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

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

May 5, 2015

Exemption No. 11487
Regulatory Docket No. FAA–2015–0316

Mr. David A. Culler, Jr.
CEO
HAZON Solutions, LLC
545 South Birdneck Road, Suite 201-B
Virginia Beach, VA 23451

Dear Mr. Culler:

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 February 4, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of HAZON Solutions, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct crisis response support, including search and rescue, damage assessment, insurance claims assessment, and enhancing disaster site situational awareness for first responders.

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.

Discussion of Public Comments:

There was one comment in support of the petitioner's request.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2, DJI S1000+, Draganflyer X4-ES, Penguin V2, and Fire Fly 6.

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 relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, HAZON Solutions, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, HAZON Solutions, LLC is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2, DJI S1000+, Draganflyer X4-ES, Penguin V2, and Fire Fly 6when 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 May 31, 2017, unless sooner superseded or rescinded.

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

United States Department of Transportation Docket Management System
1200 New Jersey Ave, SE
West Building Ground Floor Room W12-140
Washington, DC 20590

RE: Exemption Request Under Section 333 of the Federal Aviation Administration Modernization and Reform Act of 2012 and Part 11 of the Federal Aviation Regulations

Dear Sir or Madam:

Pursuant to Section 333 of FAA Modernization Act of 2012 and 14 CFR Part 11, HAZON Solutions, LLC (HAZON) developer and operator of Small Unmanned Aircraft Systems ("sUAS"), equipped to support crisis response, including but not limited to search and rescue, damage assessment, insurance claims assessment, and enhancing disaster site situational awareness for first responders and others, hereby applies for an exemption from the listed Federal Aviation Regulations ("FARs") to allow commercial operations of it's sUAS, so long as such operations are conducted within and under the conditions and limitations outlined herein or as may be established by the FAA as required by Section 333.

These limitations provide for at least an equivalent or even higher level of safety to operations under the current regulatory structure specifically, a safety enhancement to crisis response support conducted by manned aviation operations.

HAZON Solutions will use sUAS for crisis response to allow for an initial assessment and overall evaluation of the hazardous situation, reducing the need for individual personnel to be unnecessarily placed at risk. Therefore it is in the best interest of the Public for the FAA to approve the requested exemptions.

Sincerely,

David A Culler Jr.
CEO, HAZON Solutions, LLC

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION WASHINGTON, DC

Regulatory Docket No. _____

IN THE MATTER OF THE PETITION FOR EXEMPTION OF: HAZON SOLUTIONS, LLC
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS SECTIONS 61.113(a), 61.133(b), 91.119(c), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1)&(2), 91.417(a), 121 CONCERNING OPERATION OF UNMANNED AIRCRAFT SYSTEMS PURSUANT TO SECTION 333 OF THE FAA MODERNIZATION AND REFORM ACT OF 2012

Submitted on February 4, 2015

David Allen Culler, Jr.,
CEO HAZON Solutions, LLC
545 S. Birdneck Road
Suite 201-B
Virginia Beach, VA 23451
(757) 374-3280

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Glossary of Abbreviations

AGL	Above Ground Level
ATC	Air Traffic Control
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
MAAP	Mid Atlantic Aviation Partnership
NAS	National Airspace System
PIC	Pilot in Command
PQS	Personnel Qualification System
Section 333	FAA Modernization and Reform Act of 2012, Section 333
SOP	Standard Operating Procedures
sUAS	Small Unmanned Aircraft Systems
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VT	Virginia Polytechnic Institute
VO	Visual Observer
VLOS	Visual Line of Sight

List of Attachments

(1) HAZON Standard Operating Procedures Extract, Chapters 1-4 and Checklists/Forms
(2) DJI Phantom 2 Operating Manual
(3) DJI S1000+ Operating Manual
(4) Draganflyer X4-ES sUAV Operating Manual
(5) Draganflyer Ground Station Operating Manual
(6) Certificate of Authorization (COA) 2014-ESA-160
(7) Penguin V2 Operating Manual
(8) Fire Fly 6 Operating Manual

Eight attachments listed are referenced in the request for exemption and contain trade secret and commercial proprietary information that HAZON has not and will not share with others except under appropriate confidentiality agreements. The HAZON Standard Operating Procedures (SOP) attachment contains operating conditions and procedures that have been developed exclusively by HAZON, and that are not available to the public. HAZON is requesting that these attachments be treated as proprietary information pursuant to 14 C.F.R. Section 11.35, and maintains that they are protected from release under the Freedom of Information Act. See 5 U.S.C. 552 *et seq*.

Section 1: Introduction and Interest of Petitioner

HAZON, Veteran owned and operated, is the leading developer of sUAV service operations, training, safety and management programs. The mission of HAZON is to support, develop and validate unmanned system operations. Our goal is to provide unmatched quality and safety.

HAZON has safely conducted FAA approved COA, (2014-ESA-160) for infrastructure inspection with Virginia Tech (MAAP). HAZON will be executing an FAA approved COA for Crisis Response with Virginia Tech in the Spring of 2015.

Section 2: Unmanned Aerial Systems

Regarding the Unmanned Aircraft System

1. Petitioners should describe how the proposed UAS operation will be safely conducted to minimize risk to the NAS or to persons and property on the ground. Specifically, petitioners should describe the design and operational characteristics for the type(s) of UAS they intend to operate, e.g. aircraft performance and performance limitations, operating procedures, and aircraft loading information in as much detail as possible. This could be provided in the petition or in an Aircraft Flight Manual or similar document.
NOTE: The FAA will consider all information and data submitted by the petitioner that describes the UAS developmental and operational history. This could include statistical data or other documentation for the specific design and performance characteristics of the UAS, including the operational history and operational failure modes, obtained through previous Research & Development (R&D) and/or flight test activities, e.g. operations

conducted under a COA, with a civil airworthiness certificate, or under other authorized operating conditions.

2. Petitioners should describe any procedures they would implement, such as pre-flight inspections, maintenance, and repair, to ensure that the UAS is in a condition for safe flight. This could be provided in the petition, an Aircraft Flight Manual, a Maintenance and Inspection Manual, or similar document.
NOTE: The Aircraft Flight Manual and Maintenance and Inspection Manual may be separate documents or combined in a single document

3. The petitioner should describe the Radio Frequency (RF) spectrum used for control of the UAS and associated equipment that is part of the UAS (i.e., sensors, cameras, etc.), and whether it complies with Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.
NOTE: Petitioners should be able to provide the FCC approval letter or show compliance with FCC requirements upon request.

General Information Pertaining to All Proposed sUAS

HAZON will operate less than fifty-five pound sUAS, with the ability to support crisis response, including but not limited to search and rescue, damage assessment, insurance claims assessment, and to enhance disaster site situational awareness for first responders and others, with payloads capable of supporting this mission.

Prior to each flight the PIC shall inspect the sUAS to ensure it is in a condition for safe flight. If the inspection reveals a condition that affects the safe operation of the sUAS, the aircraft will be prohibited from operating until the necessary maintenance has been performed and the sUAS is found to be in a condition for safe flight. The Ground Control Station must be included in the preflight inspection. All maintenance and alterations must be properly documented in aircraft records. All discrepancies noted shall be documented as described in the HAZON SOP (Chapter 1, Para 111).

Any sUAS that has undergone maintenance or alterations that affect the sUAS operation or flight characteristics, e.g. replacement of a flight critical component, shall undergo a functional test flight in accordance with the manufacturers manual and HAZON SOP (Chapter 1, Para 111). The PIC who conducts the functional test flight shall make an entry in the sUAS aircraft logbook of the flight.

HAZON shall follow the manufacturer's sUAS aircraft/component, maintenance, overhaul, replacement, inspection and life limit requirements, with particular attention to flight critical components that may not be addressed in the manufacturer's manuals.

HAZON shall carry out their maintenance, inspections and record keeping requirements, in accordance with the operator's manual. Maintenance, inspection, and alterations must be noted in the aircraft log book, including total flight hours, description of work accomplished, and the signature of the authorized maintenance technician returning the sUAV to service. HAZON SOP (Chapter 1, Para 111).

Each sUAS operated under the proposed exemption shall comply with all manufacturer System and Safety Bulletins.

HAZON technicians will receive and document training referenced in the manufacturer's operations manual.

HAZON technicians shall make a record entry in the sUAS logbook or equivalent document of the corrective action taken against discrepancies discovered between inspections.

Before conducting operations, the radio frequency spectrum used for operation and control of the sUAS shall comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

DJI Phantom 2

HAZON seeks an exemption to operate DJI Phantom 2 sUAS, for compensation or hire. The DJI Phantom 2 is comprised of a quad rotor unmanned aircraft and a handheld ground control station. The Phantom II has a maximum gross weight of approximately 2.8 pounds, diameter (rotor span) 23.75 inches, width of 12.5 inches, and height of 8.1 inches. The Phantom II is equipped with four rotors driven by four lithium polymer battery powered electric motors.

Design and operational characteristics are provided in DJI Phantom 2 Operating Manual (Page 35). Flight crews shall conduct pre-flight inspections as documented in HAZON SOP (Chapter 2 Para 202) and DJI Phantom 2 Operating Manual (Page 24).

DJI S1000+

HAZON seeks an exemption to operate a DJI-S1000 sUAS for compensation or hire. The DJI-S1000+ is comprised of a multi-rotor unmanned aircraft and two handheld ground control stations. The DJI-S1000 has a maximum gross weight of approximately 24 pounds, diagonal wheelbase of 41.4 inches, and height of approximately 18 inches. The DJI- S1000 is equipped with eight rotors driven by eight lithium polymer battery powered electric motors.

Design and operational characteristics are provided in DJI S1000+ Operating Manual (Page 22).

Flight crews shall conduct pre-flight inspections as documented in HAZON SOP (Chapter 2 Para 202) and DJI S1000+ Operating Manual (Page 4).

Draganflyer X4-ES

HAZON seeks an exemption to operate a DraganFlyer X4-ES sUAS for compensation or hire. The DraganFlyer is comprised of a quad rotor unmanned aircraft and two handheld ground control stations. The DraganFlyer has a maximum gross weight of approximately 5.6 pounds, diameter (rotor span) of 42 inches, width of 34 inches, and height of 11 inches.

The DraganFlyer is equipped with four rotors driven by four lithium polymer battery powered electric motors.

Design and operational characteristics of the Draganflyer X4-ES are provided in Draganflyer X4-ES Operating Manual (Pages 77-80) and Ground Station Operating Manual (Pages 75-76).

Flight crews shall conduct pre-flight inspections as documented in HAZON SOP (Chapter 2 Para 202), Draganflyer X4-ES Operating Manual (Pages 52-54) and Draganflyer Ground Station Operating Manual (Pages 62-64).

Penguin V2

The Penguin V2 is a fixed wing brushless motor pusher prop sUAS. It has a wingspan of 67.7 inches and a length of 48.5 inches. It has a wing area of 3.9 ft^2, and is powered by a lithium polymer battery. It has a maximum flight weight of 4.8 pounds. It is made of EPO foam and the wing and fuselage are reinforced with wood, aluminum alloy and carbon fiber piping. It has an observed normal cruise air speed of about 25 mph. Design and operational characteristics of the Penguin are provided in the Penguin V2 Operating Manual (Page 2).

Flight crews shall conduct pre-flight inspections as documented in HAZON SOP (Chapter 2 Para 202) and Penguin Operating Manual (Pages 9-10).

FireFly 6

The FireFly 6 is a hybrid sUAS that can conduct vertical take offs and landings (VTOL) and then transition to conventional horizontal flight. It is powered by six brushless motors and two or four lithium polymer batteries. It has a wingspan of 60 inches and a length of 37.4 inches with a maximum flight weight of 9.0 pounds. The FireFly 6 has a normal cruise air speed of 30 mph, and a maximum air speed of 57 mph during conventional horizontal flight.

Flight crews shall conduct pre-flight inspections as documented in HAZON SOP (Chapter 2 Para 202) and FireFly 6 Operating Manual (Page 36).

Section 3: Unmanned Aircraft Pilot in Command (PIC)

Regarding the Unmanned Aircraft PIC

4. Petitioners should describe the qualifications required of any PIC(s) who will be directly responsible for the operation of the UAS, including information such as: the level of airman certificate held; any applicable training related to the operation; and any minimum hours of flight experience required by the PIC(s), both total flight time and the time with the particular UAS. If the operation would use visual observers, petitioners should describe their roles and qualifications.

5. Petitioners should describe the medical standards and certification of the PIC(s) directly responsible for the operation of the UAS.

All HAZON Flight Crews, including PIC and Visual Observers (VO), will be qualified as directed by HAZON SOP (Chapter 1, Para 108).

All flight crew members, including PIC and VO, will have an understanding of, and comply with, Title 14 Code of Federal Regulations, and/or Agency directives and regulations, applicable to the airspace where the sUAS will operate. Specifically all flight crew members will receive training on the rules and responsibilities described in 14 CFR Part 91 Sections 91.111, 91.113 and 91.115 regarding cloud clearance, flight visibility and the pilot controller glossary, including standard ATC phraseology and communication.

The PIC must possess at least a current private pilot certificate and third class medical certificate. The PIC must also meet the flight review requirements specified in 14 CFR Section 61.56 in an aircraft in which the PIC is rated on his/her pilot certificate.

Prior to operations conducted for the purpose of infrastructure inspection (or similar operations), the PIC must have accumulated and logged, in a manner consistent with 14 CFR Section 61.51(b), a minimum of 25 hours of total time as a sUAS pilot and at least ten hours logged as a sUAS pilot with similar sUAS type (fixed wing or rotary). Prior documented flight experience that was obtained in compliance with applicable regulations may satisfy this requirement. Training, proficiency, and experience building flights are requested to be conducted under this grant of exception to accomplish the required flight cycles and flight time. During training, proficiency, and experience building flights, all persons not essential for flight operations will be considered non-participants and the PIC will operate the sUAS with appropriate distance from non-participants in accordance with 14 CFR Section 91.119.

Prior to operations conducted for the purpose of infrastructure inspection (or similar operations), the PIC must have accumulated and logged in a manner consistent with 14 CFR Section 61.51(b), a minimum of five hours as a sUAS PIC operating the make and model of the sUAS to be utilized for operations under this requested exemption, and three take-offs and landings in the preceding 90 days. Training, proficiency, experience-building, and take-off and landing currency flights are requested to be conducted under this grant of exemption to accomplish the required flight time and 90 day currency. During training, proficiency, experience building, and take-off and landing currency flights all personnel not essential for flight operations are considered nonparticipants, and the PIC must operate the sUAS with appropriate distance from nonparticipants in accordance with 14 CFR Section 91.119.

All operations must utilize a VO. The VO may be used to satisfy the Visual Line of Sight (VLOS) requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times. This condition and limitation is consistent with all FAA approved Exemptions.

Section 4: Operations of sUAS

Regarding the Operation of the Unmanned Aircraft

6. Petitioners should fully describe their intended UAS operation(s). Petitioners should describe how the proposed operation(s) would not adversely affect safety, or how they would provide a level of safety at least equivalent to that provided by the rule from which exemption is sought. Petitioners should address any plans to implement clearly defined operational borders and procedures to ensure public safety, which includes persons and property both in the air and on the ground. This can be described in the petition, in an Operations Manual, or similar document.
NOTE: The FAA will closely examine the proposed operation(s) with respect to safety of flight, NAS safety considerations, and the safety of the non-participating persons and property during the operational period and within the operational area.

7. Petitioners should specify the proposed maximum operating speed and altitude, and describe minimum flight visibility and distance from clouds for their intended operation(s). Petitioners should describe potential hazards and safety mitigations associated with these proposed conditions. These issues can be addressed in the petition, an Operations Manual, or similar document.

The sUAS shall remain clear and yield the right of way to all other manned aviation operations and activities at all times.

The sUAS shall be operated at an altitude of no more than 400 feet above ground level (AGL). All altitudes reported to ATC will be in feet.

The multi-rotor sUAS shall not be flown at a ground speed exceeding 30 mph.

Fixed wing and hybrid sUAS shall be flown at a ground speed not to exceed the maximum design limitation air speed of 57 mph as stated in the operating manuals.

sUAS Operations will be conducted under visual meteorological conditions (VMC). The sUAS will not be operated less than 500 feet below or less than 2000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

If the sUAS loses communications or loses its GPS signal, it must return to a pre-determined location within the planned operating area and land or be recovered in accordance with HAZON SOP.

The sUAS PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with operating documents.

The sUAS PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the sUAS with 25% battery power remaining.

The sUAS operated in accordance with this proposed exemption shall be identified by serial numbers, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings will be as large as practicable.

The sUAS documents required under 14 CFR 91.9 and 91.203 shall be available to the PIC at the Ground Control Station of the sUAS anytime the aircraft is operating. Those documents shall be available to the Administrator or any law enforcement official upon request.

Any sUAS incidents, accidents or flight operations that transgress the lateral or vertical boundaries of the operational area as defined by the applicable COA shall be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours. Accidents shall be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

Unless otherwise specified in this petition, the sUAS PIC, and the sUAS operations shall comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61 and 91.

8. Petitioners should describe the characteristics of the area of intended operation(s) and the associated potential hazards, in accordance with the statutory mandate under Section 333 regarding proximity to populated areas. These issues can be addressed in the petition, an Operations Manual, or similar document.

The sUAS shall not be operated over congested or densely populated areas. These areas include but are not limited to the yellow areas depicted on World Aeronautical Charts (WAC), Sectional Aeronautical Charts (Sectionals), or Terminal Area Charts (TAC). Each work site will also be evaluated based on local conditions.

Operations of sUAS may be conducted at distances less than 500 feet from participating persons, vessels, vehicles or structures that perform an essential function in connection with these special purpose operations. Operations closer than 500 feet from the PIC, VO, operator trainees and essential persons are permitted when operationally necessary; but never so close to present an undue hazard. This is consistent with Exemption No. 11138.

Operations of sUAS may be conducted at distances less than 500 feet from unoccupied vessels, vehicles or structures owned by the land owner/controller when the land owner/controller grants such permission, and the PIC makes a safety assessment of the risk from operations and determines that it does not present an undue hazard to persons or property. This is consistent with Exemption No. 11138.

Flight operations will be conducted at least 500 feet from all nonparticipating persons unless barriers or structures are present that sufficiently protect nonparticipating persons from the sUAS and/or debris in the event of an accident. HAZON shall 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 sUAS, flight operations will cease immediately. This is consistent with Exemption No. 11138.

All operations of sUAS shall be conducted with the permission from the land owner/controller or authorized representative. Permission from the land owner/controller or authorized representative will be obtained for each flight to be conducted.

9. Petitioners should describe if they intend to operate in the proximity of any airports, in accordance with the statutory mandate under Section 333 regarding proximity to airports.

The sUAS will not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by the operator's COA. The letter of agreement with the airport management will be made available to the Administrator upon request. This is consistent with Exemption No 11159.

10. The UAS must be operated within visual line-of-sight (VLOS), in accordance with the statutory mandate under Section 333(b)(1). Petitioners should describe how they intend to comply with his mandate.

The sUAS must be operated within VLOS of the PIC and VO at all times. This requires the PIC to be able to use human vision to see the sUAS unaided by any device other than corrective lenses, as specified on the PIC's FAA issued medical certificate.

All sUAS operations must utilize a VO. 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. The PIC and VO 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 functions prescribed in HAZON's SOP (Chapter 1, Para 103).

The sUAS will not be operated by the PIC from any moving device or vehicle. Operations will not be conducted during night as defined in 14 CFR 1.1.

11. Petitioners should describe any procedures they would implement for conducting a preflight safety risk assessment to determine that the UAS is in a condition for safe flight (14 CFR § 91.7(b)) and that the planned operation can be completed safely. These procedures can be addressed in the petition, an Aircraft Flight Manual, Operations Manual, or similar document.

HAZON will conduct preflight safety risk assessments to determine that the sUAS is in a condition for safe flight (14 CFR Section 91.7(b)) and that the planned operation can be completed safely. Specific procedures are addressed in HAZON's SOP (Chapter 2, Para 202), and sUAS Operation Manuals.

12. If petitioners intend to conduct operations which have existing requirements to notify Flight Standards District Offices (FSDOs) prior to operations – such as motion picture and television filming, or pipeline and powerline patrol – petitioners should describe their intended coordination in this regard for their proposed operation(s).

HAZON's operations do not require a notification to Flight Standards District Offices (FSDOs).

13. The FAA intends to require entities who obtain an exemption under this process to also obtain a Certificate of Waiver or Authorization (COA) from the FAA Air Traffic Organization prior to conducting operation(s) in the NAS.

HAZON shall obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this requested grant of exemption. Additionally, HAZON will request a Notice to Airmen (NOTAM) not more than 72 hours, but not less than 48 hours prior to the operation.

Section 5: Requested Exemptions from Regulations

Considered Regulation	**Title**	**Recommended Action**
14 C.F.R Part 21.185	Airworthiness Certificate	HAZON recommends that in consideration of the size, weight, speed and limited operating area associated with these aircraft and their operation, the Secretary of Transportation determines that these aircraft meet the conditions of Section 333. **Relief is not necessary**.
14 C.F.R. Part 45.23(b)	Display of marks	HAZON sUAV shall be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings will be as large as practicable. **Relief is not necessary.**
14 C.F.R. Part 61.113(a)	Private pilot privileges and limitations	The FAA has found in previous grants of exemption that a PIC with a private pilot certificate operating a sUAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground. **Request relief with limitations and conditions specified in this petition.**

14 C.F.R. Part 61.133(b)	Commercial pilot privileges and limitations	The FAA has found in previous grants of exemption that a PIC with a private pilot certificate operating a sUAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground. **Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.7(a)	Civil Aircraft Airworthiness	HAZON recommends that in consideration of the size, weight, speed and limited operating area associated with this aircraft and its operation, the Secretary of Transportation determines that these aircraft meet the conditions of Section 333. **Relief is not necessary**.
14 C.F.R. Part 91.9(b)(2) &(c)	Civil Aircraft Flight Manual, Marking, and Placard Requirements	The FAA has previously determined that relief from these sections is not necessary. Relevant materials may be kept in a location accessible to the PIC in compliance with the regulations. **Relief is not necessary**.
14 C.F.R. Part 91.103	Preflight Action	HAZON will perform**. Relief is not necessary**.
14 C.F.R. Part 91.109(a)	Flight Instruction	HAZON will conduct all flight training through procedures specified in Training Instruction during dedicated training sessions. Based on previous decisions made by the FAA for sUAS petitions regarding this regulation, **relief is not necessary.**
14 C.F.R. Part 91.119(c)	Minimum Safe Altitude	Aircraft will be operated below 400 AGL, but not over congested areas. **Request relief with limitations and conditions specified in this petition.**

14 C.F.R. Part 121	Altimeter Settings	The proposed aircraft have a barometric altimeter and GPS derived altitude capabilities. HAZON recommends that the altimeter be set to zero feet AGL rather than local barometric pressure or field altitude before flight. Considering the limited altitude of the proposed operations. **Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.151(a)	Fuel Requirements in VFR	Prior relief has been granted for manned and unmanned aircraft to operate at less than prescribed minimums. **Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.203(a) and (b)	Certifications Required	Original intent of these regulations was to display an aircraft's airworthiness, certification and registration documents so they would be easily available to inspectors and passengers. Based on the FAA Memorandum subject, "Interpretation regarding whether certain required documents may be kept at an unmanned aircraft's control station," dated August 8, 2014, **relief is not necessary**.
14 C.F.R. Part 91.405(a)	Maintenance Required	**Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.407(a)(1)	Operation after Maintenance	**Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.409(a)(1) and (2)	Inspections	**Request relief with limitations and conditions specified in this petition.**
14 C.F.R. Part 91.417(a) and (b)	Maintenance Records	**Request relief with limitations and conditions specified in this petition.**

Public Interest

HAZON's operations of sUAS to perform aerial crisis response support will reduce the risk to life and property of first responders and crisis response teams by decreasing the requirements for personnel to enter unknown/unsafe areas without prior knowledge of hazards in the affected disaster area. The utilization of sUAS will also enhance situational awareness for crisis management leadership and victim/survivor search and rescue, thus reducing the requirements for and risk to manned aircraft operating in this often constrained and austere environment. HAZON will use battery-powered sUAS that serve as safe and efficient alternatives to the manned aircraft commonly utilized to conduct crisis response support. The information gathered during these flights will be used to inform long term recovery efforts, to include infrastructure rebuilding and individual and commercial insurance claims. Also, the flight data, inspection results, recorded observations and lessons learned from these operations will be compiled to further enhance its current safety program.

The applicant proposes that the exemptions 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 even higher level of safety to operations under the current regulatory structure because the proposed operations represent a safety enhancement to infrastructure inspections conducted by manned aircraft.

A Summary That Can Be Published In The *Federal Register,* Stating: The Rules From Which HAZON Solutions, LLC Seeks Exemption:

HAZON Solutions, LLC seeks exemption from the requirements of 14 C.F.R. §§ 61.113(a), 61.133(b), 121, 91.119(c), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a).

CONCLUSION

As set forth above, HAZON Solutions, LLC seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012, which will permit safe operation of the above-named sUAS commercially for the purpose of crisis/emergency/disaster response support over other than congested areas. By granting this Petition, the FAA will allow HAZON Solutions, LLC to safely, effectively and efficiently operate sUAS commercially.

Submitted on February 4, 2015

Respectfully submitted,

David Allen Culler, Jr.,
CEO HAZON Solutions, LLC
545 Birdneck Road
Suite 201-B
Virginia Beach, VA 23454
(757) 374-328