



July 23, 2015

Exemption No. 12122 Regulatory Docket No. FAA–2015–1588

Mr. J. David Barton Barton Ventures, Inc. 3049 Bay Shore Lane Suffolk, VA 23435

Dear Mr. Barton:

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

By letter dated April 30, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Barton Ventures, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial video and photography.

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 collection¹. 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, Barton Ventures, Inc. 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, Barton Ventures, Inc. 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 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 July 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan Director, Flight Standards Service

Enclosures

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERALAVIATION ADMINISTRATION WASHINGTON, DC

Regulator Docket No

IN THE MATTER OF THE PETITION FOR EXEMPTION OF:

Barton Ventures, Inc

FORN AN EXEMPTION SEEING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS SECTIONS 61.113(a) & (b), 91.7(a), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), AND 91.417(a) & (b) CONCERNING COMMERCIAL OPERATION OF UNMANNED AIRCRAFT

PURSUANT TO SECTION 333 OF THE FAA MODERNIZAION AND REFORM ACT OF 2012 (PUBLIC LAW 112-95)

Submitted on April 30, 2015

Barton Ventures, Inc. 3049 Bay Shore Lane Suffolk, VA 23435 Tel: (757) 572-7060

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GLOSSARY OF ABBREVIATIONS

AGL Above Ground Level
AOI Area of Interest
ATC Air Traffic Control
ATO Air Traffic Organization

AV Aerial Vehicle

BVI Barton Ventures, Inc.

CFR Code of Federal Regulations
COA Certificate of Authorization
FAA Federal Aviation Administration
FAR Federal Aviation Regulation
GCS Ground Control Station
GPS Global Positioning System

LOL Loss of Link

NAS National Airspace System

NOTAM Notice to Airman PIC Pilot In Command

RPA Remotely Piloted Aircraft

Section 333 FAA Modernization and Reform Act of 2012 (FMRA) Section 333

SO Safety Observer

SOP Standard Operating Procedures

UA Unmanned Aircraft

UAS Unmanned Aircraft System

VFR Visual Flight Rules VLOS Visual Line of Site

VMC Visual Meteorological Conditions VTOL Vertical Takeoff and Landing

SUMMARY

Barton Ventures, Inc (BVI) seeks exemption from the requirements of 14 C.F.R §§ 61.113(a) & (b), 91.7(a), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b), to operate an Unmanned Aircraft System (UAS) pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (FMRA). This exemption will permit BVI to operate a Remotely Piloted Aircraft (RPA) or UAS for the commercial purpose of conducting aerial video and photography of construction sites, real estate property, film sets and natural landscapes in the United States.

INTRODUCTION AND INTEREST OF THE PETITIONER

BVI was founded by J. David Barton, a professional with more than twelve years experience in the commercial UAS market. Mr. Barton's work has pioneer systems to enable on-board, as well as Ground Control Station (GCS) based systems for processing, storing and disseminating of data collected via RPA or UAS systems by the United States Government. Technology developed by Mr. Barton is operationally deployed on systems supporting the Global War on Terror for the United States Government. In addition to the unique industry specific, Mr. Barton has sixteen years of Information Technology experience that includes wireless communication systems, networking systems and multimedia systems. Legal, hobby model aircraft operation has been a passion for Mr. Barton and in such he has owned a number of fixed wing and multirotor platforms. He has significant experience in safely operating model aircraft. Mr. Barton founded BVI to apply his vast knowledge and experience of Information Technology as well as UAS data and systems to civilian commercial products and services in multiple markets. The products and services of BVI is positioned to be an end-to-end spectrum of software

products, services or data products that can be purchased digitally or physically. Our products and services can be collection and delivery of raw data from UAS, post processed data collected from UAS, analysis of data collected from UAS, UAS training, geotagged digital photos or digital full motion video. The products and services can be utilized in a number of commercial applications to include, but not limited to agriculture, mapping, surveying, motion picture filming, marketing, real estate, research and development as well as search and rescue. It is the mission of BVI to provide these aforementioned products and services for commercial profit and non-profit projects.

BACKGROUND

BVI seeks an exemption to operate a UAS platform from DJI for commercial purposes in the United States National Airspace System. BVI will maintain a number of small UAS that are from DJI. The primary platform desired for use is the DJI Phantom 2 Vision+ platform, a multirotor platform with Vertical Takeoff and Landing (VTOL) capabilities controlled by operators maintaining Visual Line of Sight (VLOS) with a GCS application running on a mobile device or table to provide the aerial vehicle's (AV) telematics data to include, but not limited to; altitude above ground level (AGL), speed, heading and batter level. The DJI Phantom 2 Vision+ has a maximum gross weight of approximately 2 pounds 11 ounces, while having a length of 16 inches width of 16 inches, height of 8 inches, and a maximum speed of approximately 29 knots.

BASIS FOR PETITION

Petitioner, BVI, pursuant to the provisions of the Federal Aviation Regulations (14 C.F.R. § 11.61) and the FAA Modernization and Reform Act of 2012 (FMRA), Section 333, *Special Rules for Certain Unmanned Aircraft Systems*, hereby petitions the Administrator to commercially operate the DJI Phantom 2 Vision+ UAS in the NAS, and for an exemption from the requirements of 14 C.F.R §§ 61.113(a) & (b), 91.7(a), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b).

In consideration of the speed, weight, size, and limited operating area associated with the unmanned aircraft and its operation, BVI's operation of DJI Phantom 2 Vision+ UASs meets the conditions of FMRA Section 333 and therefore, will not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H.

Accordingly, BVI requests relief from Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b), as these sections set forth requirements for maintenance that only apply to aircraft with an airworthiness certificate.

BVI submits that the requested relief is proper, as an equivalent level of safety will be ensured. BVI will ensure all safety and maintenance procedures outline by the UAS manufacture are complied with. Only authorized personnel or technicians will perform maintenance on the UASs using the methods, techniques, and practices prescribed in the operating documents provided by the UAS manufacture. All maintenance will be logged in the UAS maintenance record maintained by BVI.

Relief from certain requirements of Section 61.113(a) and (b), entitled *Private* pilot privileges and limitations: Pilot in command, is requested by BVI to the extent necessary to allow a Pilot in Command (PIC) holding a private pilot or higher level certificate, as well as an airman medical certificate, and who has demonstrated, by

meeting minimum flight- hour and currency requirements, that the PIC is able to safely operate the DJI Phantom 2 Vision+ UAS in a manner consistent with this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from people, vessels, vehicles and structures.

BVI seeks relief from Section 91.7(a), entitled *Civil aircraft airworthiness*, because the DJI Phantom 2 Vision+ UAS does not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H. As such, BVI submits that all maintenance and care will be conducted to will ensure the DJI Phantom 2 Vision+ UAS is in an airworthy condition, prior to every flight, by determining that the UASs are in compliance with the operating documents provided by the UAS manufacture, and that the aircraft are in a condition for safe flight.

BVI seeks an exemption from the requirements of Section 91.121, entitled Altimeter Settings, as the DJI Phantom 2 Vision+ UA will not have a typical aircraft barometric altimeter onboard. Altitude is measured using barometric and Global Positioning System (GPS) sensors. The UA provides the information to the LOS operator via a GCS application for real time flight telematics. The flight telematics aid the operator ensuring compliance and safe operation of the UA within visual line of sight, at or below 400 feet AGL, with the majority of flights at or below 200 feel AGL, will ensure a level of safety equivalent to Section 91.121.

Additionally, BVI seeks an exemption from the requirements of Section 91.151(b), entitled *Fuel requirements for flight in VFR conditions*. BVI submits that granting an exemption will reduce current risk levels, as there is reliance on combustible fuel for the operation of the DJI Phantom 2+. Operation of the DJI Phantom 2 Vision+

UAs during daylight hours in visual meteorological conditions (VMC) under visual flight

rules (VFR) will ensure the UA is operated in a safe manner compliant with applicable

regulations.

In accordance with 14 C.F.R. § 11.81, BVI provides the following information in

support of its petition for exemption:

1) Name And Address Of The Petitioner.

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

Barton Ventures, Inc.

3049 Bay Shore Lane

Suffolk, VA 23435

Tel: (757) 572-7060

email: bartonventures@icloud.com

2) The Specific Sections Of 14 C.F.R. From Which BVI Seeks Exemption.

a) BVI Seeks Exemption From The Requirements Of Section 61.113(a) And (b).

Section 61.113, entitled Private pilot privileges and limitations: *Pilot in command*,

subsections (a) and (b) prescribe the following, in relevant part:

i) No person who holds a private pilot certificate may act as a pilot in command

(PIC) of an aircraft that is carrying passengers or property for compensation or

hire; nor may that person, for compensation or hire, act as PIC of an aircraft.

ii) A private pilot may, for compensation or hire, act as PIC of an aircraft in

connection with any business or employment if—

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or

hire.

b) BVI Seeks Exemption From The Requirements Of Section 91.7(a).

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Section 91.7, entitled *Civil aircraft airworthiness*, subsection (a), states the following:

i) No person may operate a civil aircraft unless it is in an airworthy condition.

c) BVI Seeks Exemption From The Requirements Of Section 91.121.

Section 91.121, entitled Altimeter settings, subsection (a), states the following, in part:

- i) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating--
 - (1) Below 18,000 feet MSL, to--
 - (a) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;
 - (b) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or
 - (c) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure.

d) BVI Seeks Exemption From The Requirements Of Section 91.151(b).

Section 91.405, entitled *Maintenance required*, subsection (a), states the following:

Each owner or operator of an aircraft—

(a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph

of this section, have discrepancies repaired as prescribed in part 43 of this chapter[.]

e) Seeks Exemption From The Requirements Of Section 91.407(a)(1)

Section 91.407, entitled *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, subsection (a)(1), states the following:

- i) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless--
- ii) (1) It has been approved for return to service by a person authorized under §43.7 of this chapter[.]

f) BVI Seeks Exemption From The Requirements Of Sections 91.409(a)(1) And 91.409(a)(2).

Section 91.409, entitled *Inspections*, subsection (a), states the following:

- (a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had
 - (1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or
 - (2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

g) BVI Seeks Exemption From The Requirements Of Sections 91.417(a) And 91.417(b).

Section 91.417, entitled *Maintenance records*, subsections (a) and (b), state the

following:

- i) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
 - (1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft.

 The records must include—
 - The records must merude—
 - (2) A description (or reference to data acceptable to the Administrator) of the work performed; and
 - (3) The date of completion of the work performed; and
 - (4) The signature, and certificate number of the person approving the aircraft for return to service.
- ii) Records containing the following information:
 - (1) The total time in service of the airframe, each engine, each propeller, and each rotor.
 - (2) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
 - (3) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

- (4) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.
- (5) The current status of applicable Airworthiness Directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.
- (6) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.
- iii) The owner or operator shall retain the following records for the periods prescribed:
 - (1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.
 - (2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.
 - (3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.
- 3) The Extent Of Relief BVI Seeks And The Reason BVI Seeks The Relief.
 - a) Extent Of Relief BVI Seeks And The Reason BVI Seeks Relief From Section
 61.113(a) And (b).

Relief from Section 61.113(a) and (b) entitled *Private pilot privileges and limitations: Pilot in command*, is requested to the extent necessary to allow a PIC holding a private pilot or higher level certificate, as well as a current and valid airman medical certificate, and who has met certain flight-hour and currency requirements, to conduct the proposed UAS flight operations for compensation or hire.

This relief is requested since the limitations set forth in Section 61.113(a) and (b) state that a private pilot may, for compensation or hire, act as PIC of an aircraft in connection with any business or employment if: (1) The flight is only incidental to that business or employment; and (2) The aircraft does not carry passengers or property for compensation or hire.

As set forth more fully below, BVI submits that an equivalent level of safety will be maintained because no PIC will be allowed to operate the DJI Phantom 2 Vision+ UAS unless that PIC has met certain BVI flight-hour training requirements, demonstrating that the PIC is able to safely operate either the DJI Phantom 2 Vision+ UAS in a manner consistent with the operations specifications as described in this exemption, including evasive and emergency maneuvers, as well as maintaining appropriate distances from people, vessels, vehicles and structures.

Further, BVI submits that all flights of the DJI Phantom 2 Vision+ UAS, conducted by the PIC pursuant to the grant of this Petition: (1) will be incidental to BVI business; and (2) will not carry passengers or property for compensation or hire.

b) Extent Of Relief BVI Seeks And The Reason BVI Seeks Relief From Section 91.7(a).

Relief from Section 91.7(a) entitled *Civil aircraft airworthiness*, is requested to the extent required to allow BVI personnel to determine that the DJI Phantom 2 Vision+ UAS is in airworthy condition prior to every flight by ensuring that the UAS is in compliance with the operating documents (i.e., the BVI Standard Operating Procedures (SOP), Monthly Maintenance Log, and DJI Phantom 2 Vision+ documentation).

BVI seeks the requested relief because the DJI Phantom 2 Vision+ UASs does not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H. Therefore, BVI personnel will ensure that the DJI Phantom 2 Vision+ UAS is in airworthy condition based upon its compliance with the operating documents (i.e., Maintenance Logs, BVI SOP and manufacture documentation) prior to every flight, and further, determine that the aircraft are in condition for safe flight, as stated in the conditions and limitations below.

c) Extent Of Relief BVI Seeks And The Reason BVI Seeks Relief From Section 91.121.

Relief from Section 91.121, entitled Altimeter settings, may be required to allow flight operations of the DJI Phantom 2 Vision+ which utilize a barometric pressure sensor, GPS equipment, and a radio communications telemetry data link to downlink altitude information from the UA to the PIC at the GCS. Since the FAA requires that any altitude information concerning UAS operations be

reported to air traffic control (ATC) in feet above ground level (AGL), BVI seeks the requested relief as the DJI Phantom 2 Vision+ UA altimeter may be set on the ground to zero feet AGL, rather than the local barometric pressure or field altitude, before each flight.

Considering the limited altitude of the proposed operations, relief from 14 CFR 91.121 is sought to the extent necessary to comply with the applicable conditions and limitations stated below. As more fully set forth herein, an equivalent level of safety will be maintained since the DJI Phantom 2 Vision+ is equipped with a barometric pressure sensor and GPS equipment, which automatically ensures that a ground level pressure setting will be established prior to each flight, and provides the PIC with altitude information of the UA on the heads-up display of the GCS.

d) Extent Of Relief BVI Seeks And The Reason BVI Seeks Relief From Section 91.151(b).

Relief from Section 91.151(b) entitled Fuel requirements for flight in VFR conditions, is requested to the extent required to allow flights of the battery powered UA during daylight hours in visual meteorological conditions (VMC), under visual flight rules (VFR). BVI seeks the requested relief as the UAS does not utilize traditional aircraft combustible fuel, rather the UAS is battery powered.

Significantly, as set forth below, the technical specifications of the DJI

Phantom 2 Vision+ UAS operating documents, and BVI proposed operating

limitations, ensure that BVI will safely operate the battery powered DJI Phantom

- 2 Vision+ UA during daylight hours in visual meteorological conditions (VMC), under visual flight rules (VFR).
- Extent Of Relief BVI Seeks And The Reason BVI Seeks Relief From Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), And 91.417(a) & (b).

 Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b) only apply to aircraft with an airworthiness certificate, BVI requests relief from these Sections because the DJI Phantom 2 Vision+ UAS do not require airworthiness certificates. As set forth more fully below, the DJI Phantom 2 Vision+ UAS meet the conditions of FMRA Section 333 for operation without an airworthiness certificate. Accordingly, BVI will only use authorized technicians to perform maintenance on the UAS using authorized methods. BVI will document all maintenance activities and keep the maintenance activity records for the BVI UAS.
- f) The Reasons Why Granting BVI's Request Would Be In The Public Interest;
 That Is, How It Would Benefit The Public As A Whole.

Granting BVI's Petition will further the public interest by allowing BVI to conduct training for BVI personnel as well as other parties interested in proper and safe recreational or commercially operating of UAS, employment of small UAS is efficient and more economical for certain type of activities such as construction site photography, land surveying, aerial video and photography of real estate, special events, film sets, and landscape over certain areas of the United States.

Additionally, use of the small battery powered UAS will decrease congestion of the NAS for certain activities, reduce pollution, and provide benefits to the economy.

- g) The Reasons Why Granting The Exemption Would Not Adversely Affect
 Safety, Or How The Exemption Would Provide A Level Of Safety At Least
 Equal To That Provided By The Rule From Which BVI Seeks Exemption.
 - Reasons Why The DJI Phantom 2 Vision+ and DJI Inspire 1 UAs Meet
 The Conditions Of The FAA Modernization and Reform Act of 2012
 (FMRA) Section 333.

In consideration of the size, weight, speed, and limited operating area associated with the unmanned aircraft and its operation, BVI's operation of the BVI UAS meets the conditions of FMRA Section 333, and will not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H.

Section 333 provides authority for a UAS to operate without airworthiness certification and sets forth requirements for considering whether a UAS will create a hazard to users of the NAS or the public, or otherwise pose a threat to national security. Specifically, FMRA Section 333 states the following, in part:

(1) In General.--Notwithstanding any other requirement of this subtitle, and not later than 180 days after the date of enactment of this Act, the Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before

- completion of the plan and rulemaking required by section 332 of this Act or the guidance required by section 334 of this Act.
- ii) Assessment of Unmanned Aircraft Systems.--In making the determination under subsection (a), the Secretary shall determine, at a minimum--
 - (1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and
 - (2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).
- iii) Requirements for Safe Operation.--If the Secretary determines under this section that certain unmanned aircraft systems may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft systems in the national airspace system.

In seeking this exemption, BVI submits the DJI Phantom 2 Vision+ UAS can be operated safely in the NAS pursuant to FMRA Section 333, as demonstrated by: (A) the characteristics of the DJI Phantom 2 Vision+ UAS; (B) the pilot certification requirement; and (C) the specific operating limitations.

A. The Specifications Of The DJI Phantom 2 Vision+ UAS

Demonstrate Its Safe Characteristics.

The DJI Phantom 2 Vision+ UAS does not create a hazard to users of the NAS or the public, or otherwise pose a threat to national security considering its size, weight, speed, and operational capability. BVI UAS utilizes four counter-rotating propellers for extreme balance, control and stability that is aided by GPS and other on board sensors. In the event of an unexpected loss of communication with the UAS it will return to a pre-defined location at a pre-determined altitude AGL. If the UAS has returned to the pre-defined location and altitude with a low battery the UAS will safely land at the pre-determined location.

B. Technical Specifications Of The DJI Phantom 2 Vision+ UAS.

The technical specifications of the DJI Phantom 2 Vision+ UAS is set forth by the DJI Phantom 2 Vision+ manufacture is as follows:

Battery

5200mAh LiPo

Weight (Battery & Propellers Included)

1160g

Hover Accuracy (Ready To Fly)

Vertical: 0.8m; Horizontal: 2.5m

Max Yaw Angular Velocity

200°/s

Max Tilt Angle

35°

Max Ascent / Descent Speed

Ascent: 6m/s; Descent: 2m/s

Max Flight Speed

15m/s (Not Recommended)

Diagonal Length

350mm

Tilting Range Of Gimbal

 $0^{\circ}-60^{\circ}$

C. Flights Of DJI Phantom 2 Vision+ and DJI Inspire 1 UASs Will Be Conducted Pursuant To Specific Operating Limitations.

- a. BVI UASs weigh less than 55 pounds;
- b. BVI only operates its UASs below 400 feet;
- c. BVI UASs only operate for 5-25 minutes per flight;
- d. BVI remote control pilots operate BVI UASs by visual line of sight (VLOS) at all times. This requires the operator to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAAissued airman medical certificate;
- e. BVI remote control pilots have video backup should they somehow lose sight of the UAS;

- f. BVI UASs have GPS flight modes whereby they hover and then slowly land if communication with the remote control pilot is lost or battery power is low;
- g. BVI actively analyses electronic flight data and other sources of information to constantly update and enhance safety protocols;
- h. BVI always obtains all necessary permissions and permits
 prior to operation; and, BVI has procedures in place to
 abort flights in the event of safety breaches or potential
 danger.
- i. The pre-flight inspection by BVI personnel must account for all potential discrepancies, e.g. inoperable components, items, or equipment, not already covered in the relevant sections of the operating documents.
- j. The UA may 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 Notice to Airman (NOTAM) as required by the operator's COA. The letter of agreement with the airport management must be made available to the Administrator upon request.

- k. If the UA loses communications for a pre-defined period of time or loses its GPS signal, it must return to a predetermined location within the planned operating area and land or be recovered in accordance with the operating documents.
- 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.

h) Reasons Why An Exemption From The Requirements Of Section 91.151(b) Would Not Adversely Affect Safety.

BVI submits that the equivalent level of safety established by Section 61.113(a) and (b) will be maintained because no PIC will be allowed to operate the UAS unless that PIC has demonstrated, by meeting minimum flight-hour and currency requirements, that the PIC is able to safely operate the UAS in a manner consistent with the exemption, including evasive and emergency maneuvers and maintaining appropriate distances from people, vessels, vehicles and structures.

Considering BVI's proposed area of operations, and the operating limitations set forth-above; the parallel nature of private pilot aeronautical knowledge requirements to those of commercial pilot requirements (See Exemption No. 11062); and the airmanship

skills necessary to safely operate the DJI Phantom 2 Vision+ UAS, BVI submits that the additional manned airmanship experience of a commercially certificated pilot would not correlate to the airmanship skills necessary for BVI's specific proposed flight operations.

The FAA has previously granted relief from Section 61.113(a) and (b) specific to UAS, in circumstances similar, in all material respects, to those presented herein (e.g. Exemption Nos. 11062, 11063, 11064, 11065, 11066, 11067, 11080, 11109, 11110, 11112, 11136, 11138, 11150, 11153, 11156, 11158, 11159, 11160, 11161).

BVI will not allow any PIC to operate the UAS unless that PIC has demonstrated, by meeting minimum flight-hour requirements or UAS training and currency requirements, that the PIC is able to safely operate the UAS in a manner consistent with this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from people, vessels, vehicles and structures.

Specifically, the PIC must have accumulated and logged, in a manner consistent with 14 C.F.R. § 61.51(b), 25 hours of total time as a UAS rotorcraft pilot (with a minimum of 5 hours of those hours as a UAS pilot operating the same make and model of UAS to be used for operations under the exemption). In addition to the hour requirements, the PIC must accomplish 3 takeoffs and landings in the preceding 90 days (for currency purposes).

As in Exemption Nos. 11062, 11138, and 11153, prior documented flight experience that was obtained in compliance with applicable regulations will ensure an equivalent level of safety during BVI's proposed operations. The Administrator has held that prior documented flight experience that was obtained in compliance with applicable regulations would ensure safe operations, stating as follows:

In Exemption No. 11062, the FAA required that prior to conducting operations for the purpose of motion picture filming (or similar operations), the PIC must have accumulated and logged, in a manner consistent with 14 CFR 61.51(b), 25 hours of total time as a UAS rotorcraft pilot including at least 10 hours logged as a UAS pilot with a multi-rotor UAS. Prior to operations under Exemption No. 11062, the PIC must also have accumulated and logged a minimum of 5 hours as a UAS pilot operating the same make and model of UAS to be used for operations under the exemption. For clarification, the FAA considers these minimum hour requirements to be inclusive rather than additive; i.e. 5 hours make and model time may be included in the 10 hours of multi-rotor time and the 10 hours may be included in the total 25 hours of UAS rotorcraft time. In addition to the hour requirements, the PIC must accomplish 3 takeoffs and landings in the preceding 90 days (for currency purposes). The FAA finds that at a minimum, the flighthour requirements in Exemption No. 11062 are appropriate to practice and build proficiency in the skills necessary to safely conduct the petitioner's proposed operations. The FAA also finds that prior documented flight experience that was obtained in compliance with applicable regulations would satisfy this requirement. Training, proficiency, and experience-building flights can also be conducted under the grant of exemption to accomplish the required flight time. During training, proficiency, and experience-building flights the PIC is required to operate the UA with appropriate distances in accordance with 14 C.F.R 91.119.

Exemption No. 11138 at page 15.

Accordingly, BVI will ensure safe operations by not allowing any PIC

to operate the UAS unless that PIC has demonstrated, by meeting minimum flight-hour and currency requirements, that the PIC is able to safely operate the UAS in a manner consistent with the exemption, including evasive and emergency maneuvers and maintaining appropriate distances from people, vessels, vehicles and structures.

i) Reasons Why An Exemption From The Requirements Of Section 91.7(a) Would Not Adversely Affect Safety.

The equivalent level of safety established by Section 91.7(a) will be maintained utilizing pre flight SOP, BVI will ensure that the UAS is in an airworthy condition based upon the UAS's compliance with its operating documents and as stated in the conditions and limitations herein.

Additionally, the FAA has previously granted relief from Section 91.7(a) specific to UAS, in circumstances similar, in all material respects, to those presented herein (e.g. Exemption Nos. 11062, 11063, 11064, 11065, 11066, 11067, 11080, 11109, 11110, 11112, 11136, 11138, 11150, 11153, 11156, 11157, 11158, 11159, 11160, 11161).

j) Reasons Why An Exemption From The Requirements Of Section 91.121 Would Not Adversely Affect Safety.

The equivalent level of safety established by Section 91.121 will be maintained because the altitude information of the UA will be provided to the PIC via GPS equipment and a radio communications telemetry data link, which downlinks from the UA to the GCS for active monitoring of the flight path and altitude. This altitude information, combined with BVI's operation of the UA within visual line of sight, at or below 500 feet AGL, will ensure a level of safety

equivalent to Section 91.121. The altitude information will be generated by GPS equipment installed onboard the aircraft. Prior to each flight, a zero altitude initiation point is automatically established by the UAS at ground level.

The FAA has previously granted relief from Section 91.121 specific to UAS, in circumstances similar, in all material respects, to those presented herein (e.g. Exemption Nos. 11062, 11063, 11064, 11065, 11066, 11067, 11080, 11109, 11112, 11136, 11138, 11150, 11153, 11156, 11157, 11158, 11159, 11160, 11161).

k) Reasons Why An Exemption From The Requirements Of Section 91.151(b) Would Not Adversely Affect Safety.

A grant of this exemption would ensure an equivalent level of safety established by 14 C.F.R. Section 91.151(b) as a result of (1) the technical specifications of the UAS; (2) the limitations on the proposed flight operations; and (3) the location of the proposed flight operations. Accordingly, BVI will ensure that it will safely operate the battery powered UA during daylight hours in VFR conditions.

Here, as in Exemption No. 11109, the technical specifications of the UAS; the limitations on the proposed flight operations; and the location of the proposed operations, will ensure an equivalent level of safety established by 14 C.F.R. Section 91.151(b). Furthermore, safety will be ensured as the UAS provide audible and visual warnings to the PIC at the GCS when the UAs experiences low battery voltage. At the critically low battery level, the UAS will descend and land automatically.

Significantly, previous exemptions granted by the FAA concerning

Section 91.151 establish that safety is not adversely affected when the technical characteristics and operating limitations of the UAS are considered. Relief has been granted for manned aircraft to operate at less than the minimums prescribed in Section 91.151, including Exemption Nos. 2689, 5745, and 10650. Moreover, the FAA has previously granted relief from Section 91.151 specific to UAS, in circumstances similar, in all material respects, to those presented herein (e.g. Exemption Nos. 8811, 10808, 10673, 11042, 11062, 11063, 11064, 11065, 11066, 11067, 11080, 11109, 11110, 11136, 11138, 11150, 11153, 11156, 11157, 11158, 11159, 11160, 11161).

Reasons Why An Exemption From The Requirements Of Sections 91.405(a),
 91.407(a)(1), 91.409(a)(1) & (a)(2), And 91.417(a) & (b) Would Not Adversely
 Affect Safety.

In seeking this exemption, BVI submits that the equivalent level of safety with regard to the regulatory maintenance and alteration requirements established by Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b) will be met as BVI will use only authorized technicians to perform maintenance on the UASs using the authorized methods, techniques, and practices.

Furthermore, BVI will document and maintain all maintenance records for the DJI UAS.

The UAS will be inspected as prescribed by the operating documents, BVI will maintain the equivalent level of safety established by Sections 91.405(a), 91.409(a)(1), and 91.409(a)(2).

Likewise, the exemption sought will not adversely affect safety as BVI will only use authorized technicians to preform maintenance on the UAS using the authorized methods, techniques, and practices

Furthermore, the exemption sought would maintain an equivalent level of safety established by Sections 91.407, 91.417(a) and 91.417(b), because all maintenance of the UAS will be performed by authorized technicians.

Maintenance will be documented and maintained utilizing the maintenance log.

Significantly, previous exemptions granted by the FAA concerning Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b) establish that safety is not adversely affected when the technical characteristics and operating limitations of the UAS are considered.

In consideration of BVI's proposed operating limitations, the operating documents, and the technical aspects of the DJI Phantom 2 Vision+ UAS, BVI submits that safety will not be adversely affected by granting exemption from 14 C.F.R. Sections 91.405(a), 91.407(a)(1) and (a)(2), 91.409(a)(2), and 91.417(a) and (b). The FAA has previously granted relief specific to UAS in circumstances similar, in all material respects, to those presented herein (e.g. Exemption Nos. 11062, 11063, 11064, 11065, 11066, 11067, 11080, 11109, 11110, 11112, 11136, 11138, 11150, 11153, 11156, 11157, 11158, 11159, 11160, 11161).

m) A Summary That Can Be Published In The Federal Register, stating: The Rules From Which Stephen J. Tyler Seeks Exemption:

Barton Ventures, Inc. seeks exemption from the requirements of 14 C.F.R Sections 61.113(a)&(b), 91.7(a), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b).

A Brief Description Of The Nature Of The Exemption Stephen J. Tyler Seeks:

This exemption will permit Barton Ventures, Inc. to commercially operate an Unmanned Aircraft System (UAS) for the purpose of conducting aerial video and photography over certain areas of the United States.

CONCLUSION

As set forth herein, BVI seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012 (FMRA), which will permit safe operation of the DJI Phantom 2 Vision+ UAS commercially, without an airworthiness certificate, for the limited purpose of conducting aerial video and photography over certain areas of the United States. By granting this Petition, the FAA Administrator will be fulfilling the Congressional mandate of the FAA Modernization and Reform Act of 2012, while also advancing the interests of the public, by allowing BVI to safely, efficiently, and economically operate the UAS commercially within the NAS.

WHEREFORE, in accordance with the Federal Aviation Regulations and the FAA Modernization and Reform Act of 2012, Section 333, BVI respectfully requests that the Administrator grant this Petition for an exemption from the requirements of 14 C.F.R Sections 61.113(a) & (b), 91.7(a), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b), and permit BVI to operate the UAS

commercially for the purpose of conducting aerial video and photography over certain areas of the United States. BVI respectfully requests that FAA exercise its authority to issue the exemption sought by BVI pursuant to the Federal Aviation Act, 85 P.L. 726 (1958), as amended (the "Act") without delay.

Sincerely,

J. David Barton Barton Ventures, Inc. 3049 Bay Shore Lane Suffolk, VA 23435