

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

Department of Homeland Security (DHS),
U.S. Customs and Border Protection (CBP)

ADDRESS

1300 Pennsylvania Ave. NW
Room 6.4A
Washington DC 20229

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

The CBP Predator B UAS operational area is defined in attachment #1. Operations within the

(b) (7)(E)

See Special Provisions.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions are set forth and attached.

This certificate (2008-WSA-6) is effective from December 4, 2008, through December 3, 2009, and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR



FAA Headquarters, AJR-36
(Region)

Ardyth Williams
(Signature)

December 2, 2008
(Date)

Air Traffic Manager, Unmanned Aircraft Systems
(Title)

ISSUED TO: Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP)

DESCRIPTION: The U.S. Customs and Border Protection is operating a Predator B UAS(s) out of Air Force Base Grand Forks (KRDR), in support of their National Security Mission along the (b) (7)(E) UAS operational area as defined in attachment #1. Operations are approved for the (b) (7)(E) All flight operations shall be conducted (b) (7)(E) (b) (7)(E) . Operations in the (b) (7)(E) shall be evaluated (b) (7)(E)

DATES OF USE: This Certificate of Authorization (COA) is valid from December 4, 2009 through December 3, 2009 daily.

RENEWAL AND REVISIONS: Should a renewal and revisions become necessary, the proponent shall advise this office, in writing, no later than 60 days prior to the requested effective date.

OPERATIONAL AREA: The CBP Predator B UAS operational area is defined in attachment #1. Operations within the (b) (7)(E) area are (b) (7)(E)

SPECIAL PROVISIONS:

1. All personnel connected with this UAS operation shall comply with the contents of this authorization and its special provisions.
2. The U.S. Customs and Border Protection, 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.
3. CBP operations shall be conducted under:

(b) (7)(E)

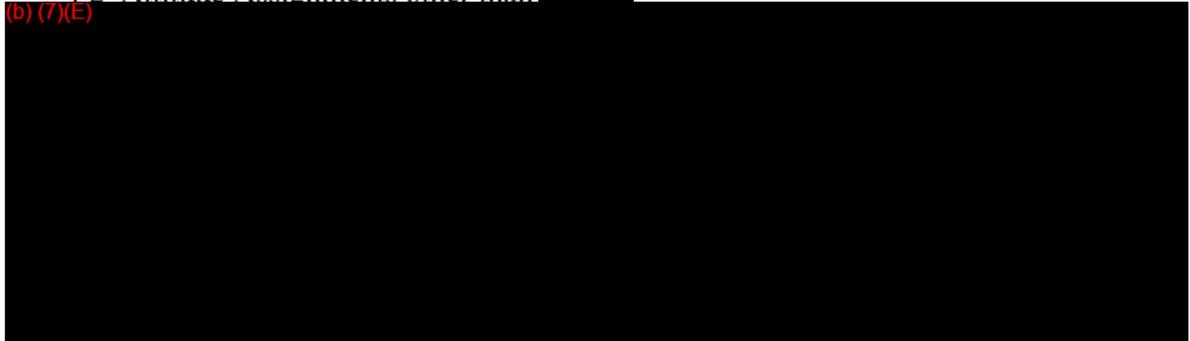
(b) (7)(E)

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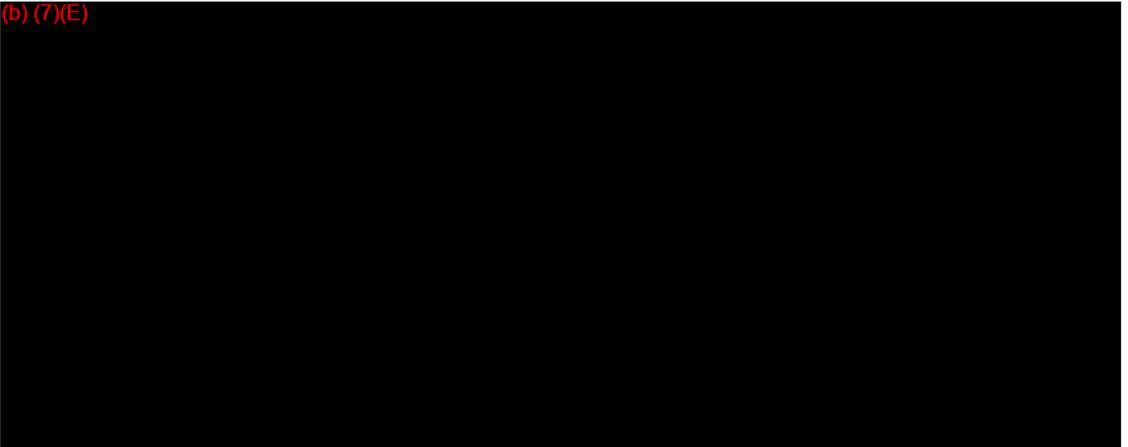
4. Altitude Assignment:

4.1 The CBP UAS shall be assigned (b) (7)(E) while operating within the UAS operational area defined in attachment #1. Outside of restricted airspace, CBP (b) (7)(E).

4.2. Attitude Assignments other than (b) (7)(E)

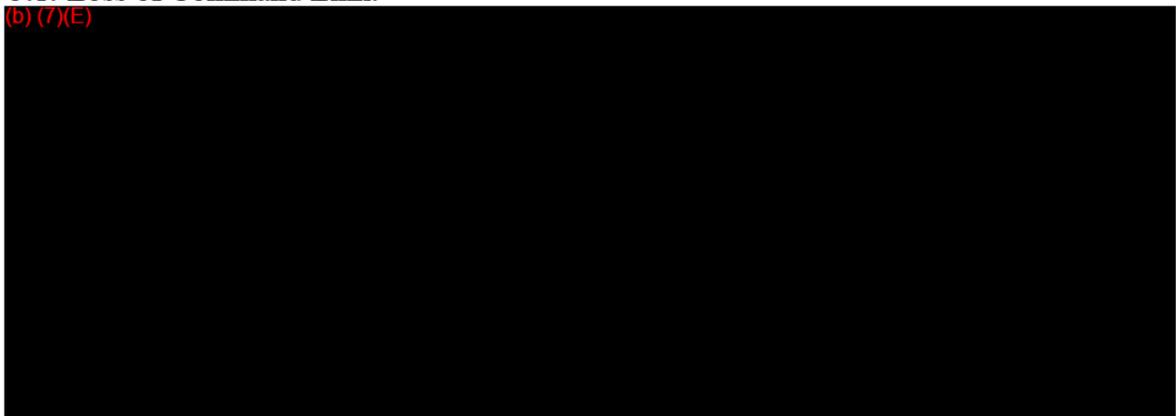
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5. (b) (7)(E)

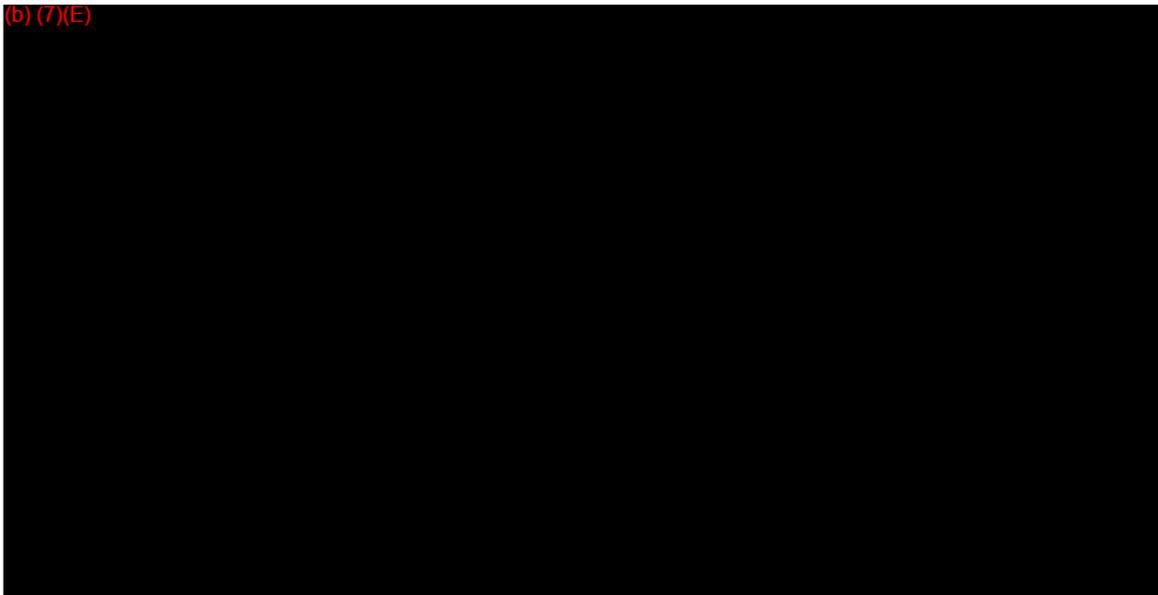
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5.1. Loss of Command Link:

(b) (7)(E)

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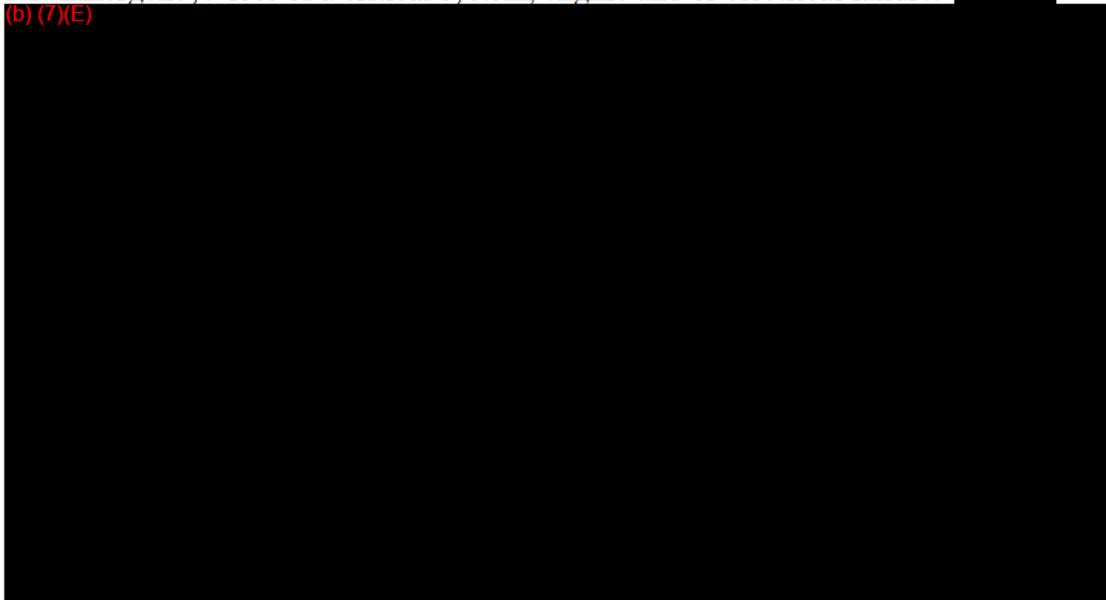
(b) (7)(E)



6. Emergency Procedures:

6.1. Emergency: loss of a critical system, engine and/or electrical failure. (b) (7)(E)

(b) (7)(E)



7.

8. Communications Requirements: Any visual observer, radar monitor, or sensor operator charged with providing collision avoidance for the UA must have direct communication with the UA pilot.

9. Hazardous Materials:

9.1. Dropping any object or hazardous materials outside of active restricted areas is prohibited.

9.2. (b) (7)(E)



10. Aircraft and Operations Requirements: (b) (7)(E)



(b) (7)(E)

10.1. (b) (7)(E)

(b) (7)(E)

10.1.2.2. The UA is equipped with an operating mode (b) (7)(E) transponder.

10.1.2.3. (b) (7)(E)

10.2. (b) (7)(E)

11. The UA position lights and anti-collision lights (b) (7)(E)

12. UA operations to include lost link procedures (b) (7)(E)

13. Flight Termination. (b) (7)(E)

14. 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, and 14 CFR 91.113, Right-of-Way Rules.

15. Onboard Cameras/Sensors. In general, onboard cameras that are positioned to observe targets on the ground are of little use in detecting airborne operations for the purpose of deconfliction. Therefore, optical systems may not be considered as the sole mitigation in see and avoid risk assessment.

16. Pilot/Observer Medical Standards. Pilots and observers must have in their possession a current second class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards And Certification. 14 CFR 91.17, Alcohol or Drugs, applies to both UA pilots and observers.
17. Pilot Qualifications. The intent of this paragraph is to ensure that UA pilots interacting with ATC have sufficient expertise to perform that task readily.
 - 17.1. Pilots must have an understanding of Federal Aviation Regulations applicable to the airspace where the UA will operate.
 - 17.2. When the UA is operating with an IFR ATC clearance, the UA pilot must have a current manned instrument rating in category and class (Per FAR Part 61.57), FAA or Military Equivalent.
 - 17.3. Pilots flying UA on other than instrument flight plans must pass the required knowledge test for a private pilot certificate as stated in 14 CFR 61.105, Aeronautical Knowledge, (or military equivalent).
 - 17.4. Recent Flight Experience. Pilots shall not act as a pilot-in-command unless they have had three qualified proficiency events within the preceding 90 days. The term qualified proficiency event is a necessarily broad term because of the diversity of UA types and control systems. A qualified event is an event requiring the pilot to exercise the training and skills unique to the UA in which proficiency is maintained. Instrument experience is similarly defined as six qualified proficiency events in the preceding six calendar months. An instrument proficiency event is defined as an event requiring the pilot to exercise instrument flight skills unique to the UA in which proficiency is maintained.
 - 17.5. Equivalent military flight and medical certifications and training are acceptable in all cases.
18. Pilot Responsibilities.
 - 18.1. Pilots are responsible for a thorough preflight inspection of the UA.
 - 18.2. One pilot-in-command (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.
 - 18.3. The UA pilot shall be held accountable for controlling his aircraft to the same responsible standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, Careless and Reckless Operation, apply to UA pilots.
19. Pilot/Observer Task Limitations.
 - 19.1. Pilots and observers must not perform crew duties for more than one UA at a time.
 - 19.2. A qualified observer must assist the UA pilot when his aircraft is being provided collision avoidance by visual observation.
20. Radar/Sensor Observer. The radar/sensor operator must be thoroughly familiar with and possess operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes. The CBP shall utilize

the Air Marine Operations Center (AMOC), (b) (7)(E) as defined in attachment

#1 (b) (7)(E)
(b) (7)(E)

21. Visual Observer Responsibilities. In general, UA should comply with FAR Part 91.113, Right of Way. The task of the observer is to provide the pilot of the UA with instructions to steer the UA clear of any potential collision with other traffic. Visual observer duties require continuous visual contact with the UA and direct communications with the PIC at all times. (b) (7)(E) ensure that any required maneuvering information can be reliably provided to the PIC. At no time will visual observers conduct their duties more than 2.5 nautical miles laterally or 3000 feet vertically from the UA. This communication/coordination between the observer(s) and PIC will be accomplished on (b) (7)(E) radio frequencies, or intercom (b) (7)(E).

22. Flight Planning Requirements: (b) (7)(E)

23. Coordination: (b) (7)(E)

24. Operations outside of (b) (7)(E) airspace, and (b) (7)(E) will be conducted in (b) (7)(E) unless the (b) (7)(E)

24.1. (b) (7)(E)
24.2. In addition to the ground observer(s) the air traffic controller (b) (7)(E)

(b) (7)(E)

24.3. For operations that will depart or arrive between Sunset and Sunrise, the Ground Observer must be in place (b) (7)(E)

(b) (7)(E)

24.4. All ground observers shall undergo additional training (b) (7)(E)

(b) (7)(E)

24.5.

24.6. The UA shall operate (b) (7)(E)

(b) (7)(E)

25. (b) (7)(E)

26. (b) (7)(E)

27. Departure Procedures:

27.1 Departure procedures will be in accordance with (b) (7)(E)

(b) (7)(E) (attachment 5).

27.2 (b) (7)(E)

28. Recovery Procedures: Recovery procedures will be in accordance with (b) (7)(E) (b) (7)(E) (attachment 5).

29. Incident / Accident Reporting: The following information is required to document unusual occurrences associated with Unmanned Aircraft Systems activities in the National Air Space System.

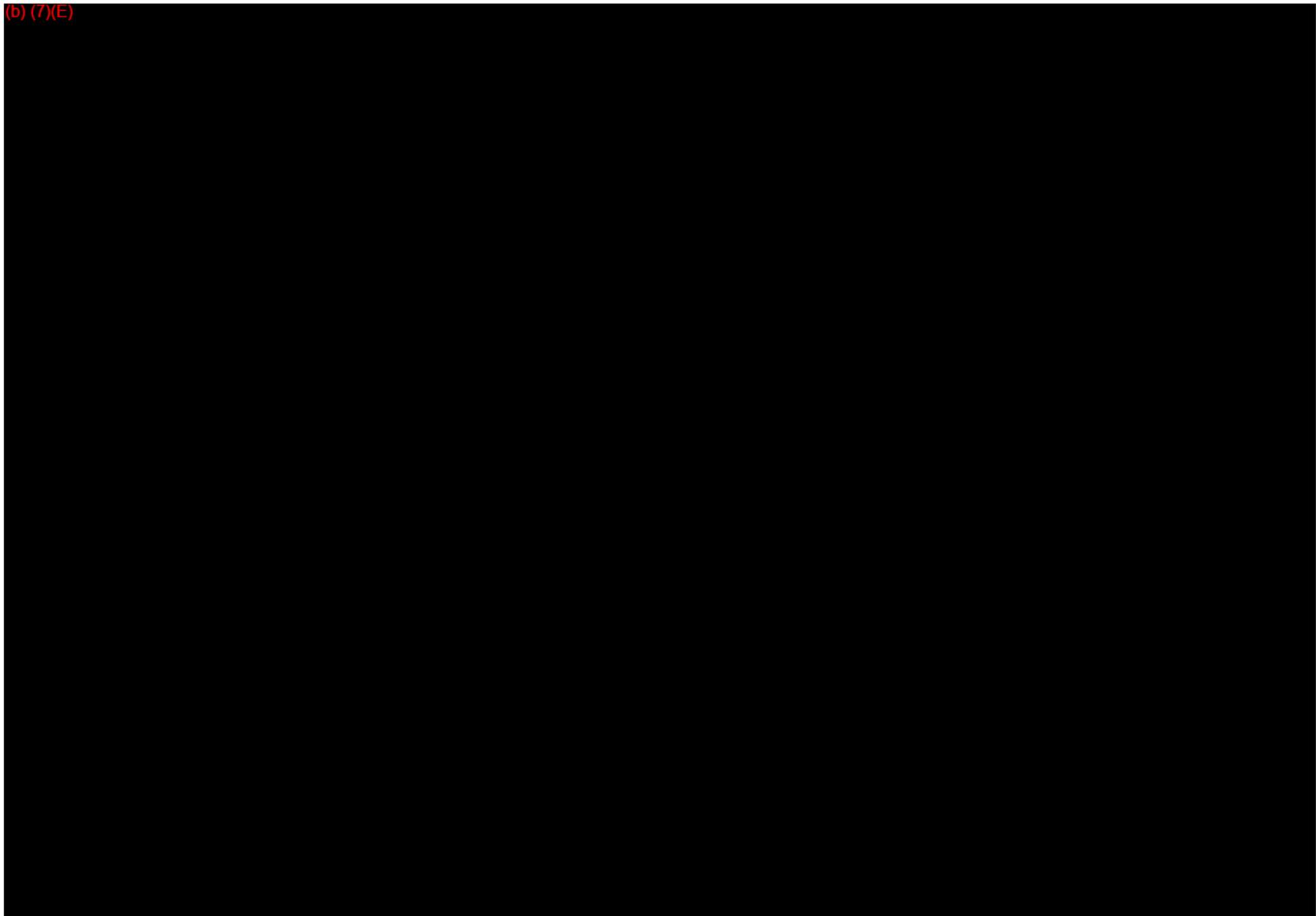
29.1. The proponent for the COA shall provide the following information to Donald.E.Grampp@faa.gov on a monthly/annual basis (Note: reporting is not required until the first flight occurs. Then reporting must continue on a monthly/annual basis even when no flights are executed):

29.1.1. Number of flights conducted under this COA.

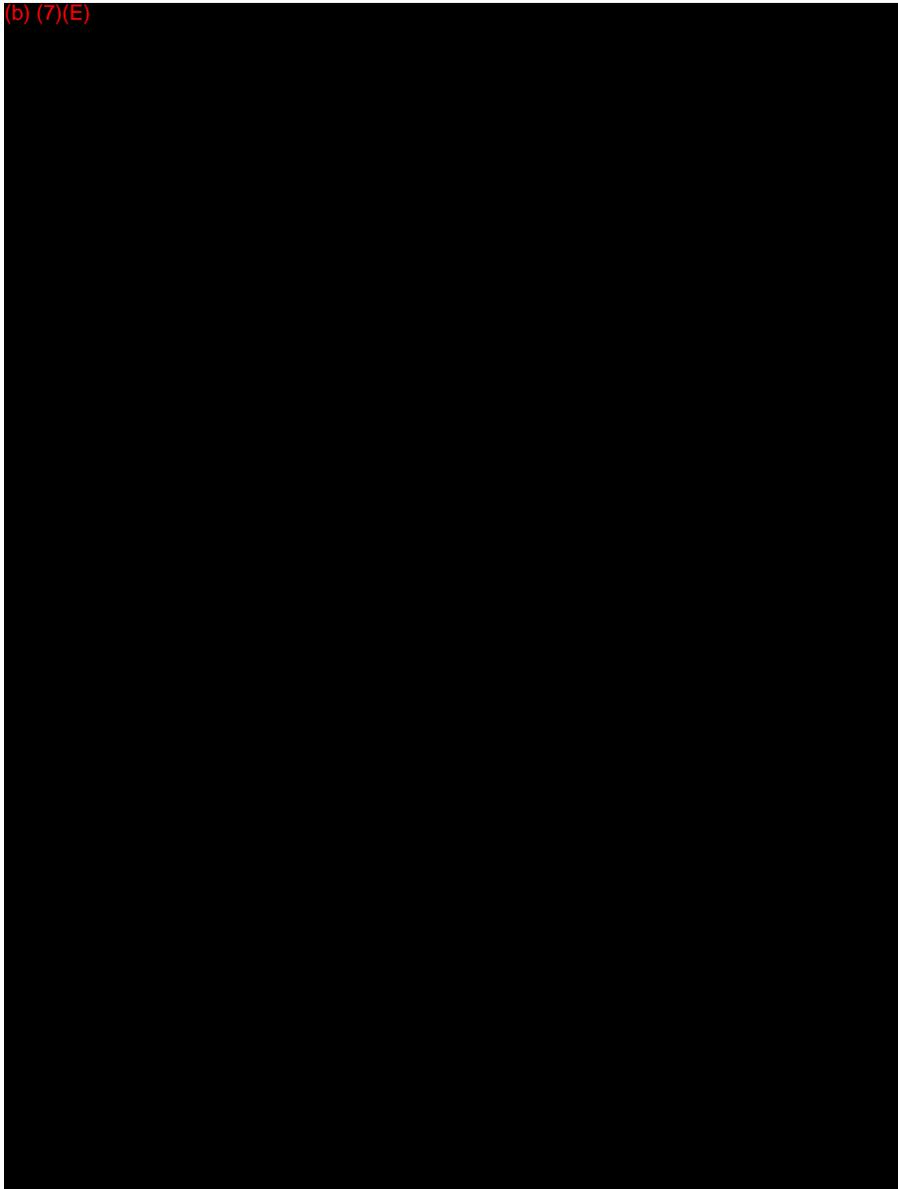
29.1.2. Pilot duty time per flight.

- 29.1.3. Unusual equipment malfunctions (hardware/software).
 - 29.1.4. Deviations from ATC instructions.
 - 29.1.5. Operational/coordination issues.
 - 29.1.6. All periods of Loss of Communications.
- 29.2 The following shall be submitted via email or phone (202-385-4542, cell 443-569-1732) to Donald.E.Grampp@faa.gov within 24 hours:
- 29.2.1. All accidents or incidents involving UAS activities
 - 29.2.2. Deviations from the “Special Provisions” contained in the COA
30. This COA does not, in itself, waive any Federal Aviation Regulation (FAR), 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 U.S. Customs and Border Protection’s responsibility to resolve the matter. (b) (7)(E)
- (b) (7)(E)
- The U.S. Customs and Border Protection is hereby authorized to operate UAS operational area as defined in attachment 1.

(b) (7)(E)



(b) (7)(E)

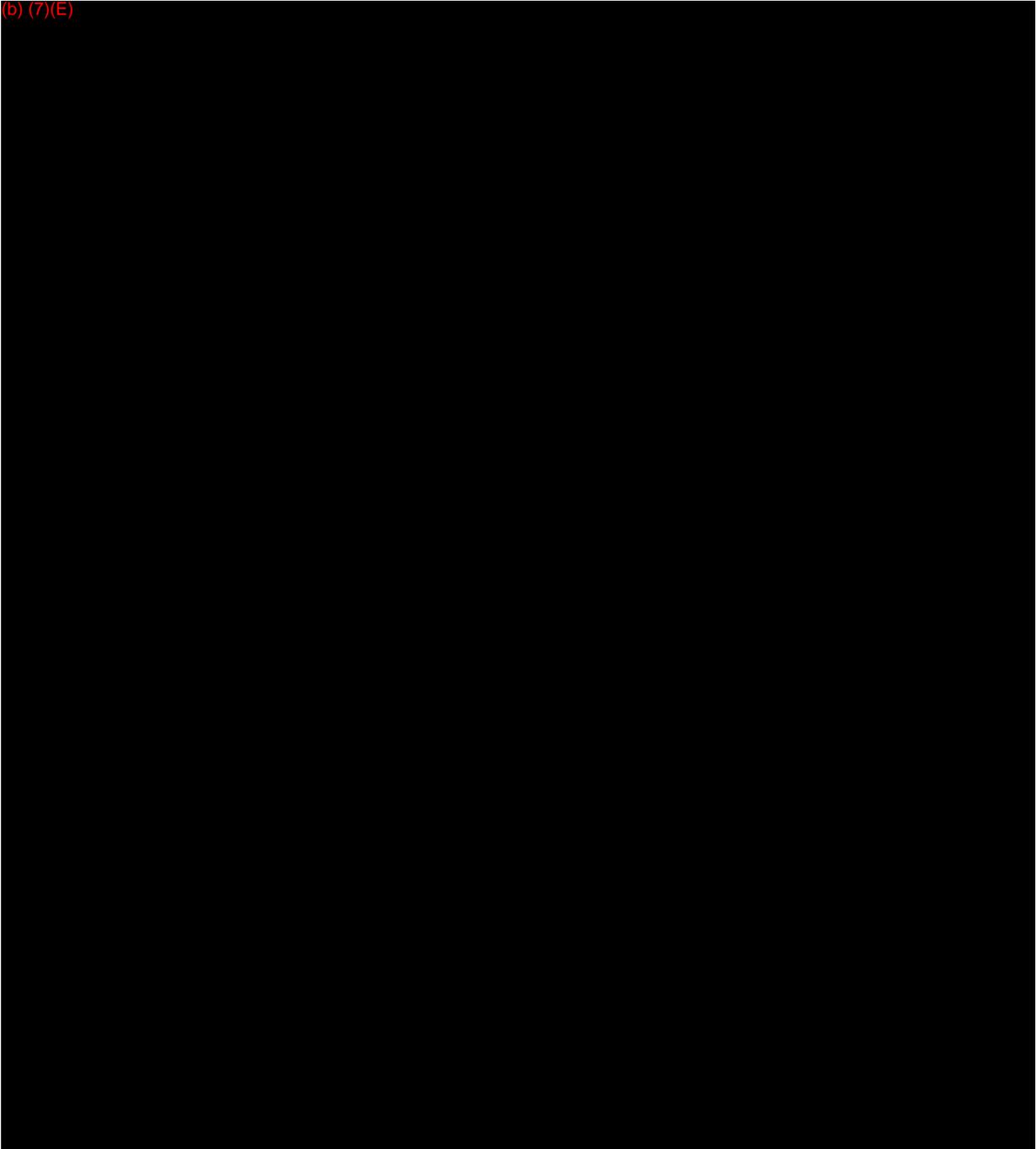


(b) (7)(E)



WAYPOINT #	LATITUDE	LONGITUDE
WP17	(b) (7)(E)	
WP18	(b) (7)(E)	
WP19	(b) (7)(E)	
WP20	(b) (7)(E)	
WP21	(b) (7)(E)	
WP22	(b) (7)(E)	
WP23	(b) (7)(E)	
WP24	(b) (7)(E)	
WP25	(b) (7)(E)	
WP26	(b) (7)(E)	
WP27	(b) (7)(E)	
WP28	(b) (7)(E)	
WP29	(b) (7)(E)	
WP30	(b) (7)(E)	
WP31	(b) (7)(E)	
WP32	(b) (7)(E)	
WP33	(b) (7)(E)	
WP34	(b) (7)(E)	

(b) (7)(E)



ATTACHMENT #4: FLIGHT TERMINATION, LOST LINK, LOST COMMUNICATION PROCEDURES

Event	Flight Termination	Lost Link	Loss Communications
Conditions	<ul style="list-style-type: none"> - Emergency situation - Unable to sustain flight and return to base 	<ul style="list-style-type: none"> - Emergency situation - Loss of command uplink, downlink, or both links between the ground control station and the UA 	<ul style="list-style-type: none"> - Loss of radio communications between the PIC and ATC. (b) (7)(E) [REDACTED]

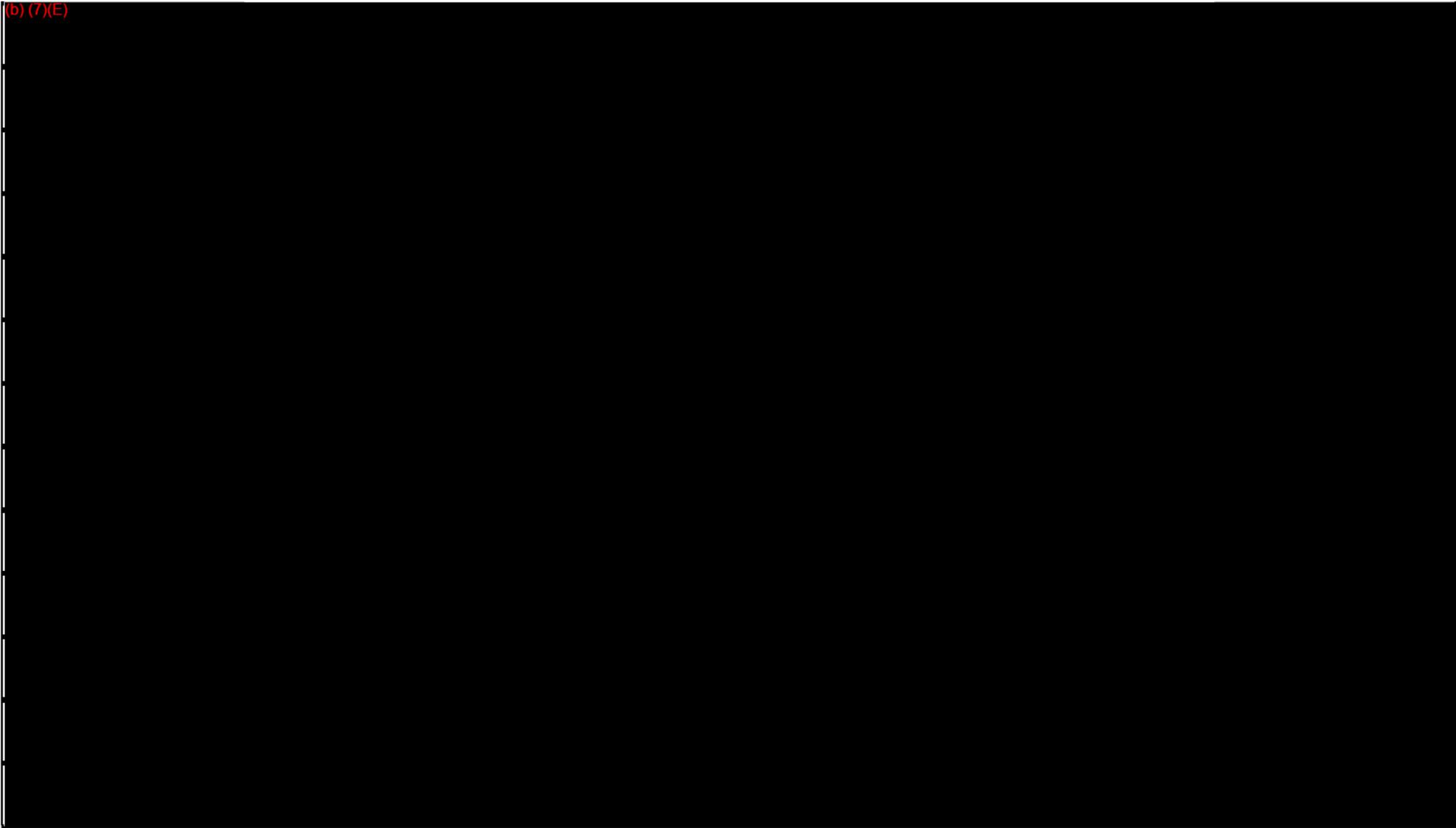
<p>Procedures</p>	<p>In the event of Flight Termination, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p>	<p>In the event of a Lost Link condition, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p>	<p>In the event of Lost Radio Communications between the PIC and ATC, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p>
	<p><i>Note: As with manned aircraft operations, the UA may not be able to proceed in a controlled fashion to the flight termination location.</i></p> <p>Inform ATC of the following as soon as possible:</p> <p>(b) (7)(E)</p>		

(b) (7)(E)		

The lost link loiter points (b) (7)(E)

POINT	FIX	RADIAL	DME	LAT	LON
(b) (7)(E)					

(b) (7)(E)





GRAND FORKS AIR FORCE BASE, GRAND FORKS, NORTH DAKOTA and DEPARTMENT OF HOMELAND SECURITY (DHS), U.S. CUSTOMS AND BORDER PROTECTION (CBP) UNMANNED AIRCRAFT SYSTEMS (UAS), NORTH DAKOTA UAS OPERATIONS

LETTER OF AGREEMENT (LOA)

Attachment 5

Effective Date: 15 December 2008

SUBJECT: CBP UAS USE OF GRAND FORKS AIR FORCE BASE

This Letter of Agreement (LOA) establishes a mutual understanding and cooperation for an operating capability for CBP Air and Marine, Predator "B" UASs operating from Grand Forks Air Force Base (GFAFB - KRDR) in support of the DHS/CBP border enforcement mission along the (b) (7)(E) Area of Responsibility (AOR). For the purposes of this LOA, GFAFB is defined as GFAFB (b) (7)(E) airspace, (b) (7)(E) (b) (7)(E)

Reference authorities include, but are not limited to:

- a) Grand Forks AFB Instruction 13-101, Airfield and Air Traffic Operations.
- b) CBP UAS Supplement to the CBP Aviation Operations Handbook (AOH).
- c) FAA Certificate of Waiver or Authorization (COA), signed **1 December 2008**, issued to Dept of Homeland Security, U.S. Customs and Border Protection, for (b) (7)(E) (b) (7)(E)
- d) FAA UAPO Guidance Document 08-01, Unmanned Aircraft Systems Operations in the U.S. National Airspace System, Interim Operational Approval Guidance, dated 13 March, 2008.
- e) FAA Order 7610.4 Special Operations, Chapter 12, Section 9, UAS Operations in the NAS, dated 18 January, 2007. (Change 2, 14 Feb 2008)
- f) CBP A&M NDUASOC Mishap Plan (Interim), dated 11 July 2008
- g) 319 ARW Aircraft Mishap Response Plan
- h) Grand Forks AFB Instruction 24-101, Flight line Driving Program

1. IDENTIFICATION OF AGENCIES FOR PURPOSES OF THIS DOCUMENT

- a) Office of primary responsibility for Air Traffic Operations and Airfield Management at GFAFB is the 319 OSS/OSA.
- b) Scheduling agency for the GFAFB is the 319 OSS/OSO.
- c) U.S. Customs and Border Protection, North Dakota UAS Operations Center exercises CBP UAS operational authority.



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- d) Mission scheduling, reporting, operational and logistical support for CBP UAS operations is provided by the CBP UAS Flight Operations Center (FOC) located at the UAS operating site on Grand Forks AFB, hereafter referred to as the RED RIVER FOC.
- e) Primary point of contact for the safe, effective execution of each CBP UAS mission is the Red River FOC and the assigned CBP UAS Pilot-in-Command (UAS PIC).
- f) All operations will be in accordance with reference authorities cited in this document. Should conflicting written guidance exist, the most restrictive guidance will apply until resolved in writing by all signatories to this LOA, however, **SAFETY OF FLIGHT SHALL ALWAYS TAKE PRECEDENCE.**

2. RESPONSIBILITIES

- a. The RED RIVER FOC shall:
 - 1) Coordinate this LOA and other applicable agreements with all involved parties to effect site selection, preparation, equipage, usage, and sustainment of CBP UAS operations at GFAFB.
 - 2) Provide the 319 OSS/OSO a schedule of CBP UAS flight activity, (b) (7)(E) with updates as appropriate.
 - 3) Any conflicts with the Transient aircraft schedule and the daily CBP UAS Flight Schedule will be sent to 319 OSS/OSO and 319 OSS/OSA.
 - 4) Ensure appropriate GFAFB and/or other NOTAMs have been accurately published.
 - 5) Notify GFAFB Air Traffic Control (ATC) anytime a flight is cancelled prior to takeoff in order to cancel applicable airspace reservations.
 - 6) Coordinate with the 319 ARW to ensure CBP UAS mishaps at GFAFB are initially responded to, in accordance with (IAW) the CBP A&M UASOC Mishap Plan and the 319 ARW Aircraft Mishap Response Plan.
 - 7) Coordinate with General Atomics-Aeronautical Systems Inc (GA-ASI) for the training of GFAFB first-responders on unique CBP UAS operating/handling characteristics and hazardous materials.
 - 8) In-process and train applicable CBP UAS site personnel who will drive on the flight line, perform ground visual observer duties, or serve as the CBP UAS PIC.
 - 9) Establish written procedures for visitor control and badging, and authorization for photography of CBP UAS-specific areas on GFAFB.
 - 10) Ensure the GFAFB Fire Department Dispatch office (at the phone number listed on the daily flight schedule) is advised of any UAS ground or in-flight emergency (IFE) which occurs while GFAFB is closed.

NOTE: Another agency, i.e. Minneapolis Air Route Traffic Control Center

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(ARTCC), Air and Marine Operations Center (AMOC) etc. may fulfill this notification requirement.

- 11) Advise GFAFB ATC upon completion of all daily CBP UAS operations.
- 12) (b) (7)(E) [redacted] The FOC will retain the original for six (6) months.

b. The CBP UAS PIC for each flight shall:

- 1) Receive a one-time, initial GFAFB briefing prior to performing pilot duties for CBP UAS operations.
- 2) All UAS PICs are required to receive a briefing by GFAFB ATC, GFAFB Airfield Management, and the GFAFB Weather office prior to performing pilot duties. The in-briefs will be annotated on the CBP UAS Site In-processing Checklist, and will be kept on file.
- 3) Review appropriate GFAFB and other NOTAMs.
- 4) Deconflict power-up, uplink, and downlink frequencies and/or procedures with other UAS operators at GFAFB.
- 5) Use the call sign (b) (7)(E) for operational missions or (b) (7)(E) while in the traffic pattern, ensuring the UAS (b) (7)(E) transponder Mode (b) (7)(E) or as assigned by ATC) with Mode (b) (7)(E)
- 6) Conduct departures and arrivals from GFAFB using (b) (7)(E) (b) (7)(E)
- 7) Maintain a communication link with GFAFB ATC at all times when within GFAFB Approach Control Airspace. Primary link with GFAFB ATC will be via radio (b) (7)(E) (b) (7)(E)
- 8) Ensure the UAS complies with departure, arrival, and Lost Link routing profiles IAW this LOA and the COA.
- 9) Request change of altitude or airspace sector through ATC. The UAS will (b) (7)(E)
- 10) Advise ATC immediately if the UAS experiences Lost Link (an emergency), or if experiencing any other situation or emergency that requires airspace priority.
- 11) Maintain Lost Link mission routing and initial Lost Link parameters as described in paragraph 8 (Lost Link Procedures). Any changes to published Lost Link routing or parameters must be pre-coordinated with and approved by ATC prior to implementation.
- 12) (b) (7)(E) [redacted]

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c. GFAFB Airfield Operations shall:

- 1) Coordinate with the RED RIVER FOC for desired airspace.
- 2) Notify (b) (7)(E) as necessary, of CBP UAS flying periods.
- 3) Advise other military users of GFAFB of scheduled CBP UAS flight activity.
- 4) 319 OSS/OSA will provide Red River FOC Transient aircraft schedules and updates.
- 5) Provide the RED RIVER FOC emergency points of contact for Air Traffic Controllers and Weather support personnel for after-hours support.

NOTE: This information will be included by the RED RIVER FOC on the Daily CBP UAS Flight Schedule.

- 6) Ensure that any mishaps within GFAFB related to CBP UAS operations are initially responded to IAW the 319 ARW Mishap Plan.

3. GENERAL

- a. A qualified UAS PIC, as specified in the COA, shall be at the controls of the UAS at all times. An Instructor Pilot (IP) will be present in the GCS if a pilot is non-current or in training status.
- b. The UAS PIC will abide by any guidance, control instruction, and/or direction issued by ATC, CBP Government Flight Representative, or GA-ASI UAS Site Manager to suspend operations due to a safety-of-flight issue.
- c. All navigation systems; Identification, (b) (7)(E) will be operational prior to takeoff.

4. CBP UAS OPERATIONS AT GRAND FORKS AIR FORCE BASE

a. General Procedures

- 1) Staging of CBP UAS aircraft prior to flight and chocking of the CBP UAS after flight will be accomplished in front of (b) (7)(E) Any pre/post flight activity will be kept within (b) (7)(E) of the hangar doors so that the taxiway in front of (b) (7)(E) will not be blocked.
- 2) Associated CBP UAS flight and ground equipment will be at the CBP UAS operational site located on the ramp outside of or within (b) (7)(E) . No equipment will be permanently positioned on the paved portion of the main ramp area adjacent to the CBP UAS operational site. (Attachment 1)
- 3) An alternate operating location will be (b) (7)(E) and will be available anytime the primary location cannot be used (requires coordination with airfield manager and other base agencies.) (Attachment 1)



b. Flight Operations

- 1) Associated CBP UAS flight equipment and the Mission Control Center will be at the CBP UAS RED RIVER FOC, (b) (7)(E)
- 2) Normal CBP UAS operations will be at (b) (7)(E)
- 3) The GFAFB (b) (7)(E) airspace extends out to (b) (7)(E) nautical miles, surface to (b) (7)(E) to Grand Forks Intl' Airport's (b) (7)(E) airspace directly to the (b) (7)(E) GFAFB RAPCON (b) (7)(E) airspace covers (b) (7)(E) square miles from surface to (b) (7)(E). All CBP UAS operations in GFAFB (b) (7)(E) airspace shall be conducted under (b) (7)(E) as specified in 14 CFR Part 91 and IAW the COA.
- 4) The UAS PIC shall have direct radio communications with GFAFB ATC for UAS ground and flight operations. Communications for taxi and takeoff clearance shall be accomplished using (b) (7)(E). After takeoff, GFAFB Tower (b) (7)(E) GFAFB RAPCON for transit to the (b) (7)(E) AOR. (Attachment 2)
- 5) A primary radio is required for ATC communication. At all times, the UAS PIC will also keep (b) (7)(E) in the GCS for communications with ATC. If complete radio failure occurs, a UAS crewmember or the FOC will contact ATC at:

GFAFB TOWER: (b) (7)(E)
 GFAFB RAPCON: (b) (7)(E)

- 6) Unless specifically prohibited by COA, (b) (7)(E) airspace. However, CBP UAS operations (b) (7)(E) in the GFAFB (b) (7)(E) airspace. If approved by the COA and Airfield Operations Flight Commander, or designated representative, (b) (7)(E) may operate (b) (7)(E) airspace.
- 7) The CBP UAS traffic pattern (b) (7)(E). If unable to comply, ATC SHALL be advised and changes to flight patterns will be approved, traffic permitting, to (b) (7)(E).
- 8) The CBP UAS shall be considered a (b) (7)(E) aircraft for Same Runway Separation (SRS) and a (b) (7)(E) aircraft for "Wake Turbulence" separation.
- 9) A "Closed traffic pattern" may be approved by GFAFB ATC however, (b) (7)(E)
- 10) (b) (7)(E) one or more deployed ground visual observers are required by the COA. The observers shall have direct communication with the UAS PIC when the UAS is within GFAFB (b) (7)(E) airspace and shall immediately inform the UAS PIC of conflicting traffic. The



PIC will coordinate with ATC prior to executing any maneuvers needed to avoid conflicting traffic.

11) (b) (7)(E) [redacted] (b) (7)(E) [redacted] be flown to comply with FAA-mandated ground visual observer observation limits specified in the COA.

12) Manned aircraft emergencies shall take priority over unmanned aircraft emergencies.

13) A "Lost Link" (b) (7)(E) [redacted] (b) (7)(E) [redacted] loss of the command link from the GCS to the UAS. See paragraph 8 (Lost Link Procedures) for further guidance.

5. TRAFFIC PATTERN PROCEDURES

a. The UAS will adhere to standard traffic patterns as determined by GFAFB ATC however, IAW the COA; (b) (7)(E) [redacted] The UAS will avoid the flow of manned aircraft flights and maneuver, or if required, hold in a flight pattern as directed by GFAFB ATC. The UAS will normally arrive and depart via a (b) (7)(E) [redacted], unless directed otherwise by GFAFB ATC.

b. The UAS shall remain at (b) (7)(E) [redacted] while in the pattern at GFAFB, unless directed otherwise by GFAFB ATC.

c. Multiple UAS low approaches or touch-and-go landings for formal UAS syllabus aircrew training, pilot currency/re-currency requirements or for functional, maintenance checks of the UAS and its components may be performed with GFAFB ATC approval. All formal and informal training and maintenance flight checks will be conducted on a (b) (7)(E) [redacted] (b) (7)(E) [redacted] basis with manned aircraft operations within the GFAFB traffic pattern.

1) (b) (7)(E) [redacted] After takeoff climb (b) (7)(E) [redacted] Turn (b) (7)(E) [redacted] (b) (7)(E) [redacted] Traffic patterns will be flown to the (b) (7)(E) [redacted] of the airfield.

2) (b) (7)(E) [redacted] After takeoff climb (b) (7)(E) [redacted] Turn (b) (7)(E) [redacted] (b) (7)(E) [redacted] Traffic patterns are flown to the (b) (7)(E) [redacted] of the airfield.

d. Unless otherwise directed by GFAFB ATC, standard CBP UAS (b) (7)(E) [redacted] (b) (7)(E) [redacted]

e. In the event holding is required, the UAS will be instructed to hold within the GFAFB (b) (7)(E) [redacted] in accordance with GFAFB Tower instructions, remaining clear of the (b) (7)(E) [redacted] (b) (7)(E) [redacted]

f. (b) (7)(E) [redacted]

6. DEPARTURE PROCEDURES



a. When ready for departure, the UAS PIC will call GFAFB Tower for departure clearance.

1) **UAS DEPARTURE RUNWAY** (b) (7)(E)

a. After takeoff climb (b) (7)(E)

(b) (7)(E)

Exit the GFAFB (b) (7)(E)

b. Climb to the assigned altitude, and/or proceed on-course per (b) (7)(E) instructions.

2) **UAS DEPARTURE RUNWAY** (b) (7)(E)

a. After takeoff climb (b) (7)(E)

(b) (7)(E)

Exit the GFAFB (b) (7)(E)

b. Climb to the assigned altitude, and/or proceed on-course per (b) (7)(E)

7. RECOVERY PROCEDURES

a. The UAS PIC will establish communications with GFAFB RAPCON prior to (b) (7)(E) and advise when ready to return to GFAFB for recovery. GFAFB RAPCON will provide appropriate recovery instructions. (Attachment 2)

NOTE: If GFAFB Tower or RAPCON is closed (b) (7)(E) in the GFAFB area.

1) **UAS RECOVERY RUNWAY** (b) (7)(E)

a. Arrive from (b) (7)(E)

(b) (7)(E)



- b. Low approaches, touch-and-go landings, and multiple approaches may be coordinated with GFAFB ATC on a (b) (7)(E) basis with manned aircraft, provided visual observation requirements are met IAW the COA.

2) **UAS RECOVERY RUNWAY** (b) (7)

- a. Arrive from the (b) (7)(E) (b) (7)(E)

- b. Low approaches, touch-and-go landings, and multiple approaches may be coordinated with GFAFB ATC on a (b) (7)(E) basis with manned aircraft, provided visual observation requirements are met IAW the COA.

- b. Unless otherwise directed by GFAFB ATC, standard CBP UAS (b) (7)(E) (b) (7)(E)

- c. In the event holding is required, the UAS will be instructed to hold with-in the GFAFB (b) (7)(E) (b) (7)(E) in accordance with GFAFB Tower or RAPCON instructions, remaining clear of the (b) (7)(E)

- d. Holding will normally be at (b) (7)(E) (b) (7)(E)

8. FLIGHT TERMINATION, LOST LINK, LOST COMMUNICATION EMERGENCY MISSION PROFILE (LLEMP) PROCEDURES

Different scenarios exist for "Flight Termination, Lost Link, or Lost Communication". These procedures are based on the location of the UAS when the "link" with the aircraft is lost.

- a. When a loss of aircraft link occurs, the UAS PIC (b) (7)(E) (b) (7)(E)

- b. If loss of aircraft link occurs between the UAS and the GCS while on the ground, the UAS will follow procedures delineated in Attachment 4 "Lost Link-Aircraft on the



Ground”.

c. In the event of a Lost Link situation during GFAFB traffic pattern operations (i.e. touch and goes) the UAS (b) (7)(E)

1) If on final approach (b) (7)(E)
(b) (7)(E)

2) If at or above (b) (7)(E)
(b) (7)(E)

3) Upon reaching the Lost Link point (b) (7)(E)
(b) (7)(E)

4) As the UAS flies (b) (7)(E)
(b) (7)(E)

5) (b) (7)(E)

6) Upon reaching (b) (7)(E)

7) (b) (7)(E)
8)
9)

10) While the UAS is flying (b) (7)(E)



(b) (7)(E)

d. If the lost link condition occurs during DEPARTURE OR RECOVERY, the UAS (b) (7)(E)

- 1) (b) (7)(E)
- 2)

e. When cleared to fly a route, (b) (7)(E)

f. If outside of the GFAFB TFR or GFAFB Approach Control airspace, (b) (7)(E)

g. While the UAS is flying with loss of link, the UAS PIC (b) (7)(E)

9. (b) (7)(E) TRANSPONDER FAILURE

If the UAS (b) (7)(E) transponder fails, the UAS PIC (b) (7)(E)



10. EMERGENCIES

a. For UAS IFE situations, the UAS PIC (b) (7)(E)

(b) (7)(E)

b.

11. ADMINISTRATION

a. The CBP A&M UAS FOC and GFAFB shall initiate a review of this LOA (b) (7)(E)

(b) (7)(E) to determine applicable revisions or modifications. This does not preclude proposed revisions or modifications to this LOA made by a signatory party at any time; such revisions or modifications shall be effective upon written approval by all parties.

b. This LOA shall be revised or modified should the FAA COA or a NOTAM be issued (or amended) which substantively changes the UAS operating procedures from GFAFB.

c. Public Affairs Guidance

1) Specific inquiries regarding the mission of the Red River FOC, CBP aircraft, operating schedules or personnel from the public or the news media shall be referred to the Deputy Director Air Operations (DDAO) NDAB UAS Operations at (b) (7)(E)

2) When it is believed that Red River FOC personnel, CBP A&M UAS or other aircraft are involved in an aircraft incident or accident, take the following action:

3) (b) (7)(E)



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(b) (7)(E)

4) (b) (7)(E)

5) Red River FOC personnel, regardless of involvement, (b) (7)(E)

6) **GFAFB personnel** (b) (7)(E)

- d. Financial liability rests with the Department of Homeland Security (DHS) for any expenses related to a CBP UAS mishap, reclamation, and subsequent investigation IAW the agreement between DHS and Department of Defense.
- e. CBP will reimburse all support required by GFAFB and GFAFB contract personnel. If and when applicable, GFAFB ATC overtime dollars will be transferred to GFAFB for support of CBP UAS operations IAW the Base Support Agreement.

(b) (6), (b) (7)(C)
(b) (6), (b) (7)(C)
319th Air Refueling Wing

(b) (6), (b) (7)(C)
(b) (6), (b) (7)(C) UAS Operations
North Dakota Air Branch

Attachments:

- 1. CBP A&M primary and alternate location
- 2. CBP A&M UAS TFR and Arrival/Departure Procedure depiction
- 3. (b) (7)(E) UAS Lost Link Holding Point depiction
- 4. CBP A&M UAS Lost Link procedure and Emergency Mission Profile

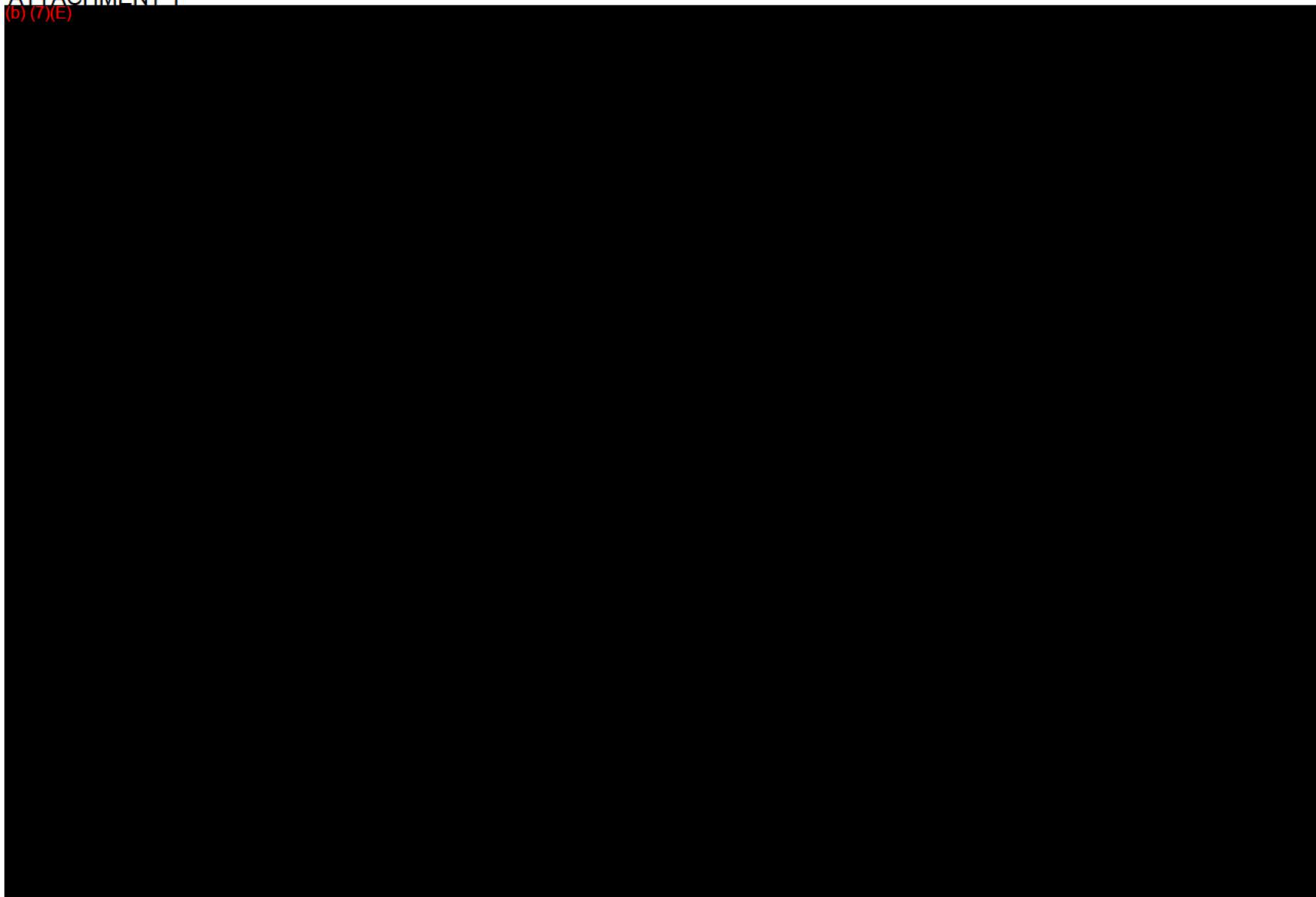


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ATTACHMENT 1

(b) (7)(E)



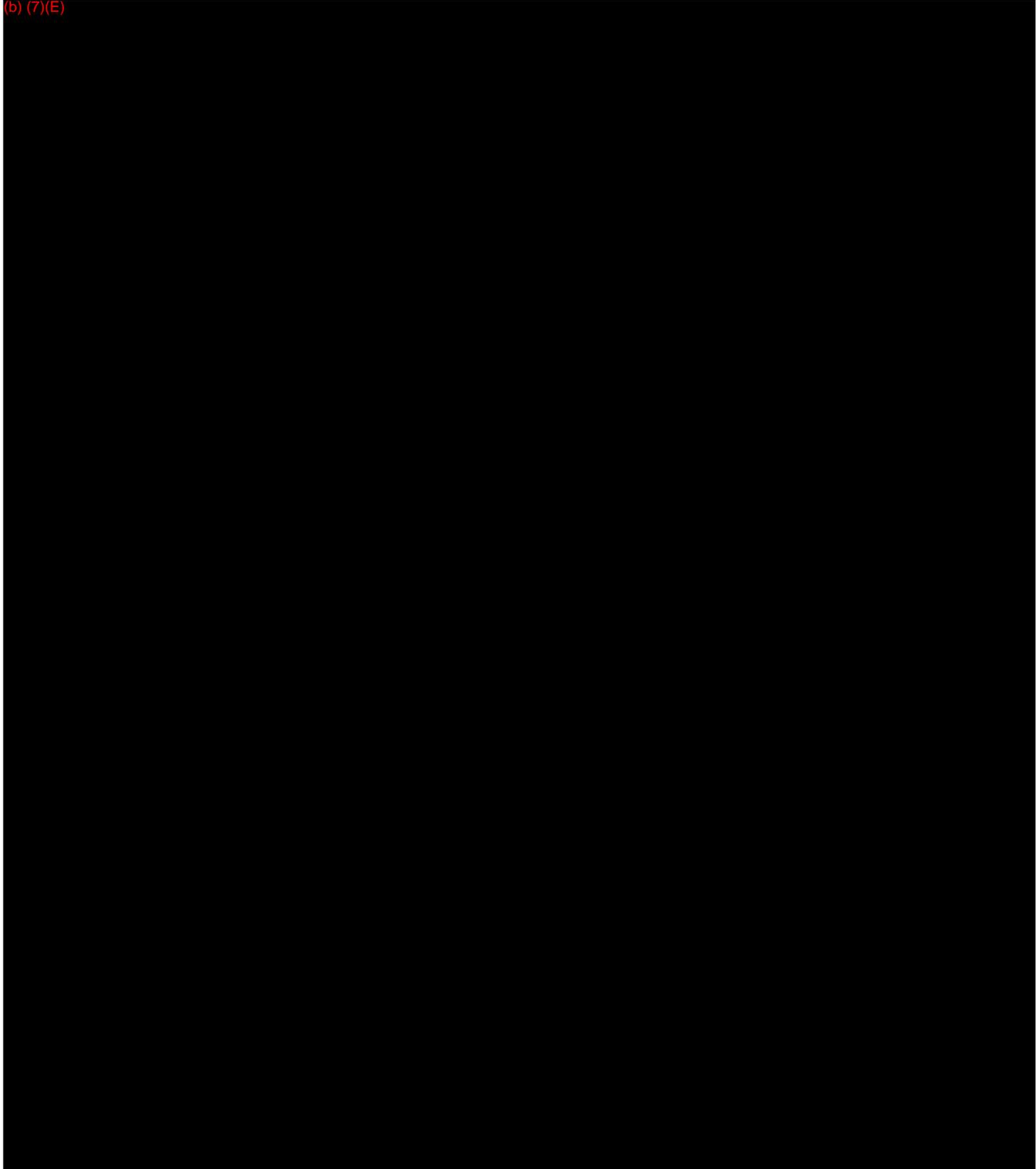
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(b) (7)(E)



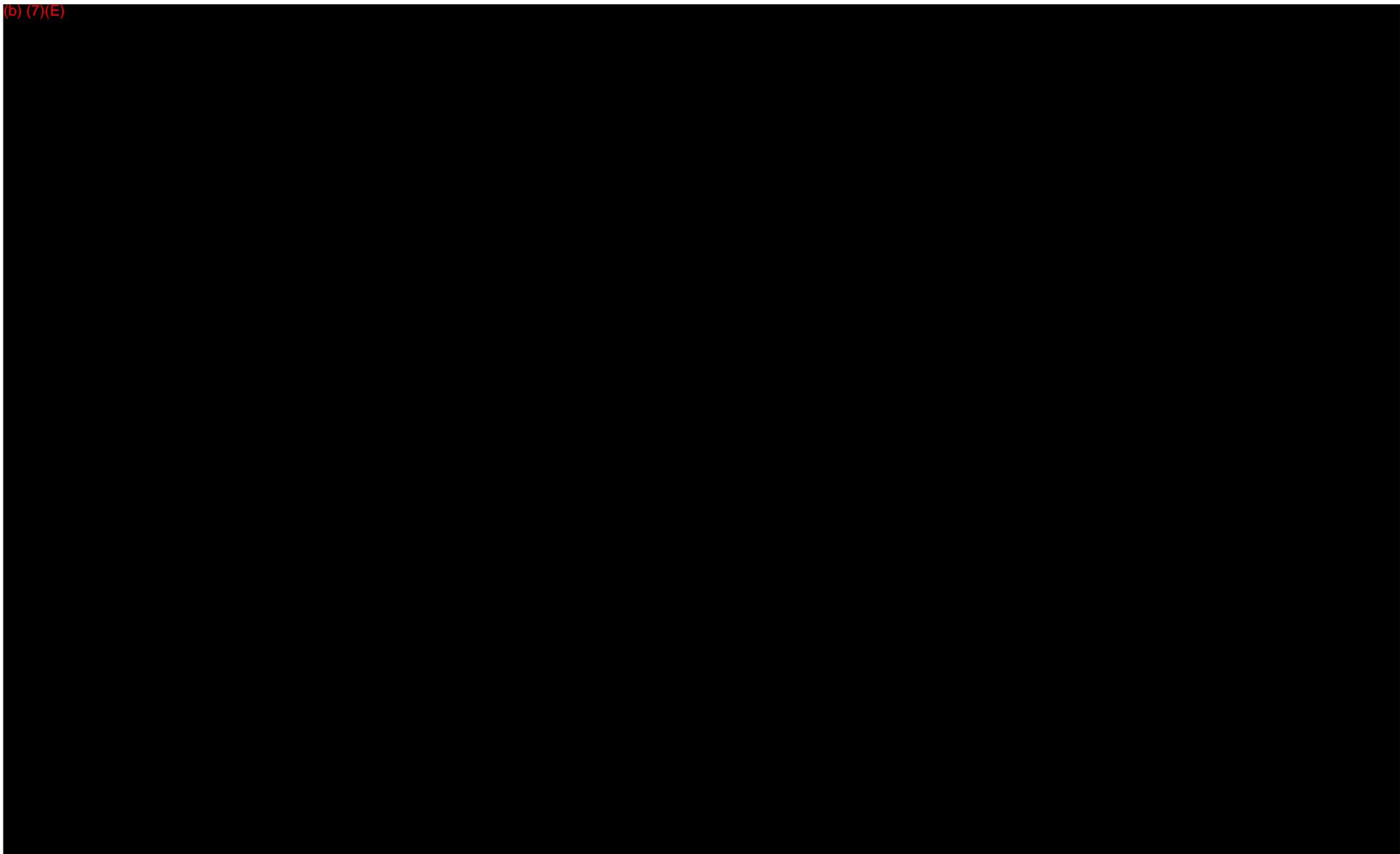
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(b) (7)(E)



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ATTACHMENT 4 FLIGHT TERMINATION, LOST LINK, LOST COMMUNICATION PROCEDURES

Event	Flight Termination	Lost Link	Loss Communications
Conditions	<ul style="list-style-type: none"> - Emergency situation - Unable to sustain flight and return to base 	<ul style="list-style-type: none"> - Emergency situation - Loss of command uplink, downlink, or both links between the ground control station and the UA 	<ul style="list-style-type: none"> - Loss of radio communications between the PIC and ATC (b) (7)(E)
Procedures	<p>In the event of Flight Termination, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p> <p><i>Note: As with manned aircraft operations, the UA may not be able to proceed in a controlled fashion to the flight termination location.</i></p> <p>Inform ATC of the following as soon as possible:</p> <p>(b) (7)(E)</p>	<p>In the event of a Lost Link condition, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p> <p>Inform ATC of the following as soon as possible:</p> <p>(b) (7)(E)</p> <p>(b) (7)(E)</p> <p>- SEE PARAGRAPH 8 OF THE CBP/GFAFB LOA</p> <p>(b) (7)(E)</p>	<p>In the event of Lost Radio Communications between the PIC and ATC, the PIC (b) (7)(E)</p> <p>(b) (7)(E)</p>
(b) (7)(E)	(b) (7)(E)		



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(b) (7)(E)		(b) (7)(E)	(b) (7)(E)	
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Lost Link – Aircraft on the Ground

(b) (7)(E)

