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

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

May 19, 2015

Exemption No. 11616
Regulatory Docket No. FAA–2015–0563

Mr. Paul Capistrant
Capstone Aviation Corporation
790 Royal Saint George Drive, Suite 141#128
Naperville, IL 60563

Dear Mr. Capistrant:

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 4, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Capstone Aviation Corporation (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct high-resolution aerial imagery for compensation or hire.

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 is a DJI Phantom 2 Vision+.

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, Capstone Aviation Corporation 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, Capstone Aviation Corporation 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+ 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

**Capstone Aviation Corporation**
790 Royal Saint George Dr. Ste 141#128 Naperville, Illinois 60563 Paul Capistrant, MBA
(775) 450-6366

March 4, 2015

U.S. Department of Transportation
Docket Management System
1200 New Jersey Avenue SE
Washington, D.C. 20590

Subject Matter:
Exemption Request; Section 333 of the FAA Modernization & Reform Act
and Part 11 of the Federal Aviation Regulations from ;14 CFR 61.113 (a) & (b); 91.7 (a); ; 91.119 (c); 91.121; 91.151 (a)(1); 91.405 (a); 91.407(a) (1 ); 91.409 (a) (2); 91.417 (a) & (b).

To whom it may concern:

In accordance with Section 333 of the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, Capstone Aviation Corporation respectfully petitions the Secretary of Transportation and the Federal Aviation Administration for an exemption of the above mentioned Federal Aviation Regulations, for the purpose of business operations of small-unmanned aerial systems (UAS). Furthermore, the details of this petition will describe in a more detail the manner in which Capstone Aviation Corporation is seeking the exemption request.

**A. Summary of the Petition**

Capstone Aviation Corporation formally requests exemption from the following Federal Aviation Regulations (FARs) that are found under Title 14 of the Code of Federal Regulations (CFR): 14 CFR 61.113 (a) & (b); 91.7 (a); 91.119 (c); 91.121; 91.151 (a)(1); 91.405 (a); 91.407(a) (1 ); 91.409 (a) (2); 91.417 (a) & (b). Capstone Aviation seeks approval and exemption from the above listed CFRs to operate the DJI Phantom 2 Vision+ for the purpose of providing high resolution aerial imagery for compensation/hire to companies and individuals. The operation of the DJI Phantom 2 Vision+ by Capstone Aviation Corporation will abide by all manufacturer approved operation limitations, Advisory Circular 91-57, other limitations stated in this document, and all recommendations by the FAA and other government agencies.

**B. Petition for Exemption**

In accordance with Section 333 of the FAA Modernization and Reform Act of 2012 and 14 CFR Part 11, Capstone Aviation Corporation, operator of small unmanned aerial systems, conducting aerial photography/ aerial inspection for business purposes over the following areas; (1) over land, waterways, and oceans; (2) operation over and/or in nonrestricted National Parks, National Forests, and non-navigable airspace using nonintrusive recording devices; and (3) operation in otherwise unrestricted U.S. States and Territories. All proposed operations would be conducted under controlled conditions in airspace that is: (1) limited, (2) predetermined, and (3) access controlled. Capstone

Aviation using commercial grade photography/ remote sensing imaging devices, is formally requesting for exemption to the above mentioned Federal Aviation Regulations for commercial operation of its unmanned aerial system in accordance with limitations described within this document or as established by the Federal Aviation Administration required by Section 333.

Capstone Aviation Corporation is requesting exemption that would allow the operation of their UAS for aerial photography and inspection limited, predetermined and access controlled airspace. The use of aerial photography by small unmanned aerial systems/vehicles will improve aviation safety by reducing the hazard of low flying manned aerial photography in traditional small aircraft as well as increase the capacity of National Airspace System by allowing aerial photography to be conducted without utilization of limited airport/airspace resources.

If the exemption is approved, Capstone Aviation Corporation would enhance safety and meet the requirement of the Secretary of Transportations responsibilities described in Section 333(c) of the FAA Modernization and Reform Act of 2012.

**C. Name and Address of the Petitioner**

Capstone Aviation Corporation
Attn: Paul Capistrant
Ph: 775-450-6366
Email: pcapistrant@capstoneaviation.com
Address: 790 Royal Saint George Dr. Ste 141#128 Naperville, Illinois 60563

**D. Petitioner Petitions for Exemption of the Following Regulations**

- 14 CFR 91.405 (a)
- 14 C.F.R. 91.119 (c)
- 14 CFR 407 (a) (1)
- 14 CFR 61.113 (a) & (b)
- 14 C.F.R. 91.121
- 14 CFR 409 (a) (2)
- 14 C.F.R. 91.7 (a)
- 14 CFR 91.151 (a)
- 14 CFR 417 (a) & (b)

Capstone Aviation Corporation operates unmanned aerial systems that are multi-rotorcraft equipped with precision flight and stable hovering, radar positioning, return home, onscreen real-time flight parameters, on-board NAZA computer stabilization controller and GPS, the UAS will weigh less than 55 lbs or less and most typically include camera/payload. Normal UAS operations are conducted at speeds well below 100 KIAS utilizing the functions of rotorcraft; it has the ability to hover. Capstone Aviation Corporation will only operate in line of sight and will operate in airspace described in this document or as

specified by the FAA. All UAS operations will be vetted by Capstone Aviation Corporation operator/ qualified personnel to confirm that there are no hazards to users of the National Airspace System or innocent bystanders or general public.

### E. How the request benefits the public as a whole

Capstone Aviation Corporation believes that the safe, limited, and controlled operations of its unmanned aerial systems (UAS) described in this document will meet and exceed the strict safety and security standards of the FAA and/or national security issues. Moreover, Capstone Aviation Corporation believes that the utilization of UAS described in this document will benefit the public as a whole in five ways;

1) Capstone Aviation Corporation's continued commitment to keep the highest level of safety during its UAS operations and set industry standards for safe UAS operations for future operators;
2) Reduce the risk to life and property;
3) Reducing National Airspace System (NAS) congestion through utilization of small (less than 55lbs.) UAS instead of conventional aircraft during aerial photography/ inspection operations.
4) Reducing noise and air pollution created by conventional fixed wing/rotor wing aircraft, and
5) Increase aerial photography/inspection industry economic growth.

Capstone Aviation Corporation's utilization of UAS (DJI Phantom 2 Vision +) for the purposes of aerial photography/ inspection will be a leader in using and setting industry best practices for safe UAS operations in the NAS. Additionally, utilization of UAS will reduce the risk to life and property by limiting the use of conventional aircraft such as fixed-wing and rotor-wing aircraft with weights in excess of 1000lbs and carrying hundreds of gallons of flammable fuels flying at low altitudes. The UAS described in this document is less than 55 lbs, carries a small battery as a power source and can effectively do the same job as conventional aircraft with reduced likelihood and severity of risk. Moreover, the utilization of UAS will reduce UAS congestion by reduced usage of conventional aircraft requiring access to UAS. An additional benefit will be reductions in noise and air pollution from conventional aircraft by utilization of small UAS using batteries as the main source of power instead of fossil fuels used by conventional aircraft. Finally, the utilization of UAS for aerial photography/ inspection will allow for positive economic growth in the aerial photography/inspection industry, as well as peripheral industries that rely on aerial photography/ inspection, i.e., building construction, real estate, and inspection services.

### F. Limitations and Conditions

Capstone Aviation Corporation will describe in this document the proposed limitations and conditions of its UAS operations. These operations and conditions are intended to provide safe operations up and beyond current regulatory framework that apply to similar operations. Moreover, the limitations and conditions described below, Capstone

Aviation Corporation will accept to be held accountable when conducting business/commercial UAS operations from the FAA issued exemption:

1. The UAS maximum take-off weight (MTOW) will be less than 55 lbs. Capstone Aviation Corporation will be operating:
    I. DJI Phantom DJI Phantom 2 Vision + v3.0
    II. Other DJI manufactured UAS

2. The pilot in command (PIC) of the UAS will possess at least a private pilot certificate and at least a current third-class medical. The PIC will also meet the flight review requirements specified in 14 CFR 61.56 in an aircraft in which the PIC is rated on their pilot certificate.

3. Operator PIC qualifications criteria and demonstrated ability to operate UAS
    I. Completed initial and or recurrent training prior to UAS operations. Follow training guidance in accordance with manufacturer.
    II. All training will be documented and recorded
    III. PIC will demonstrate evasive and emergency maneuvers
    IV. Maintaining appropriate distances from persons, vessels, vehicles, and structures as per FAA regulations
    V. PIC qualification flight hours will be logged in a manner consistent with 14 CFR 61.51.
4. The Visual Observer (VO) qualifications and demonstrated ability
    I. Completed initial training prior to UAS operations
    II. All training will be documented and recorded

5. Training operations for PIC and VO (training, proficiency, and experience building) will only be conducted during dedicated training sessions. During training, proficiency, and experience building flights, all persons not essential for flight operations will be considered nonparticipants, and the PIC will operate the UAS with appropriate distance from nonparticipants in accordance with 14 CFR 91.119.

6. All UAS operations will remain below 400 feet above ground level. UAS operations will utilize no less than two qualified people. The first person will be operator of the UAS flight controls “pilot in command” (PIC). The second person, visual observer (VO), will be used to assisting the PIC with seeing and avoiding other air traffic and other ground based obstacles/obstructions and will not permitted to operate the UAS camera or other instruments.

7. The UAS will be operated within the line of sight (LOS) of the PIC at all times. The PIC will be able to use human vision unaided by any device other than corrective lenses. The PIC will have an FAA-issued airman medial certificate. First person view (FPV) will not be used by the PIC or visual observer (VO). The UAS will not be operated by the PIC from any moving device or vehicle.

8. UAS operations will not be permitted unless there is enough power to fly to the UAS to the intended landing point at a normal cruise speed and land the UAS with 30% battery power remaining.

9. The PIC will be designated before flight and will not transfer controls for the duration of flight. The PIC will ensure that the VO can perform all of their essential functions. All operations will utilize a VO. The VO will not perform any other duties beyond assisting the PIC with seeing and avoiding other air traffic and other ground based obstacles/obstructions and is not permitted to operate the camera or other instruments. The UAS will remain clear and yield the right of way to all manned aviation operations at all times

10. Pre-flight operations will include the use of the Openpilot Preflight Checklist. Additionally, prior to each flight the PIC will conduct and preflight inspection of the UAS and Ground Control Station to ensure it's in a condition for safe flight. All discrepancies found during the preflight inspection will prohibit flight operations until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. All discrepancies, maintenance, alterations will be properly documented in the aircraft records.

11. If the UAS has undergone maintenance or alterations that affect the UAS operation or flight characteristics there will be a functional flight test by the PIC and the PIC will make and entry in the aircraft records. All maintenance will follow the UAS manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limited requirements.

12. Each UAS will comply with all manufacturers Safety Bulletins.

13. The operator will carry out its maintenance, inspections, and record keeping requirements, in accordance with the manufacturers operating documents. All Maintenance, inspection, alterations, and status of replacement/overhaul component parts must be noted in the aircraft records, including total time in service, description of work accomplished, and the signature of the authorized person returning the UAS to service.

14. Authorized persons will make entry in the aircraft record of corrective action taken against discrepancies discovered between inspections.

15. The UAS will not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by the operator's Certificate of Waiver. All UAS operations will not be operated less than 500 feet below or less than 2000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC. Controlled airspace will be utilized with prior permission from Air Traffic Control or the Federal Aviation Administration. At all

times, in all situations, without exception, the PIC will maintain visual line of sight with the UAS.

16. The UAS will not be operated over congested or densely populated areas.

17. The UAS will remain clear and yield the right of way to all manned aviation operations at all times. The UAS will not be flown at an indicated airspeed exceeding 30 knots.

18. All operating documents will be accessible during UAS operations. Capstone Aviation Corporation may update or revise operating documents, however; it will track revisions and present updated revised documents the administrator upon request.

19. All 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 UAS is operating. These documents will be made available to the Administrator or any law enforcement official upon request.

20. Prior to all UAS flight operations, the pilot in command will conduct a visual inspection of the property and attempt to inform all persons on the property of the UAS operations. Flight operation will be conducted at least 500 feet from all nonparticipating persons (persons other than the PIC, VO, operator trainees or essential persons), vessels, vehicles and structures unless:

    I. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator will 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 will cease immediately and/or;
    II. The aircraft is operated near vessels, vehicles or structures where the owner/controller of such vessels, vehicles or structures has granted permission 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, and;
    III. Operations nearer to the PIC, VO, operator trainees or essential persons do not present an undue hazard to those persons per § 91.119(a).

21. The PIC of the UAS and VO involved with each UAS flight operation will have received initial training, and recurrent training on a periodic basis to keep up-to-date on, applicable government regulations, airspace regulations, manufacturer updates, and other information regarding UAS operations in the NAS.

22. The PIC and VO will be able to verbally communicate at all times. Electronic messaging or texting will not be permitted during flight operations.

23. If the UAS loses communications or loses its GPS signal, it will return to a pre-determined location with the planned operating area and land or be recovered in accordance with the operating documents.

24. The PIC will abort the flight in the event of unpredicted obstacles or emergencies

25. The visual observer will carry and utilize fire extinguishing equipment in case of an emergency.

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

27. UAS operations will be identified by serial number, registered in accordance with 14 CFR part 47, and identification (N-Number) marking in accordance with 14 CFR part 45, Subpart C. The markings will be a large as practical.

28. UAS operations, if required by controlled airspace, will request a Notice to Airman (NOTAM) no more than 72 hours in advance, but not less than 48 hours prior to the operation.

29. All UAS operations will comply with Federal Communications Commission or other appropriate government oversight agency requirements

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

31. 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.

32. Unless otherwise specified the UAS, the UAS PIC, and the UAS operations will comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

## G. Specific Sections of 14 CFR from which Capstone Aviation Corporation Seeks Exemption

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

The proposed UAS operations by Capstone Aviation Corporation (CAC) would employ a Pilot in Command that holds a least a Private Pilot certificate and current third-class medical certificate. All UAS PICs will go through a CAC ground school and flight lessons in accordance with manufactures and industry guidance prior to operations. All CAC PIC's will only operate the UAS as stated in this document and/or as recommended by the FAA. All CAC UAS operations will be controlled and limited, all flights will be coordinated ahead of time. CAC feels that the level of safety will be equivalent or in excess that of a commercial pilot operations. CAC's objective is to safety operate UAS in a controlled manner at a reduced risk level that would not require a commercial pilot certificate.

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

Capstone Aviation Corporation would like to request and exemption to operate their UAS without an airworthiness certificate. Instead, CAC will verify the airworthiness of the UAS prior to each flight to ensure that the UAS is airworthy prior to each and every flight. All record keeping of maintenance actions will be documented in the same manner as a conventional aircraft.

In order to meet or exceed level of safety as described in 14 C.F.R. §91.7(a, Capstone Aviation Corporation operations will include:

Pre-flight operations: prior to each flight the PIC will conduct and preflight inspection of the UAS and Ground Control Station to ensure it's in a condition for safe flight. All discrepancies found during the preflight inspection will prohibit flight operations until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. All discrepancies, maintenance, alterations will be properly documented in the aircraft records.

If the UAS has undergone maintenance or alterations that affect the UAS operation or flight characteristics there will be a functional flight test by the PIC and the PIC will make and entry in the aircraft records. All maintenance will follow the UAS manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limited requirements.

Each UAS will comply with all manufacturers Safety Bulletins.

The operator will carry out its maintenance, inspections, and record keeping requirements, in accordance with the manufacturers operating documents. All Maintenance, inspection, alterations, and status of replacement/overhaul component parts must be noted in the aircraft records, including total time in service, description of work accomplished, and the signature of the authorized person returning the UAS to service.

Authorized persons will make entry in the aircraft record of corrective action taken against discrepancies discovered between inspections.

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

CAC would like to request an exemption to 91.119 paragraph (c) *Over other than congested areas.* An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

All flights will be conducted with within visual line of sight and with prior permission from the owner of the property or local municipality. Additionally, all persons, vessels, vehicles, not directly involved with the operation will be notified and cleared of the area where the proposed UAS operations will be conducted. The advance notice and access restricted area will maintain an equivalent level of safety of that described in 14 C.F.R. §91.119 (c) : Minimum safe altitudes.

### 14 C.F.R. §91.121 Altimeter Settings

CAC is requesting an exemption from 14 CFR 91.121 requiring each person operating an aircraft shall maintain the cruising altitude by reference to an altimeter that is se when operating below 18,000 feet mean sea level to the elevation of the departure airport or an appropriate altimeter setting available before departure.

To meet the equivalent level of safety, the UAS operated by CAC has GPS altitude readout instead of a barometric altimeter. The CAC qualified PIC will maintain the equivalent level of safety by confirming the altitude of the launch site shown on the GPS altitude indicator prior to each flight. The operating documents will require confirmation of the launching site altitude on the UAS GPS altitude indicator before each flight.

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

Capstone Aviation Corporation believes that an equivalent level of safety can be achieved by following the UAS manufacturer's operating documents with regard to battery voltage. In order to achieve or exceed the level of safety, the CAC PIC will not begin a flight unless (considering wind and forecast weather conditions) there is enough power to fly to the intended landing point at normal cruising speed and land the UAS with no less than 30% of battery power.

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

Capstone Aviation Corporation UAS operations will keep an equivalent level of safety as described below. CAC will perform preventative and required maintenance on its UAS as required by the manufacturer and/or FAA safety/service bulletins. If a mechanical event occurs the UAS will land immediately. The operator will make sure that the UAS is in an airworthy condition prior to each flight operation. The operator will perform maintenance on its UAS and will maintain thorough record keeping of any maintenance performed.

In order to meet or exceed level of safety as described in 14 C.F.R. §**91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b):**Capstone Aviation Corporation operations will include:

Pre-flight operations: prior to each flight the PIC will conduct and preflight inspection of the UAS and Ground Control Station to ensure it's in a condition for safe flight. All discrepancies found during the preflight inspection will prohibit flight operations until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. All discrepancies, maintenance, alterations will be properly documented in the aircraft records.

If the UAS has undergone maintenance or alterations that affect the UAS operation or flight characteristics there will be a functional flight test by the PIC and the PIC will make and entry in the aircraft records. All maintenance will follow the UAS manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limited requirements.

Each UAS will comply with all manufacturers Safety Bulletins.

The operator will carry out its maintenance, inspections, and record keeping requirements, in accordance with the manufacturers operating documents. All Maintenance, inspection, alterations, and status of replacement/overhaul component parts must be noted in the aircraft records, including total time in service, description of work accomplished, and the signature of the authorized person returning the UAS to service.

Authorized persons will make entry in the aircraft record of corrective action taken against discrepancies discovered between inspections.

**H. Publication Summary**

The following summary is provided for publication in the Federal Register.

Pursuant with Section 333 of the FAA Modernization and Reform Act of 2012, Capstone Aviation Corporation requests an exemption from the following rules:
14 CFR 61.113 (a) & (b); 91.7 (a); 91.119 (c); 91.121; 91.151 (a)(1); 91.405 (a); 91.407(a) (1 ); 91.409 (a) (2); 91.417 (a) & (b).Exemption from these regulations will allow Capstone Aviation to operate commercially a UAS, DJI Phantom 2 Vision + v3.0 (55lbs or less), for Aerial Photography/ Inspection Operations.

If approval of the exemption is granted, Capstone Aviation Corporation would conduct commercial operations of the approved UAS for aerial photography/inspection for business operations over land, water-ways, and oceans; operation over/in non restricted National Parks, National Forests, flight in non-navigable airspace, using non-intrusive recording devices, operation in otherwise unrestricted US States/Territories.

The use of UAS of less than 55 lbs with power source is a safer and more economical mechanism than utilization of conventional aircraft. Capstone Aviation Corporation's proposed commercial operations of UAS would be conducted under controlled conditions in airspace that is: limited, predetermined, and access controlled.