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

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

September 1, 2015

Exemption No. 12693
Regulatory Docket No. FAA−2015−1510

Mr. David Mason
Project Manager
Nobles Consulting Group
2844 Pablo Avenue
Tallahassee, FL 32309

Dear Mr. Mason:

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 letters dated April 27 and July 23, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Nobles Consulting Group (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial imagery in support of surveying and mapping operations.

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 2 and DJI Phantom 2 Vision.

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, Nobles Consulting Group 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, Nobles Consulting Group 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 and 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 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 September 30, 2017, unless sooner superseded or rescinded.

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

Enclosures

April 27, 2015

Nobles Consulting Group
Attn: David Mason
2844 Pablo Ave
Tallahassee, FL 32309\
850-385-1179 Ext 322

U.S. Department of Transportation
Docket Management System
West Building – Ground Floor, Room W12-140
1200 New Jersey Ave., SE
Washington, DC 20590

Regarding: Petition for Exemption Pursuant to Section 333 of the FAA Reform Act of 2012 and Part 11 of the Federal Aviation Regulation and Relief Pursuant to Title 14 Chapter 1 Subpart 11 Section 61(b).

Dear Madam or Sir,

Section 333 of the Reform Act grants the Secretary the authority to assess and make a determination through an exemption process if an unmanned aircraft system of appropriate size, weight, and operational capabilities operated in a specified manner does not pose a threat to users, bystanders, National Airspace System (NAS) and National Security. Section 333 also provides that the Secretary can determine whether a certificate of waiver, certificate of authorization or airworthiness certification under section 44704 of Title 49 USC is required for unmanned aircraft and establish requirements for safe operation of the Unmanned Aerial Systems (UAS) in the NAS.

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, Nobles Consulting Group, Inc., (NCG) a Surveying and Engineering Company, seeks exemption from the Federal Aviation Regulations of Title 14 CFR's listed below:

- Part 21 - Certification Procedures for Products and Parts
- 45.23 - Display of marks; general
- 45.29 – Size of Marks
- 61.23 – Medical Certificates: Requirements and duration

- 61.3 – Requirements for certificates, ratings and authorizations
- 61.113 (a) & (b) - Private Pilot Privileges and Limitations: Pilots in Command
- 61.133 (a) Commercial Pilot Privileges and limitations
- 91.7(a) – Civil Aircraft Airworthiness
- 91.9 - Civil Aircraft Flight Manual, Marking and Placard Requirements
- 91.109 (a) – Flight Instruction: Simulated Instrument flight and Certain Flight Tests
- 91.119 – Minimum Safe Altitudes; General
- 91.121 – Altimeter Settings
- 91.151 (a) – Fuel Requirements for Flight in VFR Conditions
- 91.203 – Civil Aircraft Certifications Required
- 91.405 (a) – Maintenance Required
- 91.407 (a) 1. – Operation After Maintenance, Preventative Maintenance, rebuilding, or Alteration
- 91.409 (a) 2 – Inspections
- 91.417 (a) and (b) – Maintenance Records

In addition to the above request; Pursuant to Title 14 Chapter 1 Subchapter B Part 11 Subpart A Section 11.61(b) Using a petition for exemption, you may ask FAA to grant you relief from current regulations in 14 CFR. In accordance with Title 14 Chapter 1 Subchapter B Part 11 Subpart A Section 11.61(b), NCG seeks relief from the requirement that the Pilot in Command (PIC) have at a minimum Pilot Certification of Sport Pilot and that a visual observer be required as has been prescribed in some of the more recent Section 333 Exemptions issued in order to commercially operate a small UAS in the NAS.

It is understood that UAS are not manned aircraft, however, many of them are battery operated, have limited operating time windows due to battery life, have distance from operator limitations based on radio control efficacy and built in flight safety parameters. However, Pursuant to title 14 Chapter 1 Subchapter F Part 103 Ultralight Vehicles, Ultralight Vehicles are not authorized for commercial use, can operate if unpowered or powered if weighing under 254 pounds, have fuel capacity of not more than 5 U.S. Gallons, and cannot travel at more than 55knots at full power. However, Unlike the requirements that UAS operator are compelled to adhere to, Under Section 103.7 – Certification and registration – Ultralight vehicles are not required to meet airworthiness standards, the operators of these aircraft are not required to meet aeronautical

knowledge requirements, nor are there age or experience requirements in order to operate them. In addition there is no requirement that there be medical certification for operation. Given that these aircraft can occupy the same airspace as commercial small frame UAS operations through 333 Exemption, the same dangers persist for other aircraft in the area.

Based on the above argument, NCG requests that their PIC of flight operations for commercial UAS services be required to have the same level of pilot certification as those that operate Ultralight aircraft. However, understanding that airspace safety is of paramount importance, any NCG UAS pilot will first be required to participate in a UAS based ground school with a focus on FAA flight regulation and requirements, and participate in appropriate UAS flight training in accordance with aircraft platform and manufacturer specifications. In addition, in order to provide a level of security, any NCG UAS pilot must also undergo and clear a background check thorough enough to obtain a Transportation Worker Identification Credential (TWIC) card.

An exemption is being requested because; 1.) Existing current regulations do not allow NCG to commercially operate UAS in the NAS. 2.) NCG can provide safe operation of the subject UAV at a level that is equal to or greater than safety levels described by current regulation. 3.) The request is in the public interest.

As more fully described below, the requested exemption would authorize NCG to utilize small relatively inexpensive (under 5 pounds) UAS for low altitude aerial imagery in support of surveying and mapping operations, in the United States. All UAS flight operations will occur only during daylight hours in predetermined limited airspace that is well defined by project boundaries. All flight operations be guided by Advisory Circular AC 91-57, and the Academy of Model Aeronautics (AMA) National Model Aircraft Safety Code relating to Model Aircraft Operation.

The specific UAS's that are proposed for use are quad copters manufactured by DJI and include the DJI Phantom II and the DJI Phantom Vision 2. Significant description of aircraft origin, capabilities, and safety features can be found in Singer's Creations request for Exemption FAA Docket ID: FAA-2014-0915-0001.

Operationally, NCG Provides that:

1. All NCG Flights will follow guidelines set forth in FAA Advisory Circular 91-57 and the Academy of Model Aeronautics National Model Aircraft Safety Code.

2. The UAS will weigh less than 5 lbs.

3. Flights will be operated within unaided visual line of sight (VLOS) of a Pilot in Command (PIC).

4. Maximum total flight time for each operational flight will be 20 minutes. Flights will be terminated at 25% battery power reserve should that occur prior to the 20 minute limit.

5. Flights will be operated at an altitude of no more than 400 feet

6. A Pre Flight Check and Aircraft internal Compass calibration will be conducted prior to each flight to ensure proper operation of the aircraft.

7. Any NCG PIC will have taken and passed an initial aeronautical knowledge test, will have aircraft flight training as suggested by the manufacturer and will have been vetted by the TSA via issuance of a of Transportation Worker Identification Credential (TWIC) card

8. The UAS will only operate within an area of a well-defined boundary as requested and specified in any authorized Certificate of Operation (COA) applied for and received by NCG.

9. A flight plan will be prepared and a briefing will be conducted in regard to the planned UAS operations prior to each flight operation. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for this briefing.

10. The operator will obtain the consent of all persons involved in the flight area and ensure that only consenting persons will be allowed within 100 feet of the flight operation.

11. Written and/or oral permission from the relevant property holders will be obtained.

12. All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.

13. If the UAS loses communications or loses its GPS signal, the UAS will have capability to return to a pre-determined location within the Security Perimeter and land.

Summary

Nobles Consulting Group, Inc. is seeking relief In accordance with Section 333 of the FAA Modernization Act and 14 CFR Chapter 1 Section 11.61(b) from specific requirements of Title 14 of the Code Of Federal Regulations. Part 21, Part 45 Sections 45.23 and 45.29; Part 61 Sections 61.23, 61.3, 61.113 (a)&(b), and 61.113(a); Part 91 Sections 91.7(a), 91.9, 91.109(a), 91.119, 91,121, 91.151(a), 91.203, 91.405(a), 91.407(a)1 and 91.417 (a)&(b). Filed by David Mason, Nobles Consulting Group, 2844 Pablo Ave, Tallahassee, FL 32308. Tel: (850)-385-1179. Fax (850) 385-1404. David@NCGinc.com

Appendices

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Advisory Circular 91-57 – Model Aircraft Operating Standards

Academy of Model Aeronautics National Model Aircraft Safety Code

Singer's Creations - FAA Docket ID: FAA-2014-0915-0001.

DJI Phantom II Training Guide

DJI Phantom II Owner's Manual

NCG
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July 23, 2015

U.S. Department of Transportation
Docket Management System
West Building – Ground Floor, Room W12-140
1200 New Jersey Ave., SE
Washington, DC 20590

Regarding: FAA Docket Number 2015-1510-002 Notice of Request for Additional Information

Dear Madam or Sir,

We are in receipt of your request for additional information and seek to continue review of our exemption request. In response to your request for additional information it has been noted that in order for our application to be considered further we must submit the following:

"The reasons why granting the request would be in the public interest: that is, how it would benefit the public as a whole."
and
"Any additional information, views, or arguments available to support your request."

In response to your request for additional information we provide the following:

The use of UAS for the proposed operations will provide significant public benefit, including reduction of environmental impacts such as reduced emissions associated with UAS use for aerial data collection as opposed to normal full sized rotary or fixed wing aircraft. Also the use of UAS for the proposed operations can reduced the time of aircraft exposure in the NAS. The aircraft selected is battery operated, can take off and land vertically and use will be confined to the area of operation instead of having to travel from another location. Also, since the proposed UAS is battery powered and carries no fuel reducing risk of fire of fuel spillage or in the event of a mishap thus benefitting public safety.

Additionally, NCG is seeking exemption from pilot certification requirements to utilize UAS commercially, NCG's exemption request specifically states that any NCG Pilot in Command

(PIC) will be required to participate in and satisfactorily complete in a UAS Based ground school with a focus on FAA flight regulation and requirements, and participate in appropriate UAS flight training in accordance with aircraft manufacturer requirements. For security purposes, NCG has provided that any NCG PIC will have to undergo and clear a background check thorough enough to obtain a Transportation Worker Identification Credential (TWIC) card. Although, this is not in keeping with how recent exemptions have been issued, the level of safety provided will be equivalent to those that have been previously granted Section 333 exemptions and is in the public interest and will benefit the public in that the operator will be trained. The requirement that the PIC must have pilot certification is not a guarantee that the UAS will be operated in a safe manner. For many certified pilots, being a PIC for a UAS is outside of their core competency and training is still required. The only difference is that the certified pilot has actual in the air flight time and has undergone training for operating in the NAS. This is why NCG provides that any PIC is required to have formal training on flight regulation, and flight training with the proposed airframe. NCG's approach is inherently more safe than the average un-credentialed hobbyist flying unregistered aircraft in the NAS without any formal training regarding FAA rules and regulations. Although we don't like to think about it, this is an all too often occurring scenario since the advent of the "off the shelf" easily flown UAV's. Additionally, there are companies that are currently providing commercial UAV services that have not gone through the exemption request process that are gaining a competitive edge on those of us that are compelled to follow the rules.

I hope this is the information that you are seeking from us.

If you have any further questions or need any additional information please contact us as soon as possible.

Sincerely,

David Mason

Project Manager

Nobles Consulting Group