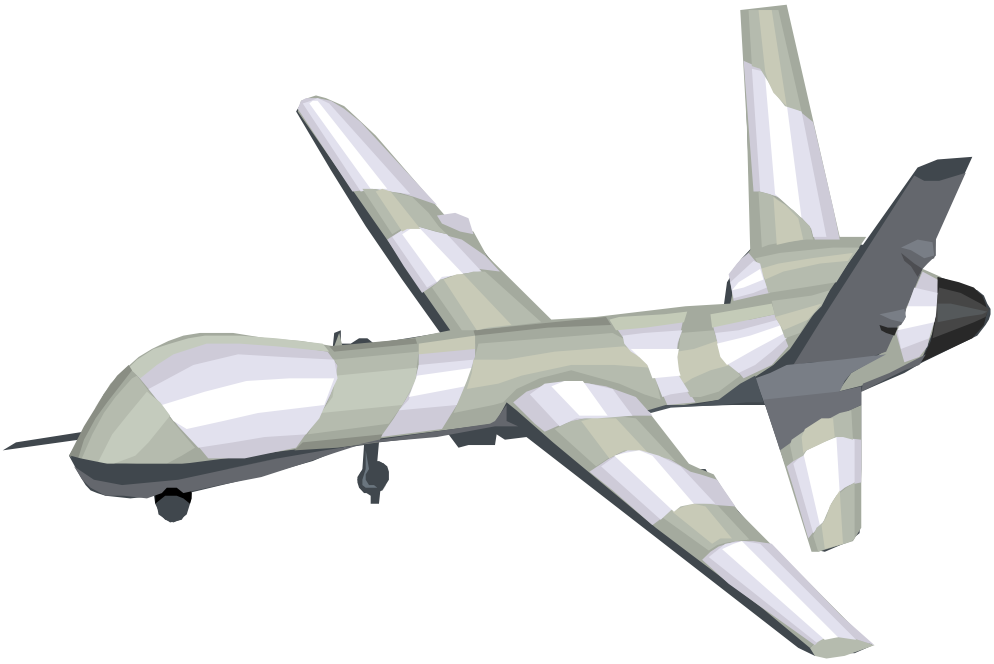
HEADQUARTERS
ATTERBURY – MUSCATATUCK
CENTER FOR COMPLEX OPERATIONS
EDINBURGH, INDIANA 476124-5000

UNMANNED AERIAL SYSTEMS PROCEDURES GUIDE ATTERBURY - MUSCATATUCK

March 2012



ATTERBURY – MUSCATATUCK
CENTER FOR COMPLEX OPERATIONS
UNMANNED AERIAL SYSTEMS
UA PROCEDURES GUIDE

PREFACE

a. Information herein pertains to all unmanned aviation operations at Atterbury – Muscatatuck Center for Complex Operations (AMCCO).

b. Any conflict between this UASPG and DA, FORSCOM, or Camp Atterbury / Muscatatuck Urban Training Center (MUTC) regulations will be resolved in favor of the more restrictive document. This UASPG takes precedence over unit SOPs.

c. The waiver authority for this UASPG is the DPTMS.

---*ORIGINAL SIGNED*---
DAVID G. RADER II
MAJ, AV, INARNG
Aviation Division Chief

ATTERBURY – MUSCATATUCK
CENTER FOR COMPLEX OPERATIONS
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INDEX

1. SCHEDULING

ATTERBURY

a. Written requests for training activities/events are sent to: HQ Camp Atterbury, ATTN: CA-DPTMS, Edinburgh, IN 46124-1096. (812) 526-1170. Requests should arrive NLT 180 days prior to the desired training date(s). Any request made less than 90 days prior to the desired training date(s) will be considered on a case-by-case basis. [For short notice requirements, requests may be faxed to DSN 569-2367 or CML (812) 526-1367.]

b. Mobilizing units send all training request through their chain of command to the MOC.

c. Requesting organizations/individuals will:

a. Request Day/Night Operational Altitude from Range Control no less than 72 hours prior to operations.

b. Report to Range Control for a Range and Safety Briefing.

c. Report to Himsel Army Airfield flight operations for UA procedures brief.

d. Establish radio communication with VHF 126.2, Himsel Tower/Airfield Operations. Following initial contact, other frequencies may be directed depending on radio traffic. (Requesting unit is responsible for providing operators with a radio capable of VHF 126.2 MHz.)

e. Advise Range Control when mission complete and assigned training area is clear of personnel and equipment.

MUSCATATUCK

a. Written requests for training activities/events should be sent to: Muscatatuck Scheduling, (317) 247-3300 ext. 41777, email address mutcscheduling@ng.army.mil. Requests should arrive NLT 180 days prior to the desired training date(s). Any request made less than 60 days prior to the desired training date(s) will be considered on a case-by-case basis.

b. Mobilizing units should send all training request through their proper chain of command up to the MOC.

c. Requesting organizations/individuals will include in their facility request:

d. Request Day/Night Operational Altitude (detail plan to include dates, time line, and altitude). **Altitude cannot exceed 700ft AGL nor can operations be conducted outside the boundaries of MUTC, these are both FAA violations!**

e. Coordinate operational altitudes with JPG as needed. (JPG (812) 689-7295 coordination required 30 days in advance)

f. Report to Grizzly Operation for a Range and Safety Briefing NLT 72 hrs prior to mission.

g. Report to Grizzly flight operations for pilot's safety brief NLT 24 hrs prior to mission.

h. Establish radio communication with Grizzly Operations. Following initial contact, other frequencies may be directed depending on radio traffic. (The unit is responsible for providing their operators with a radio capable of radio communications with Grizzly Operations via UHF 236.15, (VHF 139.6 alternate as assigned).

i. Advise Grizzly Operations when the mission has been completed, and the training area is clear of personnel and equipment.

2. UAS OPERATIONS

ATTERBURY

a. UA operators must complete UAS Mission Sheet and provide copy of risk assessment worksheet

b. Advise the Airfield Operations Office or Range Control in the event of an emergency.

c. All units must send representative to daily sync meeting (normally 0800). Representative must have working knowledge of next 36 hours of activity.

d. Clearance for all flights must be approved by Himsel Tower.

e. UA operator may be require to clear all equipment from runway IOT facilitate manned aircraft operations. (Even if UA is airborne!)

f. Maintain radio communications with Himsel Tower and provide 15 situation reports (sitreps).

g. Advise Himsel Tower PRIOR to personnel entering, or driving any vehicle onto the airfield runway or aircraft ramp area.

h. Contact Range Control via radio, or by any other means available, when experiencing loss of radio contact with Tower.

i. Requests for convoy-following/leading training must be specifically approve by range control.

j. Restricted Operation Area (ROA)

1) Issued to Small UAS (SUAS) operators.

2) ROA location and description will be NOTAM'd and tagged on AWOS recording

k. Himsel launch/recovery corridor

1) As required for UA operating from Himsel AAF.

2) Corridor is defined as: Grids 8257, 8557, 8254 & 8554.

3) When activated by Himsel tower, manned aircraft will remain laterally outside the defined box until UA reports climbing safely above 2000 feet MSL.

l. East TUAS Ops Facility launch/recovery corridor

1) As required for UA operation from East TUAS Ops Facility (former landfill)

2) Corridor is defined as: Training Areas 2, 3 & ASP depicted blast area.

3) When activated by Himsel tower, manned aircraft will remain laterally outside the defined box until UA reports climbing safely above 2000 feet MSL.

m. Coordinating Altitude

1) Coordinating Altitude during UA OPS is 1700 feet.

2) Manned aircraft maintain 1500 feet MSL and below.

3) UA maintain 2000 feet and above.

MUSCATATUCK

a. UA operators must complete UAS Mission Sheet and provide copy of risk assessment worksheet.

b. UA OIC must assign two (2) qualified UA operators to act as rooftop observers anytime UA is airborne. Observers must be in position ten minutes before any UA operation can occur. Observers must have communication capability to transmit and receive UA GCS and North Vernon CTAF.

c. UAS must comply with COA and remain in Class G airspace. (Below 700ft AGL.)

d. Advise the Grizzly Operations and/or Jeff Tower in the event of an emergency.

e. All units must send representative to daily sync meeting (normally 0800). Representative must have working knowledge of next 36 hours of activity.

f. Clearance for all flights must be approved by Grizzly Operations or Jeff Tower, as appropriate.

g. Maintain radio communications with Grizzly Ops or Jeff Tower, as appropriate, and provide 15 situation reports (sitreps).

h. Requests for convoy-following/leading training must be specifically approve by Grizzly Ops or Jeff Range, as appropriate.

3. LOST LINK/DISORIENTED PROCEDURES:

a. If UA fails to respond to commands, operator must immediately notify Himsel Tower/Range Control/Grizzly Ops/Jeff Tower, as appropriate, of UA loss link, last known position, heading, airspeed, altitude and continue attempts to regain control of UA.

b. Command/direct UA to assigned Lost Link/Loiter point (AUTO LAND, if able).

c. If at Atterbury, remain within R3401 (if possible), advise Himsel Tower and/or Range Control if UA is re-linked/landed.

d. If at Muscatatuck, remain within R3403 (if possible), advise Grizzly Ops and/or Jeff Tower if UA is re-linked/landed.

e. Upon notification of a UA that is no longer controlled by the operator, Grizzly Ops and/or Jeff Tower will ‘check fire’ Ranges and broadcast an advisory on appropriate frequencies to notify all airspace users of the errant UA and execute pre-accident plan.

f. Prepare DA Form 2397U – UAS Accident Report.

4. LOST COMMUNICATION WITH TOWER:

a. Upon losing communication with Himsel Tower/Range Control/Grizzly Ops/Jeff Tower, as appropriate, Land the UA IMMEDIATELY! Use any means available to re-establish contact.

b. No aircraft will continue training unless positive radio communication can be maintained.

5. AIR NATIONAL GUARD

ATTERBURY

a. When scheduling airspace for UA operations, coordination with ANG may be required to ensure operational safety.

b. Contact Range Control at 812-526-135. Crosscheck requested training times versus ANG block time scheduled for the period of training you are requesting. If conflicts exist, requesting unit must coordinate de-confliction with ANG (812-526-1114).

c. During ANG operational times, UA must receive specific permission from ANG tower before operating south of 53 gridline or above 2500 feet MSL.

d. At no time will UA operators lose contact with Himsel Tower during the radio coordination with the Airguard.

MUSCATATUCK

a. When scheduling airspace for UA operations within R3403, coordination with ANG will be required.

b. Contact Jeff Range at 812-689-7295. Crosscheck requested training times versus ANG block time scheduled for the period of training you are requesting. If conflicts exist, requesting unit must coordinate de-confliction with ANG.

c. UA must receive specific permission from Jeff tower before commencing flight operations.

6. WEATHER REQUIREMENTS. Weather requirements will be in accordance with AR 95-23, chapter 5.

7. ACCIDENT AND INCIDENT REPORTING. In addition to requirements in AR 95-23, AR 385-10 and DA Pamphlet 385-40 provide the initial report of all UAS accidents or incidents to the appropriate DAR within 24 hours.

a. UAS accident reporting applies to all UAS (including small UAS).

b. Small UAS (under 20 pounds) accident reporting is addressed in AR 95-23.

c. DA Form 2397-U (Unmanned Aircraft System Accident Report) is required for all UAS aviation accidents, regardless of the class. Investigation and submission of form 2397-U will be in accordance with AR 385-10.

Appendix A

INSTALLATION SUPPORT UNIT
CAMP ATTERBURY
JOINT MANEUVER TRAINING CENTER
PO BOX 5000
Edinburgh, Indiana 46124-5000

CAJMTC-DPTMS-AV 01 June 2012

MEMORANDUM FOR RECORD

SUBJECT: Unmanned aircraft (UA) operations at Range 36

1. All UA operations at Camp Atterbury will schedule with CA-DPTMS scheduling; receive a range brief from CA-DPTMS range control; and receive a UA procedures brief from CA-DPTMS aviation division.

2. Exception to policy:

a. Air National Guard Detachment 1 may operate UA at range 36 whenever the ANG tower and airspace are active. Provide DPTMS aviation division: name of UA, frequencies used, maximum altitude and lost link procedure.

b. During airspace inactive periods, UA operations at Range 36 are permitted with a pre-arranged Restricted Operations Area (ROA) established and published by CA-DPTMS aviation division. UA operators must maintain line of sight and ensure UA remains within the boundaries of Range 36. Provide DPTMS aviation division: name of UA, frequencies used, maximum altitude and lost link procedure. Manned aircraft will be permitted operations south of gridline 53, but will remain outside Range 36 plus 1KM buffer.

3. Point of contact is MAJ Dave Rader at 812-526-1355 or david.rader@us.army.mil.

FOR THE COMMANDER

DAVID G. RADER II
MAJ, AV, INARNG
Aviation Division Chief

APPENDIX B

RQ-7 SHADOW 200 TUAS COA Operations

Shadow launch/recovery operations from the EAST TUAS Operations Facility will be IAW Certificate of Authorization (COA) TBD.

This COA provides operational space beyond the northeast corner of R3401A for the Shadow UA to safely launch and recover. The COA area in which the UA will climb to operating altitudes and descend to approach altitudes falls outside of the R3401A restricted airspace.

This COA is to be used for launch/recovery purposes only. No other operations are permitted in the COA airspace extension. UA pilots must keep UA time outside R3401 to a minimum. The center of the COA will be the center of the UAS airfield, extend 3 kilometers to the North of the restricted airspace, and extend 1 kilometer on the NE side of the restricted area. (Exact location and coordinates to be placed in this appendix when finalized)

APPENDIX C

RQ-11A/B RAVEN SUAS COA Operations

RAVEN A/B SUAS Operations at MUTC will be IAW Certificate of Authorization (COA) TBD.

This COA provides operational space within the geographical area of Muscatatuck Urban Training Center up to an altitude of 700ft AGL.

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APPENDIX D

UAS CONSIDERATIONS

1.) UAS Considerations
    a. What is the approximate size of the UAS?
    b. What frequencies will be used? Are they approved? Will they interfere with civilian R/C operations north of the installation?
    c. Does requestor have transceiver? (CA -126.2 VHF) (MUTC -236.15 UHF)
    d. How is the UAS Launched/Recovered?
        i. Does it need to be positioned on the runway or can it be placed in a sod area?
        ii. Is special equipment needed for takeoff?
        iii. How much time is required to set up equipment for takeoff?
    e. How much space does the UAS need for landing?
        i. Is special equipment needed for landings?
        ii. How much time is required to set up equipment for landing?
    f. What is the lost link procedure?
        i. Altitude
        ii. Return point
    g. What requirements are there for UAS Operations from a logistical standpoint?
        i. Will you set up a tent/hangar to service or store the UAS? Does that need to be on a paved surface?
        ii. Will you set up a tent/TOC for UAS Command and Control? Does that area need to be on pavement?
        iii. Do you need an electrical drop or will you be running off generators?
        iv. 'Port-a-johns'?
    h. What type of training will be conducted with the UAS?
        i. What flight levels will the UAS operate?
        ii. Day/Night/NVD?
        iii. Will multiple UAS fly concurrently? How many?
        iv. What size maneuver area is required for UAS operation? _____ Mile radius?
        v. Will it be flying in a pattern or flying a route?
        vi. How long does a typical flight last?
        vii. Will the UAS do reconnaissance only? Laser Designation? Payloads?
        viii. What communications tools do the UAS Crew use (FM, VHF, UHF, HF, Transponder, etc)?
        ix. Call Signs?
2.) Aircrew Considerations (Non-participating manned aircraft)
    a. Call sign of UAS?
    b. Approximate Size?
    c. Launch/Recovery procedures?
    d. What Altitude and location will UAS operate?
    e. What times?
    f. ROZ in effect during takeoff and landings? How long?
    g. Lost Link Procedures/attitudes/return point?

APPENDIX E

UAS Mission Form

Unit/Call Sign/State:

Training Areas used: _____

Location of Launch: _____

Type & Number of UAs: _____Total Weight w/Payload_____

Lost Link/Loiter Point:

Highest Altitude Requested: _____

On-Site Supervisor/Observers: _____

_____

Start-Stop Dates: _____

Cell phone: _____Number Personnel Training_____

.

Start/Stop Dates_____Times of Operations_____

All launch/recoveries of UA must be requested through Himsel Tower on 126.2 or Grizzly Operations on 236.15. Units are required to maintain communications with Himsel tower/Grizzly Ops and check-in every 15 minutes with a status call, i.e. 'Operations Normal'.
In the event radio communications cannot be establish, other means of communications must be utilized and UA must land immediately!

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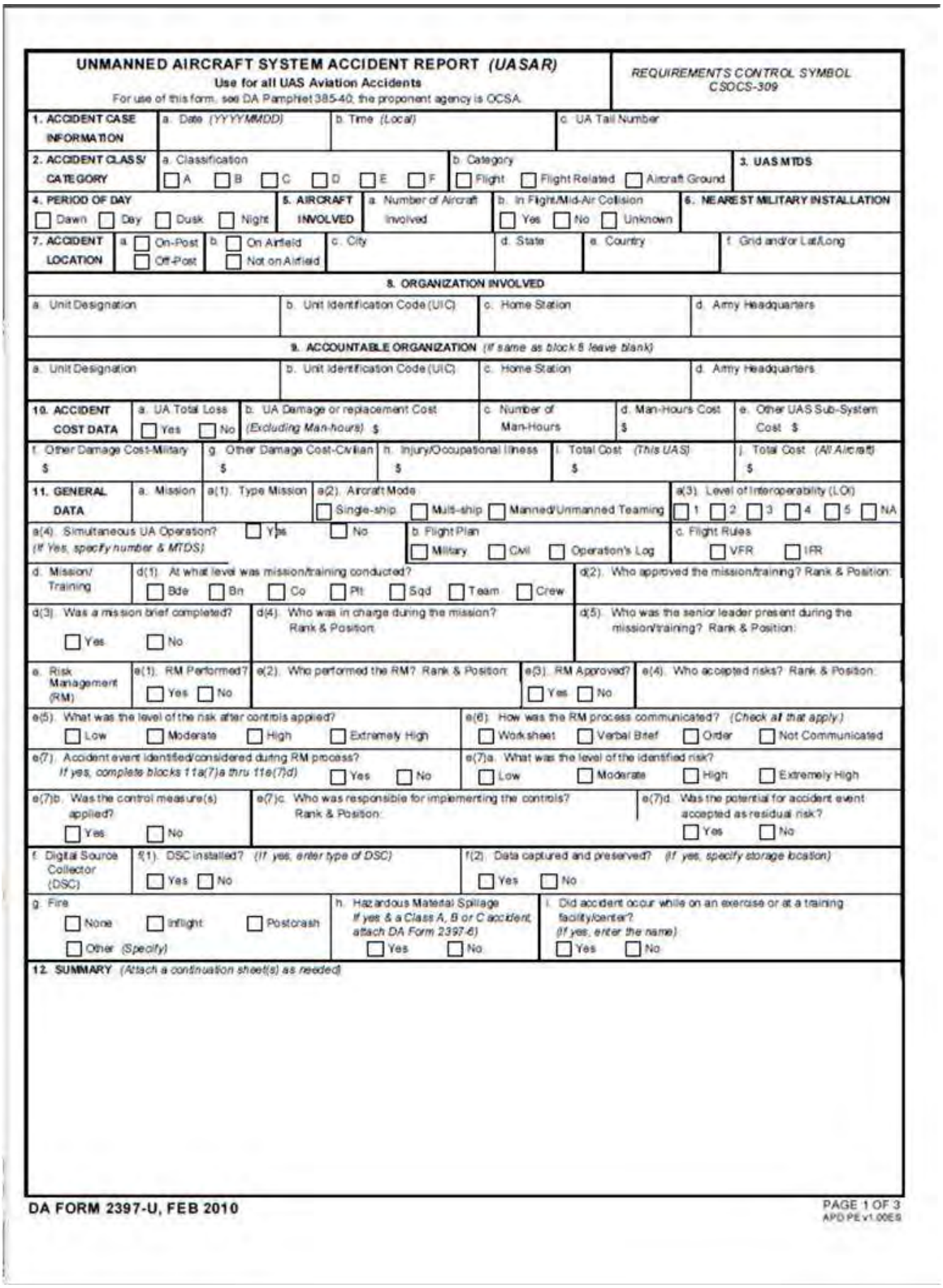
Date: _____Operations Initials: _____OIC Initials: _____

APPENDIX F



UNMANNED AIRCRAFT SYSTEM ACCIDENT REPORT *(UASAR)*
Use for all UAS Aviation Accidents
For use of this form, see DA Pamphlet 385-40; the proponent agency is OCSA.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

1. ACCIDENT CASE INFORMATION	a. Date *(YYYYMMDD)*	b. Time *(Local)*	c. UA Tail Number			
2. ACCIDENT CLASS/ CATEGORY	a. Classification ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F	b. Category ☐ Flight ☐ Flight Related ☐ Aircraft Ground	**3. UAS MTDS**			
4. PERIOD OF DAY ☐ Dawn ☐ Day ☐ Dusk ☐ Night	**5. AIRCRAFT INVOLVED**	a. Number of Aircraft Involved	b. In Flight/Mid-Air Collision ☐ Yes ☐ No ☐ Unknown	**6. NEAREST MILITARY INSTALLATION**		
7. ACCIDENT LOCATION	a. ☐ On-Post ☐ Off-Post	b. ☐ On Airfield ☐ Not on Airfield	c. City	d. State	e. Country	f. Grid and/or Lat/Long

8. ORGANIZATION INVOLVED

a. Unit Designation	b. Unit Identification Code (UIC)	c. Home Station	d. Army Headquarters

9. ACCOUNTABLE ORGANIZATION *(If same as block 8 leave blank)*

a. Unit Designation	b. Unit Identification Code (UIC)	c. Home Station	d. Army Headquarters

10. ACCIDENT COST DATA	a. UA Total Loss ☐ Yes ☐ No	b. UA Damage or replacement Cost *(Excluding Man-hours)* $	c. Number of Man-Hours	d. Man-Hours Cost $	e. Other UAS Sub-System Cost $
f. Other Damage Cost-Military $	g. Other Damage Cost-Civilian $	h. Injury/Occupational Illness $	i. Total Cost *(This UAS)* $	j. Total Cost *(All Aircraft)* $	

11. GENERAL DATA	a. Mission	a(1). Type Mission	a(2). Aircraft Mode ☐ Single-ship ☐ Multi-ship ☐ Manned/Unmanned Teaming	a(3). Level of Interoperability (LOI) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ NA
a(4). Simultaneous UA Operation? ☐ Yes ☐ No *(If Yes, specify number & MTDS)*		b. Flight Plan ☐ Military ☐ Civil ☐ Operation's Log	c. Flight Rules ☐ VFR ☐ IFR	
d. Mission/ Training	d(1). At what level was mission/training conducted? ☐ Bde ☐ Bn ☐ Co ☐ Plt ☐ Sqd ☐ Team ☐ Crew		d(2). Who approved the mission/training? Rank & Position:	
d(3). Was a mission brief completed? ☐ Yes ☐ No	d(4). Who was in charge during the mission? Rank & Position:		d(5). Who was the senior leader present during the mission/training? Rank & Position:	
e. Risk Management (RM)	e(1). RM Performed? ☐ Yes ☐ No	e(2). Who performed the RM? Rank & Position:	e(3). RM Approved? ☐ Yes ☐ No	e(4). Who accepted risks? Rank & Position:
e(5). What was the level of the risk after controls applied? ☐ Low ☐ Moderate ☐ High ☐ Extremely High			e(6). How was the RM process communicated? *(Check all that apply)* ☐ Worksheet ☐ Verbal Brief ☐ Order ☐ Not Communicated	
e(7). Accident event identified/considered during RM process? *If yes, complete blocks 11a(7)a thru 11e(7)d)* ☐ Yes ☐ No			e(7)a. What was the level of the identified risk? ☐ Low ☐ Moderate ☐ High ☐ Extremely High	
e(7)b. Was the control measure(s) applied? ☐ Yes ☐ No	e(7)c. Who was responsible for implementing the controls? Rank & Position:		e(7)d. Was the potential for accident event accepted as residual risk? ☐ Yes ☐ No	
f. Digital Source Collector (DSC)	f(1). DSC installed? *(If yes, enter type of DSC)* ☐ Yes ☐ No		f(2). Data captured and preserved? *(If yes, specify storage location)* ☐ Yes ☐ No	
g. Fire ☐ None ☐ Inflight ☐ Postcrash ☐ Other *(Specify)*	h. Hazardous Material Spillage *If yes & a Class A, B or C accident, attach DA Form 2397-6)* ☐ Yes ☐ No		i. Did accident occur while on an exercise or at a training facility/center? *(If yes, enter the name)* ☐ Yes ☐ No	

12. SUMMARY *(Attach a continuation sheet(s) as needed)*

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13. FLIGHT DATA	Flight Duration	Phase of Operation (Enter max of 3 codes from Table 3-4 of DA Pam 385-40 or specify the phase if there is no code for it in the table)	Altitude MSL	Altitude AGL	Airspeed KIAS	UA Weight	UA Overgross Weight for Conditions Yes	No	14. TYPE EVENTS (Enter max of 3 codes from Appendix F table F-3 of DA Pam 385-40 or specify the type event which best describes the accident/incident event if there is no code for it in the table.)
a. At Emergency/ Onset	Hours / Tenths						☐	☐	
b. At Impact/Acdt or Termination	Hours / Tenths						☐	☐	
c. Flight Ctrl Malfunction	Check all that apply: ☐ Human ☐ Environmental ☐ Material ☐ Hardware ☐ Software ☐ Component/Part ☐ Not Applicable								

15. ACCIDENT CAUSE FACTORS *(For blocks 15a-c, D=definite, S=Suspected, U=Undetermined and N=No/None)*

a(1). System Inadequacies *(Enter max of 3 codes in each block below from table B-5 (Additional codes in table B-1) DA Pam 385-40 or if there is no code in the table, write in that which best describes the failure)*

a. Human Factors *(Check box D, S, U or N. If D or S, complete blocks 15a(1)(a)-(e))* ☐ D ☐ S ☐ U ☐ N

a(1)a. Support Failure	a(1)b. Standards Failure	a(1)c. Training Failure	a(1)d. Leader Failure

a(1)e. Individual Failure	b. Material Factors *(Check box D, S, U or N. If D or S, complete blocks 15b(1)-(2))* ☐ D ☐ S ☐ U ☐ N	b(1). Type *(Check all that apply)* ☐ Component/Part ☐ Hardware ☐ Software

b(2). Component and Part *(Part that initiated failure/malfunction)*

	UAS Subsystem (UA, GCS, GDT, TALS, etc.)	Major Component	Part
a. Nomenclature			
b. Type, Design, and Series			
c. Part Number			
d. NSN/ Manufacturer's Number			
e. Manufacturer's Code			
f. Serial Number			
g. Cause of Failure/ Malfunction		☐ Material ☐ Maintenance ☐ Design ☐ Manufacture	*(Enter the applicable Failure Codes (Item 2) using table 1-2, DA Pam 738-751 (TAMMS-Aviation))*

c. Environmental Factors *(Check box D, S, U or N, as appropriate.)* ☐ D ☐ S ☐ U ☐ N

c(1). General *(Check all that apply.)* ☐ VMC ☐ IMC ☐ Icing ☐ Turbulence

c(2). Weather Conditions *(Enter max of 3 codes from Appendix F table 3-26 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)*

c(3). Environmental Signal Factors ☐ Uplink ☐ Downlink ☐ Interference ☐ E[3] ☐ NA ☐ Other *(Specify)*

c(4). Other Environmental Factors *(Enter max of 3 codes from Appendix F table 3-27 of DA Pam 385-40 or specify the weather condition if there is no code for it in the table.)*

16. LOSS OF LINK *(Check box D, S, U or N. If D or S, complete blocks 16 a-d)* ☐ D ☐ S ☐ U ☐ N

a. Type of Link Lost ☐ Uplink ☐ Downlink ☐ Unknown

b. Type of Link ☐ LOS ☐ BLOS ☐ C-Band ☐ Ku-Band ☐ Other *(Specify)*

c. UA distance from the GCS at time of LOL

d. LOL Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Material ☐ Hardware ☐ Software ☐ Component/Part

17. TAKE OFF/LANDING DATA *(Complete block 17a if accident occured during take-off phase and block 17b if during landing phase.)*

a. Take-Off (T/O) Phase	a(1). T/O Method ☐ ATLS ☐ Launcher ☐ Manual	a(2). T/O Accident Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Material ☐ Hardware ☐ Software ☐ Component/Part
b. Landing Phase	b(1). Landing Method ☐ ATLS ☐ TALS ☐ FTS ☐ Manual	b(2). Landing Accident Factors *(Check all that apply.)* ☐ Human ☐ Environment ☐ Material ☐ Hardware ☐ Software ☐ Component/Part

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18. TYPE OF STRIKE

☐ Wire ☐ Bird ☐ Tree ☐ Object ☐ Lighting ☐ Antenna ☐ N/A ☐ Other *(Specify)*

19. PERSONNEL DATA *(Complete for each crew member with access to flight controls, personnel injured/occupational illness, personnel having a contributing role in the accident; use additional forms if needed.)*

a. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender ☐ Male ☐ Female	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role ☐ D ☐ S ☐ U ☐ N	(8) On Flt Ctrls ☐ Yes ☐ No	(9) Lab Test ☐ Pos ☐ Neg ☐ Not Required

(10) Activity		(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept	(a) RL ☐ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked	(b) FAC ☐ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*	☐ Yes ☐ No		
	(c) Hrs Flown	(c) Redeployed Date *(YYYYMMDD)*			

b. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender ☐ Male ☐ Female	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role ☐ D ☐ S ☐ U ☐ N	(8) On Flt Ctrls ☐ Yes ☐ No	(9) Lab Test ☐ Pos ☐ Neg ☐ Not Required

(10) Activity		(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept	(a) RL ☐ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked	(b) FAC ☐ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*	☐ Yes ☐ No		
	(c) Hrs Flown	(c) Redeployed Date *(YYYYMMDD)*			

c. Name *(Last, First, MI)*	(1) SSN	(2) Grade	(3) Gender ☐ Male ☐ Female	(4) Duty	(5) SVC	(6) UIC *(Assigned)*	(7) Contributing Role ☐ D ☐ S ☐ U ☐ N	(8) On Flt Ctrls ☐ Yes ☐ No	(9) Lab Test ☐ Pos ☐ Neg ☐ Not Required

(10) Activity		(11) Individual Status	(12) Injury/Occupational Illness	(13) MTDS Flt Hrs	(14) Total Flt Hrs
	(a) Hrs Slept	(a) RL ☐ 1 ☐ 2 ☐ 3 ☐ Msn Prep ☐ Msn Qual	*(If "yes" complete and attach DA Form 2397-9)*		
	(b) Hrs Worked	(b) FAC ☐ 1 ☐ 2 ☐ 3 ☐ NA *(SUAS Operators)*	☐ Yes ☐ No		
	(c) Hrs Flown	(c) Redeployed Date *(YYYYMMDD)*			

20. FINDINGS AND RECOMMENDATIONS *(See instructions in DA Pam 385-40, para 2-24, for writing findings and recommendations. Use additional sheets if needed)*

USACRC use only								
Duty		Role		Failure/error Code	SI 1	RM 1	RM 2	RM 3
Phase of OP		Task/part no.			SI 2	RM 1	RM 2	RM 3

21. LIST OF ATTACHMENTS *(ECOD/ACOD, CCAD, PQDR, DA Forms 2397-series, etc.)*

22. BOARD PRESIDENT/ASO/POC *(Name, Signature, and Date)*	a. Grade	b. Branch	Address and Tel No. *(DSN and Com)*
	E-Mail		

23. COMMAND REVIEW *(Only required for class A, B & C)*

Reviewer	Organization	Name *(Last, First, MI)*	Rank	Comments	Signature
a. Unit Commander				☐ Concur ☐ Non-concur	
b. Reviewing Official				☐ Concur ☐ Non-concur	
c. Approving Authority				☐ Concur ☐ Non-concur	
d. DA Review	USACR/SC			Approved for entry into ASMIS *(YYYYMMDD)*	

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APPENDIX G

A) Atterbury

1. ***UA Loiter/Loss Link Points***
   - ***a) EJ 806567 (vic Smith DZ)***
   - ***b) EJ 794535 (vic Area 702)***
   - ***c) EJ 844551 (vic Larkin DZ)***
   - ***d) EJ 855553 (vic East TUAS OPS Facility)***
   - ***e) EJ 864560 (vic Kleiber DZ)***

B) Muscatatuck

1. ***UA Loiter/Loss Link Points***
   - **a) LZ Holland (NE)**
     - **1) N39 03.19 W085 30.58**
     - **2) 16S FJ 28957 23733**
   - **b) LZ Bataan (E)**
     - **1) N39 02.87 W085 32.50**
     - **2) 16S FJ 27120 24100**
   - **c) LZ Saber (SE)**
     - **1) N39 02.56 W085 31.97**
     - **2) 16S FJ 26970 22530**
   - **d) LZ Snyder (SW)**
     - **1) N39 02.68 W085 32.14**
     - **2) 16S FJ 26730 22750**
   - **e) LZ Clemens (NW)**
     - **1) N39 03.18 W085 32.05**
     - **2) 16S FJ 26840 23680**

Appendix H

Abbreviations

AC
Aircraft commander
AD
Airworthiness Directive
AGL
Above ground level
AO
Aircraft operator
APART
Annual proficiency and readiness test
AR
Army regulation
ARMS
Aviation Resource Management Survey
ARNG
Army National Guard
ASA
Aviation safety action
ATC
Air traffic control
ATM
Aircrew training manual
ATP
Aircrew Training Program
CAFRS
Centralized Aviation Flight Records System
CFR
Code of Federal Regulations
CG
Commanding general
COA
Certificate of authorization
CTAF
Common Traffic Advisory Frequency
CVR
Cockpit voice recorder
DA
Department of the Army
DAR
Department of the Army Representative
DES
Directorate of Evaluation and Standardization
DOD
Department of Defense
DOTD
Directorate of Training and Doctrine
DRU
Direct Reporting Unit
DSC
Digital source collector
EO
External operator
ETA
Estimated time of arrival
FAA
Federal Aviation Administration
FAR
Federal aviation regulation
FDR
Flight data recorder
FLIP
Flight information publication
FM
Field manual
FOIA
Freedom of Information Act
FTG
Flight training guide
GCS
Ground control station
GPS
Global Positioning System
IATF
Individual aircrew training folder
IFR
Instrument flight rules
IFRF
Individual flight records folder
IKTP
Initial key personnel training
IMC
Instrument meteorological conditions
IO
Instructor operator
MC
Mission coordinator
MOS
Military occupational specialty
MQ
Mission qualified
MT
Master trainer
MTDS
Mission, type, design, and series
NCO
Noncommissioned officer
NGB
National Guard Bureau
NOTAM
Notice to Airman
PO
Payload operator
POI
Program of instruction
PM
Project manager
RAW
Risk assessment worksheet
RL
Readiness level
SAAO
State Army aviation officer
SB
Supply bulletin
SME
Subject matter expert
SOF
Safety of flight
SOP
Standing operating procedure
SO
Standardization instructor operator
SP
Standardization instructor pilot
S–PART
Semiannual proficiency and readiness test
SUA
Special use airspace
SUAS
Small Unmanned Aircraft System
TB
Technical bulletin
TM
Technical manual
TRADOC
U.S. Army Training and Doctrine Command
UA
Unmanned aircraft
UAC
Unmanned aircraft crewmember
UAS
Unmanned Aircraft System
U.S.
United States
USAASA
U.S. Army Aeronautical Services Agency
USSOCOM
U.S. Special Operations Command
UT
Unit trainer
VFR
Visual flight rules
VMC
Visual meteorological condition
VO
Visual observer

Terms

Aeronautical information manual
A manual that provides the aviation community with basic flight information and ATC procedures for use in the National Airspace System of the United States. It also contains items of interest to operators and aircrew members concerning health and medical facts, factors affecting flight safety, a operator and/or controller glossary of terms used in the Air Traffic Control System, and information on safety, accident, and hazard reporting.

Air traffic
Aircraft and/or air vehicles operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Aircrew training manual (ATM)
A publication that contains Army training requirements for Army flight crewmembers and programs for qualification, refresher, mission, and continuation training in support of the Aircrew Training Program (ATP), including unmanned aerial vehicle system crewmembers training programs.

Aircrew Training Program (ATP)
Army aviation aircrew standardized training and evaluation program.

Army aircraft and/or unmanned aircraft
Aircraft and/or unmanned aircraft under the jurisdiction of the Department of the Army.

Army aviation standardization
The use of uniform tested procedures and techniques to attain a high level of readiness and professionalism in the operation and employment of Army aircraft and/or unmanned aircraft. This is achieved through standardized publications and training literature, a disciplined instructor operator force, tests, flight checks, and command supervision. Standardization includes aviator cockpit, performance, aircrew teamwork, tactics, maintenance, and safety. For UAS, standardization includes external operator and/or external air vehicle crewmember performance, air vehicle crewmember and/or air vehicle operator, and mission payload operator performance, aircrew teamwork, tactics, maintenance, and safety.

Army safety action team
Standing committee that meets on call to address HQDA-level Safety of Flight and Safety of Use issues, provide coordinated recommendations to the Office of the Chief of Staff, Army, and expedite corrective actions to maximize readiness, safety and training. See AR 385–10 for specific objectives, membership, and procedures.

Aviation safety action messages (ASAM)
Electrically transmitted messages that convey maintenance, technical or general interest information where a low to medium risk safety condition has been determined per AR 385–10. The ASAMs are of a lower priority than SOF messages.

Catastrophic failure
Any failure that leads to the loss of the UA(s).

Command and/or staff aviation officer
A special staff aviator designated by the commander to provide advice or manage aviation assets, aviation standardization, and aviation safety.

Controlled airspace
A generic term that covers the different classification of airspace (Class A, Class B, Class C, Class D, and Class E airspace) and defined dimensions within which air traffic control service is provided to instrumented flight rules flights and to VFR flights in accordance with the airspace classification (see the Aeronautical Information Manual).

Crewmember
Includes all flight and ground crewmembers, and others who perform aircrew duties as listed in this regulation.

Cross-country flight
A flight extending beyond the local flying area or within the local flying area which is planned to terminate at a place other than the place of origin.

External operator (EO)
The UAS crewmember who, in the absence of full automatic takeoff and landing systems, visually controls the UAS flight path, generally during takeoff and/or landing.

Flight crew station
A station in an air vehicle that a flight crewmember occupies to perform his or her flight duty, for example, operator stations specified in operator's manuals. For UAS, a station associated with the in-flight

operation of a UAS at which flight controls may be used to control air vehicle flight; for example, air vehicle operator, external operator, or mission payload operator stations specified in the operator's manual.

Flight crewmember

Any instructor pilot, flight examiner, pilot, copilot, flight engineer and/or mechanic, flight navigator, weapon systems operator, bombardier navigator, radar intercept operator, sensory system operator, boom operator, crew chief, loadmaster, remotely operated aircraft operator, UAS operator, defensive and/or offensive system operator, and other flight manual handbook identified crewmember when assigned to their respective crew positions to conduct a military flight or any flight under the contract. For UAS, an AO, EO, IO, MC, PO or SO assigned to duty during the in-flight operation of an aircraft.

Flight surgeon

A medical officer that is a graduate of an approved military course of aviation medicine. References to flight surgeons include aeromedical physician's assistant.

Ground crewmember

The status assigned to Soldiers who have duties directly related to the preparation, launch, recovery and/or maintenance of UAS and/or their mission payload systems but not the in-flight mission.

Installation

For Army Aviation Standardization Program purposes, continental United States Active Army posts, camps, or stations; ARNG states; Army Reserve commands; overseas corps, divisions, independent regiments, groups, and brigades. For other than standardization purposes includes U.S. Army Reserve facilities.

Instructor operator (IO)

A UAS crewmember who conducts training and evaluation of UACs and UAS unit trainers in designated UAS and promotes safety among aircrew members. Training and evaluation include air vehicle operation, qualification, unit employment, visual flight, and crew performance.

Maintenance

The inspection, overhaul, repair, preservation, and/or the replacement of parts, but excludes preventive maintenance.

Maintenance and operations check

Systems check made on the ground through engine run-up and taxiing. Checks made using auxiliary power or testing equipment to simulate, insofar as possible, actual conditions under which the system is to operate. These checks are made to ensure that air vehicle systems or components disturbed during an inspection or maintenance have been repaired or adjusted satisfactorily.

Mission coordinator (MC)

The designated individual tasked with the overall responsibility for the operation and safety of the UAS mission.

National Airspace System

All of the airspace above the surface of the earth over the United States and its possessions.

Night

The time between the end of evening nautical twilight and the beginning of morning nautical twilight converted to local time.

Operational flying

Flying performed by qualified personnel primarily for mission support or training, while serving in assignments in which basic flying skills normally are kept current while performing assigned duties. All flying by qualified members of the Reserve Component not on extended active duty is operational flying.

Remotely operated aircraft

The FAA terminology for unmanned aircraft vehicle systems

Restricted area

Airspace designated in FAR 1 within which the flight of aircraft and/or air vehicles, while not prohibited, is subject to restriction(s).

Safety of flight (SOF) messages

Electrically transmitted messages pertaining to any defect or hazardous condition, actual or potential, that can cause personal injury, death, or damage to aircraft and/or air vehicles, components or repair parts where a medium to high risk safety condition has been determined per AR 385–10.

Special use airspace (SUA)

Airspace designated by the FAA with specific vertical and lateral limits, established for the purpose of containing hazardous activities or activity that could be hazardous to nonparticipating aircraft and/or air

vehicles. Limitation on nonparticipating aircraft and/or air vehicles may range from absolute exclusion to complete freedom of use within certain areas, depending upon activity being conducted.

Standardization instructor operator

A qualified instructor operator designated by the commander, in writing, to supervise unit standardization programs. Primarily trains and evaluates other SOs and IOs.

Traffic pattern

The traffic flow that is prescribed for aircraft and/or air vehicles landing at, taxiing on, or taking off from an airport or airfield.

Training mission

Missions flown for flight qualification, refresher, or proficiency and/or currency training; ATP requirements, and authorized training exercises.

Unit trainer (UT)

A UAS crewmember designated to instruct in areas of special training to assist in unit training programs and achieve established training standards.

Unmanned aircraft crewmember (UAC)

Flight and/or ground individuals who perform duties controlling the flight of an unmanned aerial vehicle or the operation of its mission equipment as well as preparation, launch, recovery and/or maintenance that is essential to the operation of the UAS.

Unmanned aircraft operator (AO)

The AO controls and/or monitors the actual flight of the UAS from within a GCS, launch and recovery site, portable GCS, or similar device.

Unmanned Aircraft System

Unmanned Aircraft System includes platform, sensors, communication gear, launcher, landing system, ground control station.

UAS control station

A flight deck without external flight environment clues (no direct visual contact with the UAS) used for control of UAS.