U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

June 5, 2015

Exemption No. 11768
Regulatory Docket No. FAA–2015–0897

Mr. Eric Swisher
Owner
Copper City Aviation Services LLC
212 East Vista
Bisbee, AZ 85603

Dear Mr. Swisher:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated April 1, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Copper City Aviation Services LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct commercial aerial photography and videography of individual commercial, public, and residential properties and structures.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom Vision 2 and DJI Inspire 1.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria

provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Copper City Aviation Services LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

In this grant of exemption, Copper City Aviation Services LLC is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2 Vision and DJI Inspire 1 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the

Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan
Director, Flight Standards Service

Enclosures

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC

Regulatory Docket No. _____

PETITION FOR EXEMPTION OF:

COPPER CITY AVIATION SERVICES LLC.

SEEKING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS

Subchapter C section 21 subpart H, Subchapter F parts 91.103, 91.105, 91.109, 91.119, 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), AND 91.417(a) & (b) CONCERNING COMMERCIAL OPERATION OF DJI PHANTOM 2 VISION AND DJI INSPIRE 1 UNMANNED AIRCRAFT SYSTEMS PURSUANT TO SECTION 333 OF THE FAA MODERNIZATION AND REFORM ACT OF 2012 (PUBLIC LAW 112-95)

Submitted on April 1, 2015

Eric Swisher
Chief Pilot
Copper City Aviation Services LLC

212 East Vista
Bisbee, Arizona 85603
Tel:(520)266-0515
Email: eric@coppercityaviation.com

GLOSSARY OF ABBREVIATIONS

AGL	Above Ground Level
AOI	Area of Interest
ATC	Air Traffic Control
ATO	Air Traffic Organization
AV	Aerial Vehicle
CFR	Code of Federal Regulations
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
GCS	Ground Control Station
GPS	Global Positioning System
LOL	Loss of Link
NAS	National Airspace System
NOTAM	Notice to Airman
PIC	Pilot In Command
PO	Payload Operator
Section 333	FAA Modernization and Reform Act of 2012 (FMRA) Section 333
SOP	Standard Operating Procedures
UA	Unmanned Aircraft
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules
VLOS	Visual Line of Site
VMC	Visual Meteorological Conditions
VO	Visual Observer
VTOL	Vertical Takeoff and Landing

Table of Contents

SUMMARY

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, Copper City Aviation Services, LLC (Further known as CCAS) seeks exemption from requirements of 14 C.F.R. § 21, Subpart H; 14 C.F.R. § 43.11; 14 C.F.R. § 91.103; 14 C.F.R. § 91.105; 14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1); 14 C.F.R. § 91.409(a)(2); 14 C.F.R. § 417(a) and (b) to operate the Unmanned Aircraft Systems detailed below in support of commercial aerial photography and videography of individual commercial, public, and residential properties and structures with owners/operators permission and appropriate authorization. CCAS currently performs flight training in manned aircraft for Sport, Private, Instrument and Commercial ratings therefore CCAS would also request to use this exemption to provide a venue and platform for type specific UAS flight instruction to new commercial and public use UAS pilot/operator applicants. Our years of experience in training pilots and flying complex UAS systems for the military will aid in development of ground and flight training programs to enhance safety of new commercial UAS pilots seeking exemptions or certification.

The request for this exemption is in the Public Interest as there are many consumer applications for the services that can be provided by UAS that are currently conducted by manned aircraft. Using a UAS for many of these applications creates an environmentally friendly, lower cost solution to both the operator and consumer. These aircraft can be operated without risk of loss of life or limb, and without significant financial impact to the operator or any person or property on the ground in the event of the loss of an aircraft. Utilizing these UAS will create a safe and more productive work environment, reduce environmental pollution and have a positive impact on the local economy which is in the Public Interest. Finally the petitioner believes that granting this exemption would help to further the success of UAS integration into the NAS by creating an environment where prospective new UAS pilots could receive type specific training and experience to be used as these systems become more widely utilized.

THE UNMANNED AIRCRAFT (UA)

CCAS will be using 2 variants of DJI Innovations commercially available UAS systems, the Phantom 2 Vision, and the DJI T600 Inspire 1. System specifications, flight and maintenance manuals of each system can be found in the attached supporting documentation.

1. Phantom 2 Vision User manual version 1.8
2. Inspire 1 User manual version 1.0
3. Inspire 1 Maintenance manual version 1.0
4. Intelligent Flight Battery safety guidelines

- The Phantom 2 Vision manufactured by DJI Innovations, is a lightweight 4 electric motor/rotor, battery operated quadcopter with a 3.0lb gross weight that takes off and lands vertically. The Phantom 2 Vision has a length of 16 inches, width of 16 inches, height of 8 inches, and a maximum speed of approximately 29 knots. Its avionics suite contains an on-board flight computer with GPS navigation and an Inertial Measurement Unit (IMU) based attitude stability system. Also included is a barometric altimeter sensor and compass unit. An on-board processor receives signals for flight and payload control from a ground-based transmitter/controller/ground station device. An on-board telemetry system delivers flight data from the flight computer to the downlink radio transmitter to provide the Pilot in Command (PIC) with information such as altitude AGL, horizontal and vertical speed, compass direction of flight, bearing and distance to the controlling station, current waypoint, battery status, current flight mode, GPS health status, loss of link status, and GPS position. This data is displayed to the PIC via the Ground Control Station (GCS) application running on one or more computer devices such as a smart phone, tablet or PC.

- The DJI T600 Inspire One manufactured by DJI innovations, is lightweight 4 electric motor/rotor, battery operated quadcopter with a 6.5lb gross weight that takes off and lands vertically. The Inspire one has a length of 17.3 inches, width of 17.7 inches, height of 11.8 inches, and a maximum speed of approximately 42 knots. Its avionics suite contains an on-board flight computer with GPS navigation and an Inertial Measurement Unit (IMU) based attitude stability system. Also included is a barometric altimeter sensor, compass unit ultrasonic altimeter and vision positioning camera. An on-board processor receives signals for flight and payload control from a ground-based transmitter/controller/ground station device. An on-board telemetry system delivers flight data from the flight computer to the downlink radio transmitter to provide the Pilot in Command (PIC) with information such as altitude AGL, horizontal and vertical speed, compass direction of flight, bearing and distance to the controlling station, current waypoint, battery status, current flight mode, GPS health status, datalink status, and GPS position. This data is displayed to the PIC via the Ground Control Station (GCS) application running on one or more computer devices such as a smart phone, tablet or PC.

- Both systems carry an on-board camera capable of capturing imagery in the form of full color, high definition still photos and real time video. The video stream and still pictures can be sent via the downlink transmitter to the Ground station for the PIC and optional Payload Operator (PO) to view, record, and stream.

- Both UA systems described above have a GPS aided "Return Home" function in the event of a loss of link condition or a low battery condition. The return home function can also be commanded by the PIC in the event of disorientation or loss of eye contact. Prior to any flight operation the PIC will set the desired "Home" location and altitude the UA will fly while returning to the home location. The UA's onboard autopilot system will maneuver the UA back to the home location and land automatically if it has been commanded or if a loss of link has occurred

- The DJI Phantom 2 and DJI Inspire 1 UAs that will be operated by CCAS will be registered in accordance with 49 U.S.C. 44103, Registration of Aircraft, as well as 14 C.F.R Part 47, Aircraft Registration, and marked in accordance with 14 C.F.R. Part 45, Identification and Registration Marking in a size as large as practical for the size of the UA.

- The DJI Phantom 2 and DJI Inspire 1 UAs that will be operated by CCAS will be maintained in accordance with the manufactures maintenance and user manuals. Repairs, inspections (except preflight), component changes, and software/firmware updates will be recorded in the UAs airframe maintenance logbook. Logbook entries will include date, airframe serial number, registration number, current airframe flight time, description of work performed, part number and serial number of components replaced if available, signature of person performing the work, certificate number and type of certificate held by person performing the work.

THE GROUND CONTROL STATION/CONTROLLER:

The DJI UAS products CCAS intends to operate under this exemption use a series of components to comprise the Ground Control Station (GCS). The first and primary components of the ground segment is a handheld pilot controller and an optional handheld payload controller. The pilot controller provides a user interface for flight attitude and altitude commands augmented by the UA's onboard IMU and GPS aided stabilization system. The controller also has options for manipulating the flight mode, payload gimbal, camera functions, and landing gear if equipped. The Datalink segment is comprised of an uplink transmitter command/control link using a frequency range of 2.4GHz to 2.48GHz frequency range with a power output of approximately 125mW. The uplink sends flight and payload commands to the UA's autopilot which then processes the commands along with sensor inputs to manipulate the motor speed controllers and provide the desired response. The downlink transmitter on the UA operates on a 5.728GHz to 5.85GHz and an output power of approximately 25mW. The downlink transmitter provides live video from the on-board camera plus all the UA flight data described above. Downlink data and video is received by the pilot controller and optional payload controller which is then displayed to the PIC and optional PO via an application on a handheld device such as a smart phone, tablet or PC. The GCS application also provides a heads up display of pertinent flight data and UA status reports along with a moving map display. Both the uplink and downlink transmitters have been tested and comply with part 15 of the FCC rules for a class B digital device.

- ADSB Receiver

CCAS intends to also use an independent ADSB receiver and dedicated display as an additional situational awareness tool for the PIC if the intended flight area is within an ADSB coverage area. This device would not be used in lieu of the VO but only to enhance awareness of participating traffic to the PIC. This device would not be considered a mandatory operational requirement for the GCS to be flight worthy. In addition to participating traffic advisories this system can be used to update preflight and inflight weather information.

UAS FLIGHT AND SUPPORT CREW:

- The Pilot in Command (PIC) is the individual responsible for and in operational control of the flight operation from beginning to end. The PIC performs the preflight inspection of the UA, the preflight risk assessment, obtains all available information pertaining to the flight and briefs the other crewmembers. The PIC will not change once a flight has begun. During instructional flights the PIC will be the Instructor. The following minimum experience and currency requirements will be utilized.

    - A CCAS UAS PIC will hold a current commercial pilots certificate.
    - A CCAS UAS PIC will hold a current class II flight physical.
    - Prior to commercial operations the CCAS UAS PIC will have logged a minimum of 25 hours as PIC of a UAS.
    - Prior to commercial operations the CCAS UAS PIC will have logged a minimum of 5 hours of PIC time in the make and model UAS being used.
    - A CCAS UAS instructor pilot will hold a current flight instructor certificate
    - A CCAS UAS instructor will have logged a minimum of 200 hours of instruction in manned aircraft.
    - A CCAS UAS instructor will have logged a minimum of 50 hours as PIC of a UAS.
    - A CCAS UAS instructor will have logged a minimum of 5 hours of PIC time in the make and model of UAS being used.
    - A CCAS UAS PIC will maintain currency in manned aircraft as required by CFR 14 subpart 61.56 and 61.57.
    - Within 90 days of a UAS commercial operations a CCAS UAS PIC will perform the following UAS currency events.
        - 3 Takeoffs and Landings 1 of which will be performed in autopilot attitude mode.
        - 1 recovery from a simulated loss of link event.
    - Students receiving UAS training at CCAS will be verified as U.S. citizens or approved by the Transportation Security Administration TSA as required by the regulations of CFR 49 subpart 1552.

- The Visual Observer (VO) is the person or persons providing visually observation of the UA while in flight to alert the PIC of any risk factors inflight such as traffic, unauthorized personnel in the flight area, collision hazards to the UA, etc. The VO will maintain communication with the PIC at all times. Multiple VO's can be used for operation but not in a "daisy chain" arrangement, the UA will remain in visual range of both the PIC and VO(s) at all times. The VO does not require a specific pilot certification or medical but will receive the following training prior to conduction operations as a VO.

    - Overview of the UAS being used.
    - Limitations of the UAS, COA, and Exemption authorization.
    - Maintaining orientation of the UA inflight.

- Proper communication to the PIC.
- Traffic and obstacle scanning.
- Conducting an IMSAFE assessment.

- The Payload Operator (PO) is an additional crewmember that can be used to perform the duties of operating the UA payload system while inflight. The PO will have an additional dedicated payload controller and display linked to the PIC flight controller. The PO controller will be a slave controller that can only manipulate the payload controls and not the flight control of the UA. During any portion of the flight if the PIC deems it necessary the PIC can regain payload control back to the master controller. The PO would not be considered a required crewmember for any flight operation. The PO would be considered a support personnel used to relieve workload on the PIC in certain operations such as areas of congested obstacles. An assigned PO will not perform the duties of a VO at any time during the flight operation.

OPERATION OF THE UA

- The UAS's size, weight, limited range and payload capacity, along with restricted use within a COA area monitored by CCAS in no way presents a national security issue. The Exemptions requested by CCAS provide for the equivalent, if not a higher, level of safety than the current similar manned airborne photo/video systems due to the dangers associated with much larger, heavier, and faster conventional manned aircraft.

- Using this exemption to provide type specific UAS flight training will allow CCAS to share our knowledge of both manned and unmanned operations within the national airspace to enhance safety. Interested students will be provided an approved venue, platform and experienced instructor to develop the knowledge and skills required to safely operate UA's in the national airspace system.

- CCAS UAS operations will also comply with the following limitations:

(a) Operations will occur in Class G airspace at no more than 400 ft AGL or the maximum altitude specified in the COA limitations.
(b) Operations can be conducted within Class E and Class D airspace but only with an approved letter of agreement/authorization with the controlling agency/airfield manager and will not exceed 400 ft agl or the maximum altitude specified in the COA limitations.
(c) CCAS will not be operate a UA within 5 NM of an airport or heliport unless prior permission has been obtained from the controlling agency/airfield manager.
(d) CCAS will not operate the UA at an airspeed greater than 42 knots.
(e) CCAS will only operate the UA in the daytime under VFR conditions.
(f) CCAS will not operate the UA over any open-air assembly of people.
(g) CCAS will obtain the appropriate COA for the desired flight area as required and remain in compliance with the COA restrictions.
(h) CCAS will file the appropriate NOTAM for the desired flight area as required.

(i) CCAS will obtain permission from the property owner, authorized agent or controlling agency prior to operation at that location.
(j) CCAS will ensure the operational area is posted/access controlled and the operational area is clear of personnel not involved in the UAS flight operation.
(k) The CCAS PIC will complete the manufactures preflight checklist as well as the CCAS preflight risk assessment sheet.
(l) CCAS will maintain a copy of the current user/operations manual for the UAS with the ground control station during operation.
(m) CCAS will ensure the UA remains clear of and yield the right of way to all manned aircraft operations and activities at all times.
(n) The UAS will not be operated by the PIC from any moving vehicle or device.
(o) Any incident, action, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the FAA's Integration Office (AFS-80) within 24 hours. Accidents will be reported to the National Transportation Safety Board ("NTSB"). Further flight operations will not be conducted until the incident, accident, or transgression is reviewed by the AFS-80 and authorization to resume is provided.

Name and Address of the Petitioner:

The name and address of the Petitioner and point of contact is:

Copper City Aviation Services, LLC
Attn: Eric Swisher
Ph: 520-266-0515
Email: eric@coppercityaviation.com

BASIS FOR PETITION AND LIST OF EXEMPTIONS FOR CONSIDERATION

Based on the facts and descriptions we have provided, we respectfully request that the FAA grant CCAS the following requested exemptions:

14 C.F.R. § 21, Subpart H; 14 C.F.R. § 43.11; 14 C.F.R. § 91.103;14 C.F.R. § 91.105;

14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a);

14 C.F.R. § 91.215; 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1);

14 C.F.R. § 91.409(a)(2); 14 C.F.R. § 417(a) and (b).

14 C.F.R. 21, Subpart H: Airworthiness Certificate

CCAS requests an exemption from 14 C.F.R. 21, Subpart H. This Subpart establishes the procedures for the issuance of an airworthiness certificate. CCAS requests an exemption from Part 21, Subpart H because the Phantom 2 and Inspire 1 meets an equivalent level of safety pursuant to Section 333 of the Reform Act due to its small size, light weight, and restricted operating environment.

14 C.F.R 43.11: Records for Inspections

CCAS requests an exemption from 14 C.F.R. 43.11. This part provides that maintenance record entries be maintained, that the inspector list discrepancies, and to affix placards to the aircraft. Due to its small size the UAS proposed for use, does not have room for placards to be placed in or on it and no inspections for UAS have been certified by FAA at the present time. However, as a condition to the grant of the exemption, CCAS will perform the inspections and time replaceable items recommended by the manufacturer and keep records and log books of all maintenance and repairs.

14 C.F.R 91.103: Preflight Action

CCAS requests an exemption from 14 C.F.R. 91.103. This regulation requires each PIC to take certain actions before flight to insure the safety of flight. As FAA approved flight manuals will not be provided for the UAS, an exemption is needed. The PIC will follow the manufactures preflight inspection and complete the attached CCAS preflight risk assessment which includes reviewing weather, flight battery requirements, landing and takeoff areas, loss of link plan, etc. before flight.

14 C.F.R 91.105: Flight Crewmembers at Stations

CCAS requests an exemption from 14 C.F.R. 91.105. CCAS requests an exemption from 14 C.F.R. 91.105 since this part is not applicable due to the UAS carrying no flight crewmembers. An equivalent level of safety will be maintained by ensuring the PIC does not change inflight. In the case of an instructional flight the Instructor is the assigned PIC and with the aid of the onboard stabilization system, handover of master controller and/or use of secondary controller can remain in positive control of the UA flight at all times.

14 C.F.R 91.109: Flight Instruction; Simulated Instrument Flight and Certain Tests

CCAS requests an exemption from 14 C.F.R. 91.109. Section 91.109 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. UAS and remotely piloted aircraft, by their design, do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. The equivalent level of safety can be maintained with the onboard stabilization system, automatic takeoff and landing feature, and the automatic return home capability. In addition a second slave controller or handover of the master controller can ensure the PIC/Instructor remains in positive control of the UA. Also, increased safety is achieved because the UAS will not carry pilots or passengers, and the flight area will be clear of all non-flight essential personnel prior to each flight.

14 C.F.R 91.119: Minimum Safe Altitudes

CCAS requests an exemption from 14 C.F.R. 91.119. Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(c) prevents flying an aircraft at an altitude of less than 500 feet or operating an aircraft closer than 500 feet to any person, vessel, vehicle, or structure. As this exemption requests authority to operate at altitudes up to 400 feet, an exemption is needed to allow such operations. As set forth herein, the UAS will never operate at higher than 400 feet above ground level. It will however be operated on/over private property with the landowner's consent. The equivalent level of safety will be achieved given the size, weight, limited speed of the UAS as well as maintaining a location clear of non-essential personnel where it is operated. No flight will be taken without the permission of the landowner, authorized official, or controlling agency. Compared to flight operations with aircraft or rotorcraft weighing far more than the proposed UA's weight and the lack of flammable fuel on the UAS, any risk associated with the UAS operations is far less than similar operations with conventional aircraft.

14 C.F.R 91.121: Altimeter Settings

CCAS requests an exemption from 14 C.F.R. 91.121. This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set ". . .to the elevation of the departure airport or an appropriate altimeter setting available before departure." Although the UA does have a barometric altimeter sensor, it is not adjustable and relies instead on a GPS altitude and ultrasonic sensor for displaying AGL altitude to the PIC therefore an exemption is requested. An equivalent level of safety will be achieved by the operator confirming the altitude of the launch site shown on the GPS altitude indicator before flight as well as the operator receiving live feedback information about the UA, including the height of the UA, its forward velocity, and compass heading. The operator will be able to observe and limit the maximum height of the UA to 400' AGL or less. Additionally, the UAS will be operated within the line of sight of the PIC and VO.

14 C.F.R 91.151(a): Fuel Requirements for Flight in Visual Flight Rules ("VFR") Conditions

CCAS requests an exemption from 14 C.F.R. 91.151(a). Section 91.151(a) prohibits an individual from beginning "a flight in an airplane under visual flight rules conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed: During the day, to fly after that for at least 30 minutes; or At night, to fly after that for at least 45 minutes." The battery powering the UAS provides approximately 25 minutes of powered flight making it impossible to meet the 30 minute reserve requirement in 14 C.F.R. §91.151. CCAS believes that an equivalent level of safety can be achieved by limiting flights to 25 minutes or 30 percent of remaining battery power, whichever happens first. This restriction would be more than adequate to return the UA to its planned landing zone from anywhere in its limited LOS operating area. In addition the UA reports its current battery condition and alerts the PIC when battery level is near the desired threshold (30%) for returning to the landing position from its current location.

14 C.F.R 91.405 (a) & (d); 407 (a)(1); 409 (a)(2); 417(a) & (b): Maintenance Inspections

CCAS requests an exemption from 14 C.F.R. 91.405 (a) and (d); 407 (a)(1), 409(a)(2), and 417 (a) and (b). These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter . . .," and others shall inspect or maintain the aircraft in compliance with Part 43. Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to CCAS. Maintenance will be accomplished by the operator pursuant to the manufacturer's maintenance and user manuals for the proposed UAS. An equivalent level of safety will be achieved because these small UAS are very limited in size and will carry a small camera and operate only in restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet above ground level. The CCAS performing maintenance will hold at least a Light Sport Repairman's certificate with a maintenance rating when performing required maintenance, and keep a log of any maintenance performed.

Summary for the Federal Register

The following summary is provided for publication in the Federal Register in accord with 14 C.F.R. Part 11:

Copper City Aviation Services LLC requests exemptions from the following regulations:14 C.F.R. § 21, Subpart H; 14 C.F.R. § 43.11; 14 C.F.R. § 91.103;14 C.F.R. § 91.105;14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. § 91.215; 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1);14 C.F.R. § 91.409(a)(2); 14 C.F.R. §417(a) and (b) to operate commercially a small unmanned aircraft (10 pounds or less) in support of commercial aerial photography and videography of individual commercial, public, and residential properties and structures with the owner's permission and appropriate authorization. Copper City Aviation Services LLC currently performs flight training in manned aircraft for Sport, Private, Instrument and Commercial ratings therefore CCAS would also request to use this exemption to provide a venue and platform for type specific UAS flight instruction to new commercial and public use UAS operator applicants. Our years of experience in training pilots and flying complex UAS systems for the military will aid in development of ground and flight training programs to enhance safety of new commercial UAS operators seeking exemptions or certification.

.

Privacy

All flights will occur over private or controlled access property with the landowner's prior consent and knowledge. Because overflight areas will be restricted there is little to no chance that there will be people who have not consented to being in close proximity with the UAS operation.

Conclusion

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012 – size, weight, speed, operating capabilities, proximity to airports, operation within visual line of sight within a COA restricted area, and no impact to national security – provide more than adequate justification for the grant of the requested Exemptions allowing Copper City Aviation Services LLC to use the DJI Phantom 2 Vision and DJI T600 Inspire 1 for the proposed operations.

We are prepared to modify or amend any part of this request to satisfy the need for an equivalent level of safety. Please contact us at any time if you require additional information or clarification. We look forward to working with your office.

Sincerely,

Eric Swisher,

Owner, Copper City Aviation Services, LLC

Commercial Pilot, Flight Instructor, Light Sport Repairman

Certificate No. 3029938