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

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

July 28, 2015

Exemption No. 12196
Regulatory Docket No. FAA–2015–1609

Mr. Clark Cleverly
Bird's Eye View Photography
961 Alta Vista Drive
Craig, CO 81301

Dear Mr. Cleverly:

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 May 4, 2015 you petitioned the Federal Aviation Administration (FAA) on behalf of Bird's Eye View Photography (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial 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.

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, Bird's Eye View Photography 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, Bird's Eye View Photography 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 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

Bird's Eye View
Real Estate Photography Company

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U.S Department Of Transportation
Docket Management System
1200 New Jersey Ave S.E.
Washington D.C. 20590

4 May 2015

Re: Request for Exemption under Section 333 of the FAA Modernization and Reform Act of 2012 and Part 11 of the Federal Aviation Regulations from 14 C.F.R 21(h); 14 C.F.R. 43.7; 14 C.F.R. 43.11; 14 C.F.R. 45.11; 14 C.F.R. 45.27; 14 C.F.R. 45.29; 14 C.F.R. 91.7(a); 14 C.F.R. 91.9(b)(2); 14 C.F.R. 91.9(c); 14 C.F.R. 91.103(b)(2); 14 C.F.R. 91.105; 14 C.F.R. 91.113(b); 14 C.F.R. 91.119(b) and (c); 14 C.F.R. 121; 14 C.F.R. 91.151; 14 C.F.R. 91.203(a) and (b); 14 C.F.R. 215; 14 C.F.R. 91.403; 14 C.F.R. 405 (a) and (b); 14 C.F.R. 91.407; 14 C.F.R. 409; and 14 C.F.R. 91.417.

To whom it may concern:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, Bird's Eye View Photography (BEV), an operator of Small Unmanned Aircraft Systems equipped to film and photograph real estate in rural areas in the state of Colorado and surrounding areas, applies for an exemption from the listed Federal Aviation Regulations to allow commercial operation of its UAS, so long as such operations are conducted within and under the conditions outlined or as may be established by the FAA as required by Section 333.

Approval of exemptions for BEV will allow commercial operations of UAS in rural, remote, low density areas in the state of Colorado and surrounding areas, for the purpose of real estate photography and videography. The pilot in command (PIC) has significant flight time with many UAS especially the one listed for commercial business use. The requested exemption should be granted because the proposed operations of the DJI Phantom 2, a small UASs that weighs 2.9 lbs., inclusive of battery and payload, conducted in the strict conditions outlined below, will provide an equivalent level of safety, as Congress intended, while still allowing commercial operations. The lightweight aircraft covered by the exemption are far safer than conventional operations conducted with manned helicopters and fixed-wing aircraft weighing thousands of pounds, containing highly flammable fuel, and operating in close proximity to the ground and people, as a similar UAS has been previously approved in Exemption No. 11138, Douglas Trudeau, Realtor®. The seven factors Congress directed the FAA to consider when approving Section 333 exemption petitions - size, weight, speed, operational capability, proximity to airports, proximity to populated areas, and operation within visual line of sight – each support the request. In particular, the aircraft are small, and will operate at slow speeds, close to the ground, far from airports and in a low risk, low population environment.

Thank you,

Clark Cleverly
Bird's Eye View Photography Owner

I. Publishable Summary

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

Applicant seeks an exemption from the following rules:

14 C.F.R 21(h); 14 C.F.R. 43.7; 14 C.F.R. 43.11; 14 C.F.R. 45.11; 14 C.F.R. 45.27; 14 C.F.R. 45.29; 14 C.F.R. 91.7(a); 14 C.F.R. 91.9(b)(2); 14 C.F.R. 91.9(c); 14 C.F.R. 91.103(b)(2); 14 C.F.R. 91.105; 14 C.F.R. 91.113(b); 14 C.F.R. 91.119(b) and (c); 14 C.F.R. 91.151; 14 C.F.R. 91.203(a) and (b); 14 C.F.R. 215; 14 C.F.R. 91.403; 14 C.F.R. 405 (a) and (b); 14 C.F.R. 91.407; 14 C.F.R. 409; and 14 C.F.R. 91.417.

Approval of exemptions for Bird's Eye View will allow commercial operations of UAS in rural, remote, low density areas in the of the state of Colorado, for the purpose of real estate photography and videotaping. The pilot in command (PIC) has logged significant flight time with many UAS especially the DJI Phantom 2. The requested exemption should be granted because proposed operation of the DJI Phantom 2, a small UASs weighing 2.9 lbs., inclusive of battery and payload, conducted in the strict conditions outlined below, will provide an equivalent level of safety, as Congress intended, while still allowing commercial operations. The lightweight aircraft covered by the exemption are far safer than conventional operations conducted with helicopters and fixed-wing aircraft operating in close proximity to the ground and people. The seven factors Congress directed the FAA to consider when approving Section 333 exemption petitions - size, weight, speed, operational capability, proximity to airports, proximity to populated areas, and operation within visual line of sight – each support the request. In particular, the aircraft are small, and will operate at slow speeds, close to the ground, far from airports and in a low risk, low population environment.

II. Petitioner's Contact Information

Bird's Eye View Photography
961 Alta Vista Dr. Craig, CO 81301
Tel: 970-629-8890
Email: cpcleverly@gmail.com

III. Birds Eye View Operations

A. The UAS

The requested exemption will permit the operation of the DJI Phantom 2. The Phantom 2 is a small, unmanned multirotor aircraft, weighing 2.9 lbs. inclusive of batteries, the propeller guard, and technical payload. This rotorcraft can operate at a speed up to 29 knots, but BEV will limit the speed to no more than 22 knots. The FAA has previously granted Exemption No. 11138, allowing commercial flight of a member of the DJI Phantom 2 family, the Phantom 2 Vision+. Exemption No. 11396 for Owlcam LLC.

The UAS will have the following specifications:

Airframe: DJI Phantom 2
Flight Control System: Naza – M V2, which includes the main controller (MC), internal measurement unit (IMU) with built-in internal sensor, barometric altimeter, which measures attitude and altitude, compass, GPS, and radio receiver (Rx).
Transmitter (Tx): Futaba T14SG
Receiver (Rx): Internal to DJI Phantom 2
Data Link: 2.4G Data Link
Video Link: DJI AVL 58
Gimbal: H3-3D Zenmuse Gimbal for GoPro Hero
Camera: Go Pro Hero 4 Black
Batteries: 3S LiPo, 5200-mAh, 11.1V

B. Flight Conditions

The UAS will be flown in airspace under 400 feet above ground level ("AGL") and under controlled conditions in rural areas. The majority of flights will take place under 100 feet AGL. BEV's operations will occur in rural, remote areas in Colorado. BEV will avoid congested and densely populated areas and will work with local Flight Standard District Offices to determine safe areas to fly in. BEV will only operate its UAS in VMC, visual meteorological conditions: no less than 500 feet below and no less than 2,000 feet horizontally from a cloud or when visibility at least 3 statute miles from the PIC. The flight crew will always make a safety assessment of the risk of every operation, and will only operate when it is determined that no undue hazards are present.

C. Flight Operations

BEV's flight operations require that the UAS will always be in the line of sight of both a PIC and a monitor specialist, who will also act as the visual observer (VO). Flights will be at altitudes of no more than 400 feet AGL, and at speeds less than 20 knots. Despite the 400 ft. AGL limit, most flights will take place at an altitude of no more than 100 ft. AGL.

The PIC has over 3 years experience with RC Aircraft and UAS. Logging over 100 hours with the UAS specified previously.

The day before an operation, the flight crew will visit and inspect for safety the area in which operations will take place. The flight crew will also contact any neighbors to notify them of the filming. The UAS will only fly over land, which it has permission from the landowner or landowner's agent to fly above. The flight crew will also have notices to leave in mailboxes, informing neighbors of the planned UAS operations. The flight crew will also conduct a safety briefing with the property owners.

Flights will take place on parcels of land that are at least approximately an area of half an acre to a full acre. Operations will not take place in congested or densely populated areas. The flight crew will obtain all aeronautical and weather data information for that day.

On the day of filming, the flight crew will wear florescent shirts or vests to increase visibility. Prior to leaving for an operation, the PIC and VO will briefly turn on the UAS to ensure that everything is connected and that the UAS is in operational and a safe condition.

Upon arrival at a location for filming or photography, the flight crew will conduct an aerial and ground preflight inspection.

The flight crew will then mark off with stakes and florescent traffic tape to designate the aircraft's "home area," which will be a circle of approximately 20 feet in diameter to mark the UAS take-off and landing zone.

Note: If the radio control link is broken during flight, the autopilot system will recognize this broken control link and cause the UAS to automatically return to the home area as recorded by the GPS instrumentation.

The flight crew will conduct a physical inspection of the aircraft as set out in Appendix D of the Operations Manual.

The PIC will then conduct a pre-flight inspection as outlined in Appendix D of the Operations Manual.

At any time during the flight, should the aircraft lose connection with the remote control, the flight control system failsafe will be activated automatically, and the aircraft will to return to the previously-set home area and land, in order to reduce injuries or damage. If any of the following situations occur, the aircraft will not receive a signal, and enter into this failsafe mode:

- The remote control is powered off;

- The aircraft has flown out of the effective communication range of the remote control, which is no greater than 1,000 meters (3,280 feet);

- There is an obstacle obstructing the signal between the remote control and the aircraft, essentially reducing the distance the signal can travel; or

- There is interference causing a signal problem with the remote control.

For further information regarding the DJI Phantom 2's failsafe functions, please refer to Exhibit 1, the DJI User Manual.

The DJI Phantom 2 also has "no fly zones" programmed into it, which will prevent flights in restricted zones. Although BEV will take every precaution to avoid flying in airspace other than class G airspace, the preprogrammed "no fly zones" will add an additional level of safety to operations. For further information regarding the DJI's "no fly zones," please refer to the DJI User Manual.

Other than this automated feature of the DJI Phantom 2, the PIC will always fly the UAS manually. The PIC and VO have tested the UAS in a variety of weather conditions, including on overcast days and in winds up to 15 knots. The PIC and VO will never fly the UAS in any amount of rain, due to decreased visibility and the potential for water damage to the UAS. The PIC and VO have also

practiced emergency bailout procedures by having the UAS return to home. In the event of an emergency, the PIC will release the joysticks. This will make the UAS automatically hover in place and maintain its position and altitude, and the PIC and VO can determine if and when it is safe for the UAS to return to the home location.

During flights, the PIC and the VO will be standing next to each other, in oral communication at all times at the ground station.

Flights will be limited to 18 minutes, which is 75% of the total battery life of the DJI Phantom 2. Once the UAS has landed, the PIC will conduct a post-flight checklist as set out in Appendix D of the Operations Manual.

IV. Privacy

There is little concern that the proposed flights will cause invasions of privacy because all flights will occur over rural property with the property owner's prior knowledge and consent. The only people and/or property to be filmed will have requested and hired BEV for the express purpose of filming and photographing the people and/or property with the UAS.

No attempt will be made to identify any individuals filmed or photographed during the flights who have not consented to be filmed or photographed, except in cases where they are trespassing upon or damaging customer property, or interfering with the applicant's or its customers' operations

V. Aircraft and Equivalent Level of Safety

BEV proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate with the limitations listed herein. These limitations provide for at least an equivalent or higher level of safety to operations under the current regulatory structure.

These limitations and conditions to which BEV agrees to be bound when conducting commercial operations under an FAA issued exemption include:

1. The UAS will weigh significantly less than fifty (50) lbs. The DJI Phantom 2 weighs 2.9 lbs., inclusive of battery and payload.
2. Flights will be operated within line of sight of a pilot and VO.
3. Maximum total flight time for each operational flight will be 75% of battery life. Flights will be terminated once the battery reaches a 25% level. This data will be available through telemetry data submitted to the transmitter and monitor.
4. The UAS will remain clear and yield the right of way to all other manned operations and activities at all times.
5. Flights will be operated at an altitude of no more than 400 feet AGL. Despite this limitation, the majority of flights are anticipated to operate at no more than 100 feet AGL.
6. Minimum crew for each operation will consist of the UAS PIC and VO.
7. A briefing will be conducted in regard to the planned UAS operations prior to each day's activities. It will be mandatory that all personnel who will be performing duties in connection with the operations be present for this briefing.

8. The operator will obtain a FAA UAS Civil COA prior to conducting any operations under this grant of exemption.
9. The PIC is a veteran pilot of UAS logging over 100 hours of flight time with specified model and countless hours with many more UAS
10. The PIC has practiced the DJI Phantom 2 for approximately 100 hours over the course of 6 months. Practice flights have been in a variety of weather conditions, including in winds up to 15 knots and on overcast days. Practice flights have also included using the DJI Phantom 2's emergency return-to- home features.
11. The PIC and VO will at all times be able to communicate by voice and be stationed next to each other at the ground station.
12. Written and/or oral permission from the landowner or authorized agent, of the land over which the UAS will be flying.
13. All required permissions and permits will be obtained from territorial, state, county or city jurisdiction including local law enforcement, fire, or other appropriate governmental agencies.

14. The UAS will have the capability to abort a flight in case of unexpected obstacles or emergencies. The PIC and VO have practiced the emergency failsafe procedures, as described above on pages 6-7.
15. If the UAS and its controller disconnects during flight, the system's failsafe protection will come to the rescue and the UAS will return to home and land automatically, rather than flying off uncontrollably or landing at an unknown location.
16. Additionally, the UAS that will be used, a DJI Phantom 2, weighs no more than 2.9 lbs., inclusive of battery and payload. Approval of commercial flights as outlined in this petition present no national security issue.

    Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012--size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security – provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of applicant's UAS pursuant to BEV's rules of operation appended hereto.

VI. Public Interest and Safety

Use of the UAS will increase ground safety by eliminating the need to have a manned, aircraft take the videos or photographs. As the FAA recognized in the Douglas Trudeau, Realtor® Exemption, No. 11138:

"Manned aircraft conducting aerial filming and photography can weigh 5,000 lbs. or more, are operated by an onboard pilot and may carry other onboard crewmembers, as well as 100 gallons or more of fuel. The petitioner's [UAS] weighs less than 3 lbs. The pilot and crew will be remotely located from the aircraft. The limited weight reduces the potential for harm to persons or damage to property in the event of an incident or accident. The risk of an onboard pilot and crew during an incident or accident is eliminated with the use of a [UAS] for the proposed operation."

As in the cited exemption, BEV will use a member of the DJI Phantom family, the DJI Phantom 2. This UAS also weighs 2.9 lbs., inclusive of battery and payload.

During BEV's operations, the PIC and VO will similarly be safely on the ground, directing the DJI Phantom 2 at altitudes no higher than 400 feet AGL. BEV will not fly over congested or densely populated locations.

BEV flight crew will make a safety assessment prior to each operation, and will only operate when there are no undue risks.

The small weight, 2.9 lbs., is less than the size envisioned in Section 334(c)(2)(C) of the FAA Modernization and Reform Act of 2012, which allows government agencies "to operate unmanned aircraft weighing 4.4 pounds or less, if operated –

1. (i) within the line of sight of the operator;
2. (ii) less than 400 feet above the ground;
3. (iii) during daylight conditions;
4. (iv) within Class G airspace; and
5. (v) outside of 5 statute miles from any airport, heliport, seaplane base, spaceport, or other location with aviation activities."

Congress's determination that government agencies should be allowed to operate such aircraft in these situations, with no further restrictions on location, population density, or pilot experience and training, indicates that Congress did not believe that aircraft of this size and weight warranted additional attention.

As the FAA recognized in Exemption No. 1162, manned aircraft can pose a much greater threat to its occupants as well as to individuals on the ground. Additionally, a much greater space will be necessary for takeoff, landing, and operations than would be necessary for the 2.9 lbs. UAS that BEV requests an exemption to use and may render filming an area impossible, due to the rural areas BEV wishes to operate in, and the low height footage BEV wishes to shoot.

VII. Regulations from Which Exemption is Requested

A. 14 C.F.R. 21(h): Airworthiness Certificates

BEV requests an exemption from 14 C.F.R. 21(h). This exemption meets the requirements for an equivalent level of safety pursuant to Section 333 based on the small size, light weight, relatively slow speed, and use in controlled environments on private land, as described previously in this petition. In Exemption No. 11138, the FAA stated that the Secretary of Transportation has determined that a member of the DJI Phantom 2 family, the Phantom 2 Vision+ meets the statutory conditions of Section 333, considering the size, weight, speed, and limited operating area associated with the aircraft and its operation. See Exhibit 10 at 11.

Equivalent level of safety: BEV's proposed exemption meets the requirements for an equivalent level of safety of this section, pursuant to Section 333, based on the following factors:

- • Small size: the DJI Phantom 2 has a diagonal length of 350 millimeters, 13.77 inches.
- • Light weight: 2.9 lbs.
- • Relatively slow speed: the PIC will limit the UAS's speed to 20 knots (23 miles per hour).
- • Operational capacity: currently, the DJI Phantom 2 can operate for 25 minutes. Flights will be terminated when 25% of the battery life remains. The DJI Phantom 2 can travel no more than 1,000 meters, 3280.84 feet, from the receiver.
- • Proximity to airports: BEV will only operate in Class G airspace, and will notify ATC and the local FSDO prior to operations, as described previously.

- • Proximity to populated areas BEV will avoid the yellow congested areas in the Colorado Sectional Aeronautical Charts.
- • Operation within visual line of sight: The PIC will always fly the UAS within its line of sight.
- • Location: BEV will operate in rural, remote areas, with low population density, in the state of Colorado to take photographs and video.
- • Altitude: no more than 400 feet AGL, but the majority of flights are anticipated at no more than 100 feet AGL.
- • Restricted area in which the UAS will be operated: as described above, prior to the day of filming, the flight crew will visit with neighbors to inform them of the filming over the consenting landowner's property. During filming, which will occur in rural areas, the flight crew will set out stakes and florescent tape to mark the "home area" for the UAS, and will monitor the area to make sure no one comes into the flight area. Should any nonparticipating individual enter the flight area, operations will immediately cease.
- • Substantial experience of the PIC: the PIC has countless hours of flight time with UAS and over 100 hours with specified DJI UAS.

B. 14 C.F.R. 43.7: Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration.

BEV requests an exemption from 14 C.F.R. 43.7. This part provides, inter alia, that the holder of a mechanic certificate or a repair station certificate may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service. As described previously, BEV's flight crew will be capable to repair and maintain the DJI Phantom 2 to meet an equivalent level of safety pursuant to Section 333 for the type of sUAS, its intended use, and the rural operating environment.

C. 14 C.F.R. 43.11: Content, form, and disposition of records for inspections conducted under parts 91 and 125 and §§135.411(a)(1) and 135.419 of this chapter.

BEV requests an exemption from 14 C.F.R. 43.11. This part provides, inter alia, that maintenance record entries be maintained and for the listing of discrepancies and placards by inspectors. The UAS, due to its small size, does not have room for placards to be placed in or on it and no inspections for UAS have been certified by FAA at the present time.

Equivalent level of safety: BEV will keep log books of all maintenance and repairs at the ground station, as envisioned in the FAA Memorandum subject, "Interpretation regarding whether certain required documents may be kept at an unmanned aircraft's control station," dated August 8, 2014. This request provides an equivalent level of safety as 14 C.F.R. 43.11 because the documentation will be at the ground station with the PIC, where it will be useable in case of an emergency, rather than with the UAS which could be up to 1,000 meters from the operator.

D. 14 C.F.R. 45.11: Marking of products.

BEV requests an exemption from 14 C.F.R. 45.11. This part provides, inter alia, that the manufacturers of aircraft, engines, propellers, mark such aircraft, engines, or propellers with an approved fireproof identification plate. The UAS, due to its small size, does not have room for fireproof placards to be placed in it. Any required placards could become hazardous, due to the additional weight and strain placed on

the UAS. Any additional weight or placards on the 2.9 lbs. UAS could create a risk, due to the very small size and nature of the DJI Phantom 2.

Equivalent level of safety: BEV's PIC and VO will keep information related to the DJI Phantom 2, including the user manual, at the ground control station and affix its N-Number, once obtained from the FAA Registration Office, on the "arms" of the UAS as large as practicably possible. This exemption provides an equivalent level of safety to 14 C.F.R. 45.11 because the relevant documentation containing the serial number will be at the ground station with the PIC, where it will be useable in case of an emergency, rather than with the UAS. In addition, the fuselage is marked with "DJI," the manufacturer of the UAS.

E. 14 C.F.R. 45.27: Location of marks; nonfixed-wing aircraft

BEV requests an exemption from 14 C.F.R. 45.27. This part provides, inter alia, that each operator of a rotorcraft must display on that rotorcraft horizontally on both surfaces of the cabin, fuselage, boom, or tail the marks required by §45.23. The UAS, due to its small size, does not have a cabin, fuselage, boom or tail to display the marks required by §45.23.

Equivalent level of safety: Once BEV receives its N-Number, it will display these marks on the "arms" of the aircraft as large as practicably possible. This exemption provides an equivalent level of safety to 14 C.F.R. 45.27 because the UAS will be registered with the FAA Aircraft Registration Branch. In the event of incident, the UAS will be traceable to BEV

F. 14 C.F.R. 45.29: Size of marks

BEV requests an exemption from 14 C.F.R. 45.27. This part provides, inter alia, at subpart (3) that the registration marks for rotorcraft must be at least 12 inches high. The UAS, due to its small size, does not have any surface area large enough to display marks anywhere near 12 inches high.

Equivalent level of safety: BEV will affix its registration number as large as practicably possible on its "arms" once it obtains the N-Number. This exemption provides an equivalent level of safety to 14 C.F.R. 45.29 because the UAS will be registered with the FAA Aircraft Registration Branch. In the event of incident, the UAS will be traceable to BEV.

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

The FAA has previously stated that no exemption is required for a member of the DJI Phantom 2 family. BEV requests the same determination to be made for its DJI Phantom 2.

Alternatively, BEV requests an exemption from 14 C.F.R. 91.7(a). The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft should this exemption be granted, no standard will exist for determining airworthiness.

Equivalent level of safety: BEV will keep the DJI Phantom 2's maintenance and safety information at the ground station, where it will be readily accessible to the PIC and VO before, during, and after operations. This exemption provides an equivalent level of safety as 14 C.F.R. 91.7(a) because the PIC will be able to make the determination of whether the UAS is in an airworthy mechanical and electrical condition, in accordance with 14 C.F.R. 91.7(b).

H. 14 C.F.R. 91.9(b)(2): Civil aircraft flight manual, marking, and placard requirements.

The FAA has previously stated that no exemption is required for a member of the DJI Phantom 2 family. Exhibit 10 at 17. BEV requests the same determination to be made for its DJI Phantom 2.

Alternatively, BEV requests an exemption from 14 C.F.R. 91.9(b)(2). This part provides:

"(b) No person may operate a U.S.-registered civil aircraft...

(2) For which an Airplane or Rotorcraft Flight Manual is not required by §21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof."

First, there does not currently exist a method of approving manuals for UAS. Second, given the size and configuration of the UAS, there is no space to carry such a flight manual on the aircraft. In addition, carrying the manual on the aircraft would be pointless, since there is no pilot or other person on board who could read or use it. On August 8, 2014, the FAA issued a memorandum entitled “Interpretation regarding whether certain required documents may be kept at an unmanned aircraft’s control station.” This document stated, in part “maintaining these documents at the pilot’s control station would meet the intent of the rule as the pilot would be able to produce the documents for his or her own information or to an FAA inspector.” See Exhibit 9.

Equivalent level of safety: BEV will keep its flight manual at the ground station, where both the PIC and VO can access it. An equivalent level of safety to 14 C.F.R. 91.9(b)(2) is provided because the intent of this rule – the pilot having access to this material during flight – is met.

I. 14 C.F.R. 91.9(c): Civil aircraft flight manual, marking, and placard requirements.

BEV requests an exemption from 14 C.F.R. 91.9(c). This part provides: "(c) No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of this chapter."

As stated above, BEV will obtain an N-Number from the FAA Registration Office and the UAS, due to its small size, does not have room to contain fireproof placard or to display aircraft marks in a conventional size. However, once BEV obtains an N-Number, it will place the number on the “arms” of the aircraft as large as practicably possible.

Equivalent level of safety: BEV will obtain its N-Number from the FAA Registration Office and affix it to the “arms” of the aircraft as large as practicably possible. An equivalent level of safety to 14 C.F.R. 91.9(c) is met because the UAS will be registered with the FAA and identifiable in the event of an incident.

J. 14 C.F.R. 91.103(b)(2): Preflight action.

BEV requests an exemption from 14 C.F.R. 91.103(b)(2) to the extent that is applicable. This part provides:

"Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include—... (b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information: ... (2) For civil aircraft other

than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature."

BEV's PIC in fact will, before beginning a flight, become familiar with all available information concerning that flight, including the aircraft performance under expected elevations, the gross weight of the aircraft (which will be no more than 2.9 lbs.), and the wind and temperature. As the flights of the UAS will not be at airports the information required of Part 91.103(b)(2) does not apply.

Equivalent level of safety: BEV shall perform preflight operations as outlined previously in this petition, and flights will not be at airports. An equivalent level of safety to 14 C.F.R. 91.103(b)(2) will be met because the PIC will become familiar with the conditions prior to the flight, including the aircraft performance under expected elevations, the gross weight of the aircraft (which will be no more than 2.9 lbs), and the wind and temperature.

K. 14 C.F.R. 91.105: Flight crewmembers at stations.

BEV requests an exemption from 14 C.F.R. 91.105 since this part is not applicable due to the UAS carrying no flight crewmembers.

Equivalent level of safety: BEV will not operate the aircraft unless someone is at the controls at all times, and each flight will be manually flown, with the exception of the DJI Phantom 2's automated safety features. This will provide an equivalent level of safety to 14 C.F.R. 91.105 because the flight crew will be at their stations at all times during the flight. The stations will not be on the aircraft but on the ground.

L. 14 C.F.R. 91.113(b): Right-of-way rules: Except water operations.

BEV requests an exemption from 14 C.F.R. 113(b) to the extent that it applies to overhead aircraft operating at or above 500 feet AGL as the UAS will be operating no higher than 400 feet AGL. This part provides:

"(b): General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear."

For example, if another aircraft is operating overhead at 10,000 feet AGL there is no danger posed to that other aircraft if the UAS is operating under it or ahead of it at or beneath 400 feet AGL. Despite this, should another aircraft enter the area in which BEV is operation, because the flight will be within his line of sight, the PIC will be able to give right of way to that aircraft.

Equivalent level of safety: BEV will operate its UAS to see and avoid and give way to other aircraft that should enter airspace at or below 400 feet AGL, and will give right-of-way to manned aircraft. All flights will be in class G airspace and the majority of flights will be at no more than 100 feet AGL, which will create a very slim chance that BEV's operations will interfere with a manned aircraft's flight. This will provide an equivalent level of safety to 14 C.F.R. 91.113(b) because the UAS has significantly greater

mobility than a much larger, manned aircraft. As a result, the PIC will be able to react and respond much more quickly than the other pilot.

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

BEV requests an exemption from 14 C.F.R. 91.119 subpart (c). This regulation provides:

"Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes...

(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."

BEV will not operate the UAS any higher than 400 feet AGL.

Equivalent level of safety: BEV will operate the UAS no higher than 400 feet AGL, and it is anticipated that the majority of operations will be no higher than 100 feet AGL. BEV will not operate in congested areas, and will work with the local FSDO when planning operations. BEV's flight crew will make a safety assessment prior to each operation, and only operate after it determines that there is no undue hazard present.

The 400 feet AGL maximum will provide an equivalent level of safety to 14 C.F.R. 91.119(c) because, since 1981 with AC 91-57, this height has been an operating standard for model aircraft. Additionally, in Section 334(c)(2)(C), Congress determined that UAS operated by public agencies flying UAS the size of and larger than BEV's DJI Phantom 2 could fly up to 400 feet AGL.

N. 14 C.F.R. 91.121: Altimeter Settings

BEV requests an exemption from 14 C.F.R. 91.121. This Part provides guidelines for altimeter use in maintaining the cruising altitude or flight level of the aircraft. BEV is not requesting a general exemption from the requirement that its UAS have an Altimeter. The DJI Phantom 2's flight controller will have an internal measurement unit ("IMU"). The IMU has a built-in internal sensor and a barometric altimeter that measures both attitude and altitude. Rather, BEV requests an exemption from the requirement to set its altimeter to a station along the route, of out of an airport, because the DJI Phantom 2 is not traveling point-to-point and is limited in the distance it can travel from the PIC. Additionally, BEV will not be flying into or out of an airport.

Equivalent level of safety: The requested exemption provides an equivalent level of safety to 14 C.F.R 91.121 because BEV will not operate the UAS above 400 feet AGL in a sustained cruising flight mode such as a manned aircraft will typically fly. The PIC will at all times be controlling the maximum height of the UAS through the telemetry features of the DJI controller. Additionally, the UAS will be operated within the line of sight of the PIC. The FAA has previously granted this exemption for similar proposed operations.

O. 14 C.F.R. 91.151: Fuel requirements for flight in VFR conditions.

The UAS BEV fly is powered by electricity, using lithium polymer batteries that currently have a flight limit of approximately no more than 25 minutes. Therefore, due to the limitations of the batteries, it is

currently impossible to comply with Part 91.151. However, the UAS will be operated in a manner with at least the equivalent level of safety as that of a manned aircraft complying with Part 91.151.

Operation of an UAS with less than 30 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was intended to alleviate. During the entire flight, the PIC will always have a visual line of sight of the UAS and the VO will be monitoring the battery life via the telemetry display on the laptop at the ground station. The UAS will always have enough power to land safely, given the minimum level of reserve capacity of the batteries.

BEV will limit flights to 75% of battery capacity. With the battery BEV currently uses, the 75% point occurs at 18 minutes, leaving 7 minutes for the UAS to reach the planned landing zone. This amount of time will be more than sufficient for the PIC to safely return to and land in the "home area." As battery power increases, the number of minutes the UAS can operate before reaching the 75% mark will also increase. As new batteries are obtained and put into use, BEV will continue to terminate flights after 75% of battery power has been used.

Applicant believes that an exemption from 14 CFR §91.151(a) is consistent with the scope of similar exemptions already granted to other operations.

Equivalent level of safety: BEV will limit flights 75% of battery power. The proposed exemption meets an equivalent level of safety to 14 C.F.R. 91.151 because, given the limitations on BEV 's proposed operations and the location of those operations, a reduced minimum power reserve for flight in daylight VFR conditions is reasonable.

P. 14 C.F.R. 91.203(a) and (b): Civil aircraft: Certifications required.

The FAA has previously determined that exemption from 14 C.F.R. 91.203(a) and (b) is not necessary. See Exhibit 10 at 17.

Alternatively, BEV requests an exemption from 14 C.F.R. 91.203(a) and (b). This section provides in part:

"(a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate...

(2) An effective U.S. registration certificate issued to its owner...

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew."

First, there are currently no procedures in effect for providing airworthiness certificates for UAS. However, as a condition to the approval of exemption, BEV will display its N-Number, once received, on the UAS, and the operator will have, at the ground station, the user manual for the DJI Phantom 2.

Second, the UAS BEV will use the DJI Phantom 2, which has an equivalent level of safety as a manned aircraft with an airworthiness certificate. Please refer to Exhibit 10, Exemption No. 11138, as BEV's DJI

Phantom 2 is in the same UAS family as the DJI Phantom 2 Vision+, which was the subject of that exemption. This UAS provides a number of safety features, including the automatic return to home failsafe discussed in detail above.

Because of the use of GPS with the UAS, the operator will set the initial location of flight takeoff ("home position") and if the radio control link is broken, the autopilot system will recognize this broken control link and cause the UAS to automatically return to the home position as recorded by the GPS instrumentation. Exhibits 1-7. Additionally, because the UAS team will mark off an area with traffic cones that has a 20 ft. radius, approximately 30 ft. from the operators that will be used as the “home position” for the UAS to return, no one will be standing in the way of the path.

These safety enhancements provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under Subpart H. Application of these same criteria demonstrates that there is no credible threat to national security posed by the UAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial payload.

In the restricted environment and under the conditions proposed, operation of the UAS will be at least as safe as a conventional aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate but without the restrictions and conditions proposed. BEV will not accept assignments from clients that would take place in Class B, C, D, or E airspace. BEV will avoid flying over congested and populated areas and will work with local FSDO to avoid these areas when planning operations.

Equivalent level of safety: The UAS to be operated hereunder is 2.9 lbs. inclusive of batteries and technical payload, carries neither a pilot nor passengers, and carries no explosive materials or flammable liquid fuels. The UAS operating under this exemption will be tightly controlled and monitored by the operator and the observer, and in compliance with local public safety requirements, to provide security for the area of operation.

Q. 14 C.F.R. 91.215: ATC Transponder and Altitude Reporting Equipment and Use

This section requires that installed Air Traffic Control (ATC) transponder equipment must meet specific performance and environmental requirements, and aircraft must be equipped with an operable coded radar beacon transponder.

There are presently no known commercially available ATC transponders that meet the payload requirements of a UAS and are available at reasonable cost. However, because the UASs used by BEV will not be flying into or near airports, and will fly no higher than 400 feet AGL, there is very low risk of collision with any manned aircraft. In addition, because there will be no need to have contemporaneous communication with ATC Control, due to the short distances, short flight times, and restricted altitude the UAS will operate within, BEV requests an exemption from this section. Additionally, the UAS is too small to contain ATC transponder equipment in any form factor that is known to be available commercially.

Equivalent level of safety: An equivalent level of safety to 14 C.F.R. 91.215 will be met because BEV will not fly its UAS into or near airports, and all operations will be below 400 feet AGL, so there is very low risk of collision with any manned aircraft. BEV will give the right of way to any manned aircraft that do appear.

R. 14 C.F.R. 91.403: General

This section requires that the owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition. BEV will adhere to this requirement. However, this Section also limits maintenance to that "prescribed in this subpart and other applicable regulations, including part 43 of this chapter." Because of this limitation, and because of the exemptions under Part 43 requested above, BEV requests an exemption from this Section.

This exemption meets the requirements for an equivalent level of safety pursuant to Section 333 based on the small size, light weight, relatively slow speed, and use in controlled rural environments on private, secured land, as described previously in this petition.

Equivalent level of safety: To achieve an equivalent level of safety to 14 C.F.R. 91.403, BEV will maintain its UAS in an airworthy condition and adhere to all manufacturer requirements for inspecting and maintaining the DJI Phantom 2. BEV will keep records of maintenance to the UAS, and these records will be available to the PIC and VO before, during, and after operations of the UAS.

S. 14 C.F.R. 91.405 (a) and (d): Maintenance Required

This section requires that aircraft be inspected as prescribed by Section E, 14 C.F.R. §§91.401-91.421. As shown below, BEV is applying for an exemption for these sections, due to the fact that its operators will inspect the UAS prior to each flight and keep maintenance records of all parts that are replaced, in accordance with DJI's instructions. Because the Sections discussed below are concerned with manned aircraft, and as such have inspection requirements designed for the safety of passengers, they are inapplicable to BEV.

BEV is also applying for an exemption to subpart (d) of this section, which requires a placard to be installed and references §43.11. As noted previously, BEV requests an exemption to the placard requirement, because, due to the small size of the UAS, there is no room to place the placard.

Despite the requested exemption from subparts (a) and (d) of this section, BEV will follow subparts (b) and (c) of this subpart.

Equivalent level of safety: To achieve an equivalent level of safety to 14 C.F.R. 91.405(a) and (b), BEV will keep logbooks detailing all maintenance and repairs to the UAS. The logbooks will be available to the PIC and VO before, during, and after UAS operation. Prior to conducting post-maintenance operations, the flight crew will conduct a test flight to ensure that the UAS functions properly. The FAA has previously determined that following the manufacturer's requirements for maintenance, inspection, and record keeping are sufficient to ensure that safety is not adversely affected.

T. 14 C.F.R. 91.407: Operation after maintenance, preventive maintenance, rebuilding, or alteration

This section requires that any aircraft which "has undergone maintenance, preventative maintenance, rebuilding, or alteration unless . . . [i]t has been approved for return to service by a person authorized under § 43.7 of this chapter . . .."

However, BEV has requested an exemption from §§ 43.7 and 43.11 as described previously. The capability of the operators to maintain and repair the UAS meets the requirements for an equivalent level of safety pursuant to Section 333 for both the type of UAS, its intended use, and the rural operating environment. Additionally, due to the small size of the UAS, there is no room to place inspection placards.

Therefore, because BEV has requested an exemption from 43.7 and 43.11, BEV respectfully requests an exemption from 91.407. The PIC, who holds a commercial pilot's certificate, will conduct maintenance on the UAS and keep logs of the battery cycle and repairs needed on the body or the propellers of the DJI Phantom 2.

Equivalent level of safety: The proposed exemption will meet an equivalent level of safety to 14 C.F.R. 91.407 because BEV will regularly inspect and maintain its UAS in accordance with the DJI operator manual, and keep detailed inspection and maintenance records that will be available to the PIC and VO before, during, and after operations. Prior to conducting post- maintenance operations, BEV will conduct a test flight to ensure that the UAS functions properly.

U. 14 C.F.R. 91.409: Inspections

This section lays out specific requirements for inspections of aircraft. BEV respectfully requests an exemption from these requirements because they are intended to maintain the safety of manned aircraft significantly larger and capable of significantly longer flights than is UAS. BEV's pre-flight and post-flight inspections meet or exceed the level of safety achieved by adherence to 14 C.F.R. 91.409.

Equivalent level of safety: As discussed above, BEV has an inspection procedure that provides an equivalent level of safety to 14 C.F.R. 91.409. Before and after each flight, the flight crew will conduct an inspection of the UAS as described previously.

V. 14 C.F.R. 91.417: Maintenance records

BEV respectfully requests an exemption from this Section, as it is only applicable for aircraft with an airworthiness certificate. Because BEV will not have an airworthiness certificate, this Section is inapplicable.

Equivalent level of safety: The requested exemption will meet an equivalent level of safety to 14 C.F.R. 91.417 because BEV will keep detailed maintenance records on every part as it is replaced, including but not limited to propellers, batteries, and electrical components. The detailed maintenance records will be accessible to the PIC and the VO before, during, and after operations.

# Additional Sources/ Manufacturer Information

DJI 2 USER MANUAL URL LINK

http://download.dji-innovations.com/downloads/phantom_2/en/PHANTOM2_User_Manual_v1.4_en.pdf

DJI 2 Specs Link

http://www.dji.com/product/phantom-2/spec

No Fly Zones feature link

http://www.dji.com/fly-safe/category-mc

DJI 2 Features

http://www.dji.com/product/phantom-2/feature