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

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

June 8, 2015

Exemption No. 11778
Regulatory Docket No. FAA–2015–0591

Mr. Jacob Rachniowski
Managing Partner
Cloud9Drones LLC
2606 Wilson Street 802
Austin, TX 78704

Dear Mr. Rachniowski:

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 March 5, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Cloud9Drones LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial inspections of towers/tall structures for multiple industries, and videography for film and marketing.

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 Gryphon Dynamics X8 (Cloud9Drones-BD Butterfly Dragon), DJI-S1000+, DJI Inspire 1, and a 3DRobotics Iris+

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 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. 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, Cloud9Drones 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.

Conditions and Limitations

In this grant of exemption, Cloud9Drones 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 Gryphon Dynamics X8 (C9D-BD Butterfly Dragon), DJI-S1000+, DJI Inspire 1, and a 3DRobotics Iris+ 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 5 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

March 05, 2015
U.S. Department of Transportation
Docket Management Facility
West Building Ground Floor
Room W12-140
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Re: Cloud9Drones Exemption Request - Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from 14 C.F.R. §91.405 (a); 407 (a) (1); 409 (a) (1)(2); 417(a) & (b); 14 C.F.R. §91.119 (c); 14 C.F.R. §91.121; 14 C.F.R. § 91.151(a)

Dear Madam/Sir,

As per Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, Cloud9Drones ("C9D", or "petitioner" hereafter), developer and operator of Small Unmanned Aircraft Systems ("sUAS'") equipped to conduct aerial inspections of towers/tall structures for multiple industries, and videography for film and marketing, hereby applies for an exemption from the listed Federal Aviation Regulations ("FARs") to allow commercial operation of its sUAS', so long as such operations are conducted within and under the conditions outlined in this exemption request, the supporting documents, or as may be established by the FAA as required by Section 333.

The information submitted will assist the FAA in determining whether to grant relief from its regulations, will assist the Secretary of Transportation with determining whether to grant relief from airworthiness certification requirements under the FAA Modernization and Reform Act of 2012, and describe why this exemption is in the public interest. These documents will help in determining that the sUAS' do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in a controlled, predetermined and limited area
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within visual line of sight of the operator.

In this request for exemption we describe more fully our request for exemption in 4 sections with the support of multiple additional documents. The sections are:

1) The Unmanned Aircraft System (UAS)
2) The UAS Pilot in Command (PIC)
3) UAS Operating Parameters
4) Intended Operations and Public Interest

Supporting confidential documents to this exemption request include:

1) C9D Operating Manual
2) C9D Operator Qualifications and Training Manual
3) C9D Intended Operations and Public Interest
4) Maintenance and Inspection Manual
6) Logbooks
7) UAS User Manuals
8) Insurance Documentation

Regulations from which the exemption is requested are:

14 C.F.R. §91.405 (a); 407 (a) (1); 409 (a) (1)(2); 417(a) & (b)
14 C.F.R. §91.119 (c)
14 C.F.R. §91.121
14 C.F.R. § 91.151(a)

The requested exemption would permit the operation of small, unmanned, and inexpensive sUAS' under controlled conditions in airspace that is limited, predetermined, access controlled and would provide safety enhancements to the existing methods of inspection and aerial videography which endanger human lives. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "…establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

The name and address of the applicant is:

Cloud9Drones LLC
Attn: Jacob Rachniowski - Managing Partner
Ph: 512-567-7351
Email: Jacob@cloud9drones.com
Address: 2606 Wilson St. 802, Austin, TX,

Taylor Davis
Ph: 405-406-7730
Email: Taylor@cloud9drones.com

The Unmanned Aircraft System (UAS)

C9D's sUAS' are multi-rotor aircraft, weighing 55 or fewer lbs. including payload. They operate, under normal conditions at a speed of no more than 50 knots, have the capability to hover, move in the vertical and horizontal plane simultaneously, have the capability to return to a pre-defined home destination in case of communication link or GPS loss, and have the capability to abort flight incase of an emergency. Maximum flight time will be 30 minutes or 25% battery power, whichever comes first.

C9D intends to operate the following aircraft:

1. C9D-BD (Butterfly Dragon) – custom UAS
2. DJI-S1000+
3. DJI Inspire 1
4. 3DR Iris+

Details on the aircraft specifications and associated manuals are included in the additional documentation. C9D includes custom and manufacturer manuals for all the UAS' listed. C9D custom manuals and procedures will be applied to off-the-shelf UAS' where applicable.

C9D will file a FAA Form 7711-1, or its equivalent, as modified in light of the requested exemption, with the appropriate Flight Standards District Office.

The UAS PIC

The UAS PIC will be an FAA licensed airman with a commercial pilot's certificate and third class medical, in addition to completing UAS specific training. The pilot and observer must have the minimum UAS operating requirements and training as specified in the "C9D Operating Qualifications and Training Manual."

UAS Operating Parameters

The aircraft will operate only in line of sight with an observer, located over 5 nautical miles from Class B, C and D, at an altitude of no more than 500 feet. Details of the aircraft operation parameters are described in the 'C9D Operating Manual.'

The aircraft will operate only within a controlled area, with the written consent of all persons and jurisdictions involved, as described in the 'Intended Operations and Public Interest

Manual,' and the 'C9D Operating Manual'. This document will show that such operations will "not create a hazard to users of the national airspace system or the public."

Intended Operations and Public Interest

C9D's intended operations are for inspecting tall structures or towers that are currently inspected using more dangerous methods, such as manned aircraft in dangerous proximity to the structures under inspection, or using climbers. C9D also intends to provide aerial videography for the film and marketing industries, which currently employ dangerous low flying manned helicopters close to participating subjects. These commercial UAS applications will therefore result in a significant enhancement of safety, by reducing the risks associated with current inspection and aerial videography methods. Additional details are specified in the 'Intended Operations and Public Interest' manual.

Exemption Requests

C9D includes the FAA commentary on Astraeus Aerial's granted exemption and the associated rules from which we will and will not seek exemption from. Exemption is sought from rules that the FAA has granted for similar operations. Exemptions from other petitioners that have been deemed by the FAA as "Not necessary" have been included to demonstrate C9D's understanding of all the safety considerations.

Information below has been copied from the Astraeus Aerial Exemption No. 11062 Grant of Exemption Document. (Regulatory Docket No. FAA-2014-0352)

Relief sought by petitioner (14 CFR)	**FAA determination (14 CFR)**
Part 21	Not necessary
45.23(b)	Not necessary
61.113(a) and (b)	Granted with conditions and limitations
91.7(a)	Not necessary
91.9(b)(2)	Not necessary
91.103	Not necessary with conditions and limitations
91.109	Not necessary
91.119	Paragraph (c) granted with conditions and limitations
91.121	Granted with conditions and limitations
91.151(a)	91.151(a)(1), day, granted with conditions and limitations; 91.151(a)(2), night, denied
91.203(a) and (b)	Not necessary
91.405(a)	Granted with conditions and limitations
91.407(a)(1)	Granted with conditions and limitations
91.409(a)(2)	Granted with conditions and limitations; relief from 91.409(a)(1) also granted with conditions and limitations
91.417(a) and (b)	Granted with conditions and limitations

Aircraft

No Exemption Necessary:

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates 14 C.F.R. §91.203 (a) (1)

Based on the limited size, weight, operating conditions, design safety features, and the imposed conditions and limitations, C9D has demonstrated that its operations would not adversely affect safety compared to similar operations conducted with aircraft that have been issued an airworthiness certificate under 14 CFR part 21, Subpart H. Therefore, as the FAA found for Astraeus Aerial, the requested relief from 14 CFR part 21, and any associated noise certification and testing requirements of part 36, is not necessary.

No Exemption Necessary:

14 C.F.R. § 45.23 (b). Marking of the Aircraft

Since C9D's UAS will not be certificated under 14 CFR § 21.191, a grant of exemption for 14 CFR § 45.23(b) is not necessary, as the FAA commented in the grant for exemption for Astraeus Aerial.

C9D's UAS' will 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 will be as large as practicable.

Exemption Requested From:

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

These regulations require that C9D "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.

Maintenance, inspections, repairs, record keeping and technician requirement details are documented in C9D's "Maintenance and Inspection Manual." These specifications are necessary to ensure that C9D's proposed UAS operations will not adversely affect safety in the NAS and of people and property on the ground.

Pilot in Command

No Exemption Necessary:

14 C.F.R. § 61.113 (a) & (b): Private Pilot Privileges and Limitations: Pilot in Command.

C9D will require that UAS pilots have a commercial pilots license and a third class medical. In addition to these requirements, the PIC will have to complete UAS training as specified in the C9D Operator Qualifications and Training Manual.

Operating Parameters of the UAS

No Exemption Necessary:

14 C.F.R. §91.7(a): Civil aircraft airworthiness.

As previously noted, the petitioner's UAS will not require an airworthiness certificate in accordance with 14 CFR part 21, Subpart H. Based on the fact that an airworthiness certificate will not be issued, exemption from § 91.7(a) is not necessary.

In accordance with 14 CFR § 91.7(b), the PIC of the UAS will ensure the aircraft is in condition for safe flight, according to the pre-flight checklist and other procedures specified in the "C9D Operating Manual" and the "Maintenance and Inspection Manual."

No Exemption Necessary:

14 C.F.R. § 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.

14 C.F.R. §91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration.

Based on the FAA Memorandum subject "Interpretation regarding whether certain required documents may be kept at an unmanned aircraft's control station," dated August 8, 2014, the requested relief from 14 CFR § 91.9(b)(2) and 91.203(a) and (b) is not necessary.

C9D will keep all pertinent documents at the ground control point where the PIC is located and anyone will have immediate access to them if requested.

No Exemption Necessary:

14 C.F.R. § 91.103: Preflight action

Before beginning a flight, the PIC will take into account all pre-flight actions outlined in the submitted "C9D Operating Manual" and the "Intended Operations and Public Safety" manual to achieve an equivalent level of safety.

No Exemption Necessary:

14 C.F.R. §91.109: Flight instruction:

Section 91.103 provides that no person may operate a civil aircraft that is being used for flight instruction unless that aircraft has fully functioning dual controls. The qualifications of the PIC will be based on their training, experience and testing with the UAS to be operated, without requiring fully functioning dual controls. Since a dual set of controls are not required, no exemption is necessary.

Exemption Requested From:

14 C.F.R. §91.119 (c): Minimum safe altitudes

§91.119 (c) specifies that when flying under an altitude of 500ft in sparsely populated areas no aircraft can be operated within 500 feet of any person, vessel, vehicle, or structure. As C9D operations intend to be flown within 500ft of participating personnel and structures, relief is sought from this rule. As specified in the supporting manuals, an equivalent level of safety will be achieved by only performing operations within 500 ft with the consent of all participating and non-participating persons. Additionally, for any operations under 500 ft from non-participating persons or structures, the PIC must ensure that such operations will be safe, all non-participating persons must be under protective barriers or structures, and the property/structure owner must grant permission for such operations. No one will be exposed to operations without their pre-obtained consent. The equivalent level of safety will also be achieved given the size, weight, speed of the UAS, as well as the location where it is operated. No flight will be taken without the permission of the property owner or local officials.

Exemptions from §91.119 (a)(b)(d) are not necessary as per the FAA's Astraeus Exemption commentary.

Exemption Requested From:

14 C.F.R. §91.121 Altimeter Settings

An equivalent level of safety will be achieved by flying at low altitudes, VLOS with altitude information provided by a digitally transmitted GPS altitude readout on an on-screen display. Prior to each flight, the UAS PIC will confirm zero altitude for accuracy.

Exemption Requested From:

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

Section 91.151 (a) prohibits an individual from beginning "a flight in an airplane under VFR 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 – (1) During the day, to fly after that for at least 30 minutes; or (2) At night, to fly after that for at least 45 minutes." An equivalent level of safety will be met by the operations specified in the supporting manuals. Specifically, the UAS operations will be conducted in a controlled environment, limited to a 500ft radius around the structure or point of interest, with aircraft less than 55 pounds, at speeds below 50 Knots, within VLOS. Also, the aircraft flight will terminate after 30 minutes or with 25% remaining battery power (whichever occurs first). Similar exemptions have been granted for other operations.

Summary of Operational Limitations and Conditions

The following list is a summary of the limitations and conditions under which C9D agrees to be bound by when performing commercial operations. Additional details are provided in the various supporting manuals.

1. The unmanned aircraft (UA) will weigh less than 55 pounds (25 Kg), including batteries and payload. Operations will be limited to those specified in the accompanying manuals. Proposed operations of any other aircraft for any other purpose will be requested with an amendment to the requested grant.
2. The UA will not be flown at a ground speed exceeding 50 knots.
3. Flights will be operated at an altitude of no more than 400 feet above ground level (AGL). Flights will be operated above 500 ft for inspections of structures that have FAA lighting. In these less common operating situations, the UAS will not be operated over 10ft above the height of the FAA marked tower, nor will the UAS operate over a 50ft radius from the center of the marked structure.
4. The UA will be operated within unaided visual line of sight (VLOS) of the PIC at all times with a visual observer (VO) within verbal communication distance.
5. The manuals submitted and any additional requirements by the FAA will be maintained and available during each flight and for any administrative requests. For any revisions of the manuals, C9D will track and present updated and revised documents to the FAA.
6. Prior to each flight the PIC will inspect the UAS to ensure it is in a safe operational condition. If any inspection results are negative, the UAS will not operate until the required maintenance will be performed. Inspection will include all systems required for safe flight. All maintenance and alterations will be properly documented in the aircraft records.
7. Significant maintenance or alternations to the UAS will require test flights in a safe, controlled, operating environment to ensure all systems function safely. The Maintenance and Inspection Manual will be followed and the operations will be recorded.
8. C9D will follow the Maintenance and Inspection Manual as well as the Manuals for each subsystem.
9. The Pilot In Command (PIC) must possess a commercial pilot certificate and at least a current third-class medical certificate. The PIC must also complete the C9D Training

program for flight skills and familiarity with the C9D UAS as specified in the 'C9D Operator Qualifications and Training Manual'. In summary, the UAS pilot needs to have completed and logged a minimum of 200 flight cycles and 25 hours of total time as a UAS rotorcraft pilot and at least ten hours logged as a UAS pilot with a similar UAS type (single blade or multirotor) and 3 take off and landings with the specific type in the past 90 days, and has complete understanding of the applicable regulations, UAS characteristics, and procedures. The VO must have also successfully completed the qualification process. The completion of these qualifications will be recorded by the chief UAS pilot and will be available for administrative requests.

10. The UAS will not be operated directly over any person unless the PIC deems the action safe, required and has authorized a participating and consenting person to do so. All participating and non-participating persons within 500 ft must have provided written consent to be within that radius of the drone operations. Exceptions may be made if persons within 500ft are protected by a structure or obstruction. Details on these operating distances are specified in the associated manuals.
11. Regarding the distance from participating persons, the UAS Operating Manual has safety mitigations for authorized and consenting personnel. At all times, those persons must be essential to the operations.
12. If the UAS loses communications, the UA will return to its home location, which will have been established within a 100ft radius of the tower or a marked landing zone.
13. If the UAS must abort flight in the event of unpredicted obstacles or emergencies the procedures outlined in the operating manual will be followed.
14. Each UAS operation must be completed within 30 minutes flight time or with 25% battery power remaining, whichever occurs first.
15. C9D will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. A Notice to Airman (NOTAM) will be filed at least 48 hours prior to the intended operation.
16. The C9D UAS will 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 will be as large as possible and the information will also be available by the PIC.
17. C9D will document and maintain UAS maintenance, alterations, updates and the total time in service of the UAS and batteries as specified in the Maintenance and Inspection Manual. The maintenance and inspection will be performed by a qualified technician as specified in the manual and logs.

18. All operations will comply with the manufacturer manuals, AD's and update service bulletins.
19. Before operations, the radio frequency spectrum used for operation and control will be monitored to ensure that there is no interference. A radio will also be used to monitor local air traffic stations.
20. C9D will submit a Plan of Activities to the local FSDO with jurisdiction over the area of proposed operations 48 hours before the activity. The plan of activities will include:
    a. Dates and times for all flights;
    b. Name and phone number of the PIC and VO to be present during the operation of the aircraft
    d. Make, model, and serial or N-number of UAS to be used;
    e. Name and certificate number of UAS PIC involved
    f. A statement that C9D has obtained permission from property owners and/or local officials for the proposed activity
    g. Signature of exemption-holder or representative
    h. Description of flight activity and the exact affected airspace
21. All manuals, including the documents required under 14 CFR §§ 91.9 and 91.203 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents will be available to anyone upon request.
22. The UAS will give right of way and remain clear of all other air traffic by landing immediately upon any audible or visual identification of nearby aircraft.
23. Operations will not be conducted at night. All operations will be conducted under visual meteorological conditions (VMC).
24. The UAS will not be operated by the PIC from any moving device or vehicle.
25. The UA will 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.
26. The UA will not operate in Class B, C, or D airspace or within 5 nm of any airport without written approval from the FAA.
27. Any incident, accident, 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 UAS Integration Office (AFS-80) within 24 hours. Accidents will be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov. Further flight operations will not be conducted until the incident, accident, or transgression is reviewed by AFS-80 and authorization to resume operations is provided.

Summary for Publication in the Federal Register

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

C9D, developer and operator of sUAS' under 55 pounds, seeks an exemption from the following rules:

14 C.F.R. §91.405 (a); 407 (a) (1); 409 (a) (1)(2); 417(a) & (b);
14 C.F.R. §91.119 (c);
14 C.F.R. §91.121;
14 C.F.R. §91.151(a);

to allow commercial operation for the inspection of towers/tall structures and for videography for film and marketing purposes, so long as such operations will provide an equivalent level of safety and will be conducted within and under the conditions outlined in this exemption request, the supporting documents, or as may be established by the FAA as required by Section 333. The requested exemption would permit the operation of small, unmanned, and inexpensive sUAS' under controlled conditions that will not create a hazard to users of the NAS or the public or pose a threat to national security. The controlled operations of small, slow, limited, low altitude UAS, will provide safety enhancements to the existing methods of inspection and videography, which endanger human lives.