A transponder, with altitude encoding, or mode S transponder (preferred) set to an ATC assigned squawk. If equipped, the UA shall operate with position/navigation lights on at all times during flight.

90.01 The UA PIC. The pilot in command (PIC) shall not accept any ATC clearance requiring the use of visual separation or sequencing.

90.02 Cloud Clearances and Visibilities.

VFR cloud clearances and visibilities for Class E airspace will be used regardless of class of airspace in which the UAS is operating. Special VFR is NOT authorized.

90.03 Operations.

Operations, including lost link procedures), shall not be conducted over populated areas, heavily trafficked roads, or an open-air assembly of people. Operations outside of active restricted areas, warning areas, prohibited areas, (designated for aviation use) and/or Class A airspace may only be conducted during daylight hours. Operators shall not loiter on Victor airways. When necessary, transit of Victor airways shall be conducted as expeditiously as possible. Operations conducted under VFR rules shall operate at appropriate VFR altitudes for direction of flight (14 CFR 91.159). The UA PIC or chase plane PIC (whichever is applicable) will notify ATC of any in flight emergency or aircraft accident as soon as practical. The Texas Department of Public Safety Aircraft Section and/or its representatives, is responsible at all times for collision avoidance with non participating aircraft and the safety of persons or property on the surface with respect to UAS.

11.95.00 Special Provisions.

95.01 Number of UA Flown. Only one UA will be flown at a time.

95.02 Provisions for the Texas Department of Public Safety Aircraft Section.

The Texas Department of Public Safety Aircraft Section will contact Austin Approach Control, Gray Army Approach Control, and Georgetown Air Traffic Control thirty minutes prior to commencing flight operations and immediately after flight operations are completed.

95.03 ATC Notification.

Due to the close proximity of three Air Traffic Control facilities, in the event of a lost link, the operator will immediately notify Austin Approach Control at (512) 369-7841, Georgetown Air Traffic Control Tower at (512) 868-3580, and Gray Army Approach Control at (254) 553-2526, stating pilot intentions, and will comply with the following provision:

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95.04 Loss of Link. The aircraft will climb or descend to 250 feet AGL and fly to waypoint Echo (the center point of the approved COA operating area). If link is reacquired, the pilot then has the option to continue the mission if he determines the aircraft can resume normal navigation without incident. Otherwise the aircraft will orbit at waypoint Echo at 250 feet AGL until it has exhausted its powers supply and land in the approved operating area.

95.05 Notam.

A distance (Notam D) Notice to Airman shall be issued when UA operations are being conducted. This requirement may be accomplished through your local base operations or NOTAM issuing authority. You may also complete this requirement by contacting Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 48 hours prior to the operation and provide;

1. Name and address of operator filing NOTAM request.
2. Location, altitude or the operating area.
3. Time and nature of the activity.

12.00.00 Emergency COA Application and Approval Procedures.

Procedures for requesting an Emergency COA from the FAA in Washington D.C. are specific in nature.

00.01 Emergency Situation.

An Emergency UAS COA may be considered when all of the following conditions apply:

1. A situation exists that is defined as a condition of distress or urgency where there is, or has the extreme possibility of loss of life.
2. Manned flight is not possible due to a hazard, or, the operation cannot be conducted safely with manned flight.
3. The proposed UAS is operating under a current COA.

00.02 Emergency UAS COAs Not Considered.

Emergency UAS COAs shall not be considered for the following:

1. Demonstration flights.
2. Flights to test capabilities.
3. Training.
4. Flights in Class B Airspace.
5. Flights over populated areas.

00.03 FAA Definition of "Emergency".

For the process, the definition of "Emergency" is; either a distress or *urgency* condition where there is or has the extreme possibility of loss of life.

00.04 Emergency COA "On Request" Time.

An emergency COA will require a time frame of .5 to 2.0 hours once the required data has been received by the FAA in Washington D. C. The Federal Aviation Administration is responsible for notifying the appropriate Air Traffic Control facility having jurisdiction over the geographical area in question and filing the NOTAM.

00.05 All UAS Points of Contact – (Annex 4).

ANNEX 1
Emergency COA – Data Requirements

Date: _____

Time: _____ UTC/Local

Caller:

Name: _____

Government Agency: _____

Phone Number: _____

E-Mail: _____

FAX: _____

Incident Commander /Requesting Official:

Name: _____

Phone Number: _____

Mission Point of Contact:

Name: _____

Phone Number: _____

Pilot in Command Communication

Direct non radio communication number*: _____

*(commercial preferred, not everyone has DSN)

Nature of Emergency:

Missing Person

Fire

National Disaster

Local Disaster

Other: _____

Reason for Request: _____

Temporary Flight Restriction:

None

99.7

91.137 A1 / A2 / A3

Location/Altitude:

Attach Chart or Map (if able)

Closest NAVAID: _____

Distance from nearest town/city _____

Altitude: _____

Operations area:

Center point: _____ Lat / Long

_____ Fix Radial Dist

ANNEX 1
Emergency COA – Data Requirements, Cont.

Radius: _____ NM

Requested route (if known)

Lat/Long Box: _____

Affected ATC Facility: _____

IFR / VFR / Class A / B / C / D / E / G

Aircraft: _____

Airworthiness Statement: Yes / No

Line of sight? Yes / No

Day / Night

Transponder/Mode C

Navigation/Position Lights

Home base airport: _____

Current aviation data base: Yes / No

Current maps and charts: Yes / No

Pilot Qualifications:

VFR:

Private pilot written: Yes / No

Medical: 1st / 2nd / 3rd / None

Current: Yes / No

IFR:

Current instrument rating w Cat/Class Yes / No

Medical: 1st / 2nd / 3rd / None

Observer Qualifications:

Trained: Yes / No

1 mile lateral 3000' vertical

Medical: 1st / 2nd / 3rd / None

Populated Area:

Yellow on the sectional: Yes / No

Open area assembly of people: Yes / No

Heavy traffic roads: Yes / No

Lost Link:

VFR: _____

Divert/Emergency Landing Area: _____

IFR: _____

Divert/Emergency Landing Area: _____

ANNEX 1

Emergency COA – Data Requirements, Cont.

General Description of Operation:

(Government Agency/Unit) wants to fly a(n) (Aircraft) (Where). They will be (VFR/IFR) operating within (Class of Airspace) in (ATC Facilities Airspace / or no ATC). They want to operate starting at (Local/UTC) for (number of hours / days). (Will / will not) be using a (99.7 / 91.137) Temporary Flight Restriction.

All operations will be conducted (day / night) under Visual Meteorological Conditions with a minimum of 3 miles visibility. The Pilot in Command will abide by all 14 CFR 91 rules and regulations. See and avoid will be mitigated by (ground observer / chase aircraft with airborne observer / active Restricted, Prohibited, or Warning Area airspace).

Specific Information for the FAA UA Program Office:

Doug Davis w: 202 385-4636 c: 202 345-0164

[AFS Alternate]

General Description +

If VFR: The (Aircraft) (will / will not) stay in line of sight of the Pilot/Observer. (The observer will be (ground / airborne) based.) Operations will be over (non-populated / populated) areas. They have a(n) (Agency) Airworthiness Statement. They have a lost link procedure to avoid all populated areas and return to (restricted area / warning area / prohibited area / airport or the ground control station). The entire operation will be conducted in (A/C/E/G) airspace. The pilot has (passed the Private Pilot Written / Private / Commercial / Air Transport Pilot / Instrument Rating) and has a current (3rd / 2nd / 1st / None) medical. The Observers (if used) are trained by (agency). They have current (3rd / 2nd / 1st / None) medical.

If IFR: Departure and Arrival operations outside Class A airspace will be in (Restricted (Temporary or Permanent) / Prohibited / Warning Areas or Chased). All IFR operations will be conducted in Class A airspace. Operations will be over (non-populated / populated) areas. They have an IFR (Agency) Airworthiness Statement. They have a certified transponder w mode (c/s) and (navigation/position lights) and will operate them at all times. They will file, receive and follow an ATC clearance. They have a lost link procedure to avoid all populated areas and return to (restricted area / warning area / prohibited area / airport). (If to an airport – will chase up and down – or Temporary Flight Restriction).

UASPO Restrictions

- For this process, the definition of “Emergency” is; either a *distress* or *urgency* condition where there is or has the extreme possibility of loss of life.
- As with all Certificate of Authorizations – the application must be made by the Government Agency (not the contractor/operator)

Emergency COA Request – FAA Points of Contacts

Ardith “Ardy” Williams, FAA Air Traffic Manager, Unmanned Aircraft Systems

C – (202) 497-7688

Email: ardyth.williams@faa.gov

Doug Davis, FAA Manager Unmanned Aircraft Program Office

C – (202) 385-4636

Email: kenneth.d.davis@faa.gov

John Page, FAA Unmanned Aircraft Program Office

O – (202) 267-7477

C – (202) 329-5271

Email: john.page@faa.gov

Annex 4
UAS Related Points of Contact

Signature Science, LLC, Austin, Texas

Ed Tovar, Program Manager / Military Liaison

O – (512) 533-2038

C – (512) 431-0545

Email: etovar@signaturescience.com

Jim Minton, Chief Pilot / FAA Liaison / COA's

O – (512) 533-2000 ext. 3021

C – (512) 983-4442

H – (512) 343-7216

Email: jminton@signaturescience.com

Aerovironment, Simi Valley, California

Brian Walsh, Business Development Manager

O – (805) 581-2198

C – (805) 433-4155

Email: walsh@avinc.com

Bill Williams, Pilot – Instructor

C – (805) 391-1355

Email: Williams@avinc.com

Lee Gaudreau – Pilot – Instructor

C – (805) 910-9651

Email: Gaudreau.@avninc.com

Dirk Wenrich, Pilot – Instructor

C – (805) 910-9655

Email: wenrich@avinc.com

Camp Bullis Military Base – San Antonio, Texas

Patricia Jennings, Range Lead Scheduler

O – (21) 295-7686 or (210) 295-7510

Email: patricia.jennings@us.army.mil

Ft. Hood Military Base – Killeen, Texas

Mitchell Sheppard, Range Control Officer

O – (254) 287-3616

Email: mitchell.sheppard@us.army.mil

Bob Ulrigg, ATC – Airspace Manager – NOTAMS/Military

O – (254) 288-1424

Email: robert.ulrigg@us.army.mil

Ft. Bliss Military Base – El Paso, Texas

Bob McDonald, Airspace Manager

O - (915) 569-9280

Email: robert.d.mcdonald@us.army.mil

Annex 4
UAS Related Points of Contact, Cont.

Federal Aviation Administration – Required Reports

Donald Grampp, Analyst UAS Programs Office -
O – (202) 385-4542
C – (443) 569-1732
Email: Donald.e.grampp@faa.gov

Federal Aviation Administration – Airworthiness / Training COAs - Renewal

Randy Willis, Senior Analyst UAS Programs Office – Washington D C
O – (202) 267-8565
Email: randy.ctr.willis@faa.gov

Federal Aviation Administration - Emergency COA Requests

Ardith “Ardy” Williams, FAA Air Traffic Manager, Unmanned Aircraft Systems
C – (202) 497-7688
Email: ardyth.williams@faa.gov

Doug Davis, FAA Manager Unmanned Aircraft Program Office
C – (202) 385-4636
Email: kenneth.d.davis@faa.gov

John Page, FAA Unmanned Aircraft Program Office
O – (202) 267-7477
C – (202) 329-5271
Email: john.page@faa.gov

Air Traffic Control (ATC)

Austin Approach Control
(512) 369-7841

Georgetown Air Traffic Control Tower
(512) 868-3580

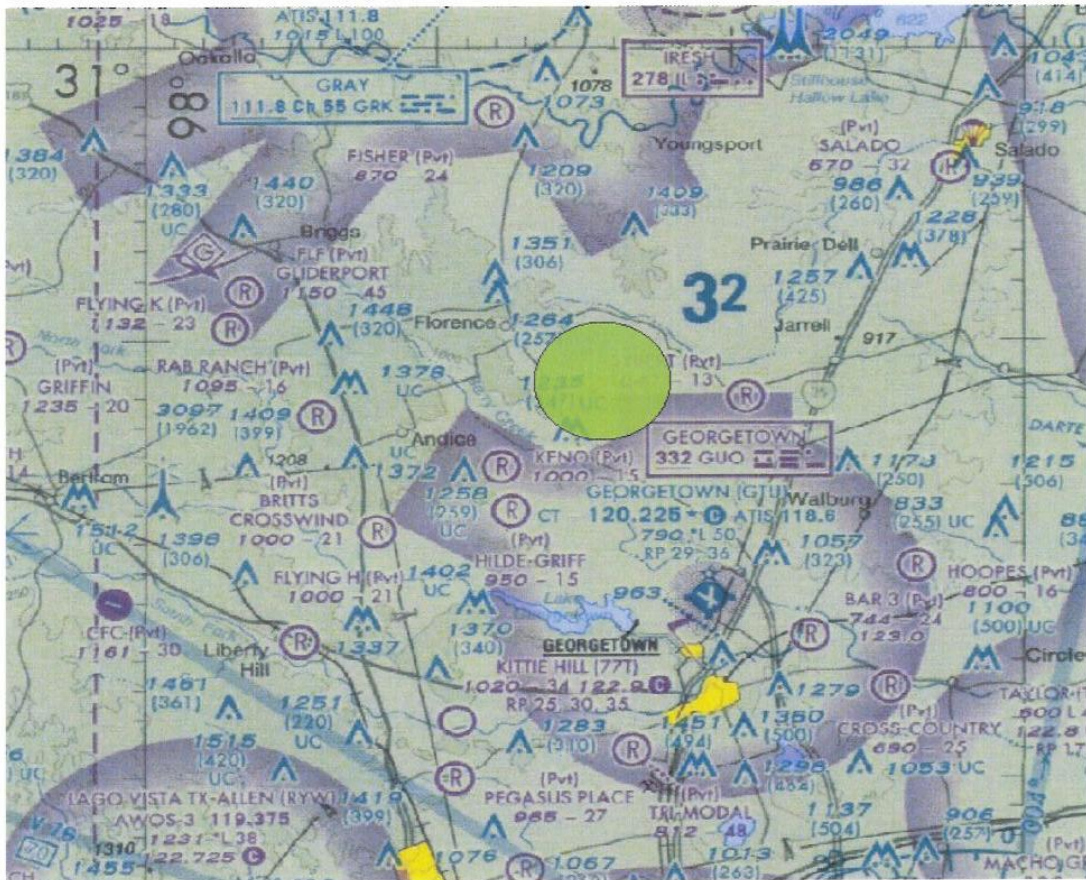
Gray Army Approach Control
(254) 553-2526

Annex 3
Approved COAs Depicted on Aeronautical Map

TXDPS FLORENCE COA #
2008-CSA-54

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Attachment 1



Annex 3
Approved COAs Depicted on Aeronautical Map, Cont.

TXDPS THRALL COA #

2008-CSA-56

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Attachment 1



Annex 2



**Texas Department of Public Safety Aircraft Section
UAS Team**

Monthly/Annual Unmanned Aircraft Systems Reporting

All accidents or incidents involving UAS activities, including loss of link and deviations from the “Special Provisions” contained in the COA must be reported within 24 hours.

Submitted via email to: donald.e.grampp@faa.gov

Certificate of Authorization number(s) 2008-CSA-54 **OR** 2008-CSA-56 (circle one)

Texas Department of Public Safety – Aircraft Section
10335 Golf Course Road
Austin, Texas 78719

Date _____

Number of flights conducted under COA# _____

Pilot duty time per flight _____

Unusual equipment malfunctions (hardware/software) _____

Deviations from ATC instructions_____

Operational/coordination issues_____

All periods of loss of link (telemetry, command and/or control)_____

Person submitting report_____