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

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

CORRECTED COPY

The FAA is reissuing the July 10, 2015, grant of exemption of Exemption No. 12005. A correction was made to add the DJI Inspire 1, DJI Phantom 2, DJI Phantom 2 Vision, DJI Phantom 2 Vision +, DJI Phantom 3, DJI Spreading Wings S900, DJI Spreading Wings S1000, DJI Spreading Wings S1000+, 3DRobotics Iris, and 3DRobotics Solo aircraft to the Airworthiness Certification section and to Conditions and Limitations #1. Below is the amended Exemption No. 12005 that includes the aforementioned change. We made the correction in our records as of July 23, 2015.

July 10, 2015

Exemption No. 12005
Regulatory Docket No. FAA–2015–0610

Mr. Peter Menet
Menet Aero, Inc.
517 E. Otjen Street
Milwaukee, WI 53207

Dear Mr. Menet:

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

By letter dated March 6, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Menet Aero, Inc. (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct monitoring/inspection, geological survey, research and development, education, emergency functions, and 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 are the Menet Aero 1, DJI Inspire 1, DJI Phantom 2, DJI Phantom 2 Vision, DJI Phantom 2 Vision +, DJI Phantom 3, DJI Spreading Wings S900, DJI Spreading Wings S1000, DJI Spreading Wings S1000+, 3DRobotics Iris, and 3DRobotics Solo.

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.

[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.

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, Menet Aero, Inc. is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Menet Aero, Inc. is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the Menet Aero 1, DJI Inspire 1, DJI Phantom 2, DJI Phantom 2 Vision, DJI Phantom 2 Vision +, DJI Phantom 3, DJI Spreading Wings S900, DJI Spreading Wings S1000, DJI Spreading Wings S1000+, 3DRobotics Iris, and 3DRobotics Solo when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all

potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal Government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

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

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least 5 minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and

b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

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

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

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

This exemption terminates on July 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Section 333 Exemption Request

March 6, 2015

Submitted to:
US Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Submitted by:

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Summary

Menet Aero, Inc. (hereinafter referred to as "Menet Aero") seeks an exemption from the requirements of 14 CFR 21, Subpart H, 14 CFR 61.3 (c), 14 CFR 61.113 & 14 CFR 61.133, 14 CFR 91.9, 14 CFR 91.105, 14 CFR 91.109, 14 CFR 91.119, 14 CFR 91.121, 14 CFR 91.151, 14 CFR 91.203 (a) & (b), 14 CFR 91.213, and 14 CFR 91 Subpart E. This exemption will allow Menet Aero to operate Small Unmanned Aerial Systems (SUAS) for commercial and non-recreational purposes over various areas within the United States.

Introduction and Interests of Petitioner

Menet Aero is comprised of a team of military trained UAS Operators, current and former military helicopter pilots, FAA licensed private and commercial pilots, military trained aviation maintenance technicians, FAA licensed Airframe and Powerplant (A&P) technicians, FAA licensed Aeromedical Examiners (AMEs), and model aircraft enthusiasts. Our goal is to provide manned and unmanned aviation services to a variety of industries and organizations under the experienced and watchful oversight of professional aviation personnel. Our core business focus is to provide our clients and partners access to the most economical aviation solution to meet their needs while not compromising the safety or integrity of the National Airspace System (NAS). SUAS operations conducted by Menet Aero will benefit the public as a whole by allowing commercial entities, public agencies, and research institutions access to potentially game-changing technology with the oversight of those intimately familiar with FAA regulated operations.

Our proposed SUAS operations include:

- Crop monitoring/inspection,
- Geological Survey,
- Research and development,
- Educational/academic uses,
- Power-line/pipeline inspections,
- Antenna and building inspections,
- Integrating with national, state, and local emergency management entities to assist with emergency functions such as search and rescue,
- Bridge inspections,
- Aerial photography, and
- Wildlife nesting area evaluations.

Menet Aero has reviewed the recently released NPRM Draft SUAS Law RIN 2120-AJ60 (herein referred to "Part 107") dated Feb. 15, 2015, and with minor exceptions,

has adjusted the operations and procedures described in this exemption request to mirror the framework set forth in the proposed Part 107.[1] Since SUAS technology is still in its infancy, our goal for this exemption request is to explain the procedures under which we will operate and how we will select aircraft that address the existing requirements of the Section 333 exemption process, as well as meet the requirements of proposed Part 107. This approach will permit us the flexibility to adopt new technology and procedures as they become available in the hopes of enhancing both the safety and effectiveness of our operations. The end result is that Menet Aero will stay informed of changes in SUAS technology and regulations to ensure our equipment and operations are being conducted in accordance with all applicable laws while leveraging the most advanced and safest technology available.

Operation Guidelines

The following is a list of proposed operation guidelines by which Menet Aero will abide.

Definitions

Confined Area of Operations (CAO) – An area established to confine the flight of a small unmanned aircraft in order to allow the Operator to become familiar with the area of operation and create contingency plans for using the environment to mitigate the risk associated with the possible loss of positive control.

Control Station – An interface used by the Operator to control the flight path of the small unmanned aircraft.

Immediate Area of Influence (IAI) – The area immediately surrounding a CAO that SUAS operations may have secondary effects on. Example: an urban CAO may be limited to a small property but nearby neighbors could be affected by privacy concerns that the SUAS presents. Although IAI are not affected by the same safety concerns as CAOs, they may present non-safety related issues that need to be addressed.

Loss of Positive Control (LPC) – A condition where the UAS Operator may become unable to directly control the UAS due to a failure of the control link between the aircraft and the Operator's control station.

[1] Example: All operations will be conducted less than 500 feet AGL unless inspecting ground-based objects such as buildings or towers exceeding 500 feet in height. Under these conditions, the SUAS will remain within 50 meters (164 feet) laterally and no more than 10 meters (33 feet) above the structure. A NOTAM will be submitted a minimum of 48 hours prior to these operations.

Operator (OP) – The person who manipulates the flight controls of a small UAS. The Operator is directly responsible for, and is the final authority as to the operation of the SUAS.

Part 107 – The proposed new part of Title 14 of the CFR that would govern small UAS operations. Since this regulation does not yet exist, the exemption request references the proposed Part 107 details as described in the recently released NPRM Draft SUAS Law RIN 2120-AJ60 dated Feb. 15, 2015.

Small Unmanned Aircraft System (SUAS) – A small unmanned aircraft (which, as defined by statute, is an unmanned aircraft weighing less than 55 pounds[1]) and equipment necessary for the safe and efficient operation of that aircraft.

Visual Observer (VO) – A person who assists the SUAS Operator in seeing and avoiding other air traffic or objects aloft or on the ground. A VO is required for operations when the Operator is incapable of seeing the SUAS. Example: First Person View (FPV) operations.

General

- A SUAS Operator is required to see and avoid all other users of the NAS in the area in which the SUAS is operating.
- SUAS are prohibited from operating in Class A airspace and require prior permission from Air Traffic Control to operate in Class B, C or D airspace, or with in the lateral boundaries of the surface area of Class E airspace designated for an airport. Operations are allowed within Class G airspace without ATC permission.
- SUAS must yield right-of-way to other aircraft, manned or unmanned.
- No person may act as an Operator or VO for more than one unmanned aircraft operation at one time.
- No careless or reckless operations are permitted.

Confined Area of Operation

Menet Aero embraces the FAA's proposed performance-based operator-responsibility standard built around the concept of a confined area of operation (CAO) for SUAS operations as a means to mitigate the risk associated with a loss of positive control condition. The Menet Aero SUAS Operator will establish a CAO prior to all SUAS operations and will continually monitor it to ensure it is not compromised. A CAO will have the following properties:

- Lateral Boundaries: The CAO will be limited to a circle around the person maintaining visual contact with the aircraft with the radius of that circle being limited to the farthest distance at which that person has sufficient view

[1] Pub. L. No. 112-95, sec. 331(6).

of the aircraft. As a good operating practice, the CAO will be no larger than the area required for the specific operation.

- Vertical Boundaries: The CAO will not exceed 500 feet AGL unless inspecting a ground-based structure more than 500 feet in height such as a building, bridge or antenna. When inspecting a ground-based structure above 500 feet, the SUAS will remain within 50 meters (164 feet) laterally and will fly no more than 10 meters (33 feet) above the highest point on the structure. Menet Aero will coordinate with the local ATC facility prior to conducting any operations over 500 feet.
- No one will operate an SUAS from a moving platform with the exception of watercraft.
- All personnel within the CAO and the IAI will be informed of:
    - The purpose of the SUAS operations,
    - Where they can expect the SUAS to be operating and at what altitude,
    - What they should do to ensure their safety,
    - Menet Aero's privacy policy, and
    - Menet Aero's contact information for use in the event they have any concerns.
- No SUAS will be flown over personnel who are not directly involved[1] in the operation. This does not include personnel protected by a structure with sufficient overhead cover to nullify the danger of an SUAS impact such as a building or automobile.
- Personnel directly involved in the operation will be briefed by the Operator on the following items in order to reduce risk of injury:
    - Operating conditions,
    - Emergency procedures,
    - Contingency procedures,
    - Roles and responsibilities, and
    - Potential hazards.

Light, Weather, and Visibility Requirements

Menet Aero will abide by the following minimum light, weather and visibility requirements during all SUAS operations:

Daylight Only – Menet Aero will only conduct SUAS operations between the hours of official sunrise and official sunset for the location in which they are operating.

[1] A person is directly involved in the operation when his or her involvement is necessary for the safe operation of the SUAS.

Cloud Clearances – SUAS will maintain a minimum of the following distance separation from clouds:

- 500 feet below
- 2000 feet horizontal

Visibility

- 3 Statute Miles from the control station

Winds

- Unless otherwise specified in the SUAS operator's manual, predominant wind not to exceed 80 percent of the SUAS max airspeed.
    - Example: If the SUAS max airspeed is 40 knots, operations will not commence if observed predominant winds are greater than 32 knots. Also, operations in progress will terminate if predominant wind speeds exceed 32 knots.
    - Operator must exercise good judgment as UAS max airspeed may be affected by a variety of factors such as atmospheric conditions, low battery, and variation in payload.

Crew Qualifications

General

The Operator will serve in the role of Pilot in Command (PIC) for SUAS operations. Operators will report an accident to the FAA within 10 days of any operation that results in injury or property damage.

Operator Licensing

Until the FAA begins issuing UAS specific licenses, all Operators will be one of two categories:

- FAA licensed pilot with a minimum of a private pilot endorsement
- Military trained UAS Operator who:
    - Completed FAA private pilot ground school,
    - Passed the FAA Private Pilot written exam or FAA recognized equivalent, and
    - Possesses official documentation of military UAS training (e.g. DA Form 1059).
    - Must be vetted by the Transportation Security Administration.

Operator Medical

The Operator will be required to self-certify, prior to all SUAS operations that they do not have a medical condition that could interfere with the safe operation of a small UAS.

Visual Observer

A Visual Observer (VO) may be used to assist the Operator in maintaining visual contact with the SUAS in place of the operator. VOs are not required to have any formal FAA certification; however, the operator must brief them on the operation to

be performed prior to commencement. The VO and operator are required to remain in contact throughout the operation. This can be by unassisted oral communication or by radio or other communication-assisting device.

Briefer

To provide an enhanced level of safety, Menet Aero intends to establish a briefer program where all proposed operations will be reviewed and approved by an FAA commercially rated aviator (Briefer) prior to commencement. The Briefer will serve as a second set of eyes to ensure:

- All the required prior coordination was done with airspace and ground owners,
- The forecast weather meets minimum requirements,
- The number of crewmembers is sufficient for the proposed operation,
- The operator is qualified, current, and proficient on the SUAS being used, and
- There are no NOTAMS, TFRS, or other advisories that will affect the operation.

Aircraft Performance Capabilities & Design

Since Menet Aero will be providing professional aviation services to a variety of industries, it is difficult to select a single platform that can accomplish all missions. In most cases Menet Aero will seek to use proven off-the-shelf products such as the Sensefly Ebee, AgEagle, and Falcon Hover. Menet Aero also possesses the capability to manufacture highly specialized SUAS built on industry standard technology such as DJI and 3DR components. In order to remain agile and ready to meet customer's needs but also meet the limitations proposed in Part 107 for SUAS, Menet Aero will only operate SUAS that meet the following criteria:

- FAA airworthiness certification is not required. However, the Operator must maintain a SUSA in condition for safe operation and prior to flight must inspect the UAS to ensure that it is in a condition for safe operation.
- All Menet Aero aircraft will be registered with the FAA in accordance with existing procedures. Registration information will be maintained at the control station.
- Max calibrated airspeed at full power in level flight will not exceed 87 knots (100 mph).
- Total weight of the unmanned aircraft will not exceed 55 lbs (25 kg).
- Manuals and checklists:
    - All SUAS will have operator's manuals that include pre-flight procedures that will be executed by the crew prior to each flight operation in order to determine that the SUAS is safe for operation.
    - All SUAS will have emergency procedure checklists.
    - Manuals and checklist will be maintained at the control station and must be accessible to the Operator at all times.

    - Any of the above manual and checklists that are not provided by the manufacturer must be created and thoroughly vetted prior to performing any commercial operations.
- Aircraft markings will be displayed on the aircraft in the largest practicable manner in accordance with 14CFR §45.29(f).
- Prior to operating any SUAS for commercial purposes in an urban area, Menet Aero will first conduct flight training in a controlled rural CAO, with the minimum personnel required to safely familiarize Operators with the aircraft's characteristics. This includes but is not limited to:
    - Preflight procedures,
    - Take off, inflight, and landing procedures,
    - Automated LPC settings (if available), and
    - Emergency procedures.

  Only after the Operator has confidence in both the SUAS and their operating proficiency will they perform operations in an urban CAO.
- Operators will ensure that the small UAS has enough power to operate for its intended operational time and an additional five minutes. The Operator will be required monitor power levels throughout the flight and modify the mission if required.

Privacy and Legal Concerns

Menet Aero only conducts UAS operations for legal purposes. Menet Aero pledges to stay informed and current on all laws governing UAS operations and recognizes they may differ from one locality to the next. In the event that there are conflicting laws or regulations, Menet Aero will abide by the one that is the most conservative. Should specific concerns arise, Menet Aero will work with all interested parties involved to address them.

Basis for Petition

Specific Sections of 14 C.F.R. From Which Menet Aero Seeks Exemption

Below follows a list of specific sections from which this exemption request relief:

- 14 CFR 21, Subpart H – This subpart prescribes procedural requirements for the issue of airworthiness certificates.
- 14 CFR 61.3 (c) – Requirements for certificates, ratings, and authorizations. Medical certificate.
- 14 CFR 61.113 – Pilot privileges and limitations: Pilot in command.
  & 14 CFR 61.133 – Commercial pilot privileges and limitations.
- 14 CFR 91.9 – Civil aircraft flight manual, marking and placard requirements.
- 14 CFR 91.105 – Flight crewmembers at stations.
- 14 CFR 91.109 – Flight instruction, simulated instrument flight and certain flight tests.
- 14 CFR 91.119 – Minimum safe altitudes: General.
- 14 CFR 91.121 – Altimeter settings
- 14 CFR 91.151 – Fuel requirements for flight in VFR conditions.
- 14 CFR 91.203 (a) & (b) – Civil aircraft: Certifications required.
- 14 CFR 91.213 – Inoperative instruments and equipment.
- 14 CFR 91 Subpart E – Maintenance, Preventive Maintenance, and Alterations

The Extent of Relief and the Reasons Menet Aero, Inc. Seeks Relief

Below is a list of each section of 14 C.F.R. from which Menet Aero seeks relief, the extent of the relief requested, and the reasoning behind the request:

- 14 CFR 21, Subpart H – This subpart prescribes procedural requirements for the issue of airworthiness certificates.
  - Menet Aero agrees with the FAA opinion that "due to their light weight, small unmanned aircraft generally pose a significantly lower risk to people and property on the ground than manned aircraft."[1]
  - The FAA acknowledges and Menet Aero agrees that: "obtaining a type certificate and a standard airworthiness certificate, which permits the widest range of aircraft operation, currently takes about 3 to 5 years" and "it is not practically feasible for many small UAS manufacturers to go through the certification process required of manned aircraft. This is because small UAS technology is rapidly evolving at this time, and consequently, if a small UAS manufacturer goes through a 3-to-5-year process to obtain a type certificate, which enables the issuance of a

[1] Reference NPRM Draft SUAS Law RIN 2120-AJ60 (15Feb2015) page 60.

standard airworthiness certificate, the small UAS would be technologically outdated by the time it completed the certification process."[1]

- Additionally, none of the current avenues for airworthiness listed in 14CFR21 Subpart H "provide flexibility for most routine small UAS operations."[2]
- Therefore, Menet Aero requests relief from obtaining an airworthiness certification for the SUAS it operates.
- To provide an equivalent level of safety, Menet Aero will require:
  - Prior to each flight, the Operator must inspect the small UAS to ensure that it is in the proper condition for safe operation. The Operator could do this, for example, by performing a manufacturer-recommended preflight inspection or performing an on-the-ground test of the small UAS to determine whether safety-critical systems and components are working properly.
  - If, as a result of the inspection, the Operator determines that the small UAS is no longer in a condition for safe operation, then they would prohibit the operation of the small UAS until the necessary maintenance has been made and the small UAS is once again in a condition for safe operation.
  - The Operator must discontinue the flight of the small, unmanned aircraft when he or she knows or has reason to know that continuing the flight would pose a hazard to other aircraft, people, or property.
  - If any component or parts are used in an SUAS are governed by an airworthiness directive, Menet Aero will comply with all applicable airworthiness directives pertaining to that component or part.

- 14 CFR 61.23 (c) – Medical certificates: Requirement and duration.
  - The FAA has proposed and Menet Aero agrees that: "The primary reason for medical certification is to determine if the airman has a medical condition that is likely to manifest as subtle or sudden incapacitation that could cause a pilot to lose positive control of the aircraft, or impair the pilots ability to "see and avoid."[2]
  - Subsequently, "The FAA has determined that traditional FAA medical certification may not be warranted for small UAS Operators subject to this proposed rule mainly because small UAS Operators and visual observers are operating within a "confined area of operation," and subject to other operational limitations, discussed previously in this preamble. This is because the proposed visual-line-of-sight requirement for the Operator and/or visual observer to be able to see the aircraft's direction and attitude of flight in the proposed rule is preferable to a vision standard. Even with normal vision it is foreseeable that a small unmanned aircraft may be so small that the operational space must be

[1] Reference NPRM Draft SUAS Law RIN 2120-AJ60 (15Feb2015) page 24.
[2] Reference NPRM Draft SUAS Law RIN 2120-AJ60 (15Feb2015) page 115.

reduced to meet the operational requirements proposed in this rule. As such, prescriptive medical standards may not be as critical as they are for individuals exercising pilot privileges and therefore are not proposed under this action."[1]

- Although most Menet Aero Operators will hold a medical certificate as a currency requirement for their FAA Private Pilot and Commercial Pilot certificates to perform manned operations, we feel an equivalent level of safety can be provided by the FAA's proposal to allow: "operators (and Visual Observers to) self-certify, at the time of their airman application, that they do not have a medical condition that could interfere with the safe operation of a small UAS. As proposed in § 107.61(d), an applicant for an unmanned aircraft operator certificate with a small UAS rating would be ineligible for the certificate if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS. The FAA also proposes, in § 107.63(a), that the applicant be required to make a certification to that effect. Both of these proposed requirements are similar to the regulatory provision of § 61.53(b), which prohibits operations during medical deficiency for individuals conducting operations that do not require a medical certificate." Until a formal procedure is established for this, Menet Aero will maintain a copy of either an operator's FAA medical certificate on file or a statement reflecting the information detailed above. Additionally, it will be the responsibility of the briefer/dispatcher to ensure that the individual self-certifies they are medically fit to prior to performing each operation.

- 14 CFR 61.113 – Pilot privileges and limitations: Pilot in command.
  & 14 CFR 61.133 – Commercial pilot privileges and limitations.
  - There is currently no FAA endorsement specifically for UAS operators. Menet Aero plans to use operators who have a minimum of a private pilots certificate or military trained UAS Operators that have:
    - Completed FAA private pilot ground school,
    - Passed the FAA Private Pilot written exam or FAA recognized equivalent, and
    - Possesses official documentation of military UAS training (ex: DA Form 1059).
  - Since the aircraft cannot carry passengers or property, we feel we meet the intent of 61.113 Subparagraph (b), even though the intent of this application is to conduct a business.
  - To provide an equivalent level of safety, Menet Aero intends to establish a briefer program where all proposed operations would be reviewed and approved by a commercially rated aviator (Briefer) prior to commencement, as described previously in this document.

[1] Reference NPRM Draft SUAS Law RIN 2120-AJ60 (15Feb2015) page 115.

    - At which time an FAA SUAS certification becomes available, all Menet Aero Operators will seek that endorsement and will abide by the associated regulatory requirements as soon as practicable.[1]
- 14 CFR 91.9 - Civil aircraft flight manual, marking, and placard requirements.
    - With a max weight of 55 lbs., SUAS are too small to carry documentation, they don't have an entrance, and are not capable of carrying passengers or crew. Therefore, placing an aircraft manual on board an SUAS is not feasible.
    - To provide an equivalent level of safety, Menet Aero will maintain an aircraft manual at the control station so that the Operator may access it at any time.
    - In addition to the registration number being placed on the aircraft in accordance with 14CFR §45.29(f), Menet Aero will affix a placard on each aircraft that identifies:
        - The owner of the SUAS,
        - The manufacturer, model, and serial number of the SUAS,
        - The FAA registration number, and
        - The owner's address and telephone number.
- 14 CFR 91.105 – Flight crewmembers at stations.
    - Since the aircraft is unmanned, there are no crew stations that require safety belts.
    - To provide an equivalent level of safety and to meet the intent of this section, crewmembers will position themselves where ever they deem appropriate to ensure the safest operation possible. This includes taking into account visual line of sight requirements and areas of probable contact hazards such as takeoff or landing areas.
- 14 CFR 91.109 – Flight instruction; simulated instrument flight and certain flight tests.
    - For the purposes of flight instruction, few (if any) SUAS have a set of fully functioning dual controls; however, the controls can be quickly transferred from a student to an instructor in the event of an emergency.
    - As previously mentioned, due to the limitations stated in the "Aircraft performance capabilities & design" section of this document, Menet Aero believes that SUAS do not exhibit the same level of risk as manned aircraft. Additionally, that risk can further be mitigated through the "Operational Guidelines" established in this document.
    - Given this information, Menet Aero believes it achieves an equivalent level of safety as would be achieved with a "functioning throwover control wheel" as detailed in 14 CFR 91.109

[1] Although obtaining FAA SUAS certification is a high priority of Menet Aero, we recognize that high demand may not allow for instant certification. To keep from paralyzing operations Menet Aero pledges to pursue certification as soon as possible in exchange for leniency while conforming to new regulatory requirements.

- 14 CFR 91.119 – Minimum safe altitudes: General.
    - In general, Menet Aero request to operate at 500 feet and below at all times with the exception of inspecting a ground-based structure in excess of 500 feet. When inspecting a ground-based structure above 500 feet, the SUAS will remain within 50 meters (164 feet) laterally and will fly no more than 10 meters (33 feet) above the highest point on the structure. Menet Aero will coordinate with the local ATC facility prior to conducting any operations over 500 feet. Since no aircraft should be operating this close to a ground-based structure, our proposed operations should present minimal risk to manned aircraft.
    - To de-conflict with helicopters, Menet Aero will maintain relationships with all known rotary-wing operators in the operation area. Prior to any operation Menet Aero will send a notification to those operators to let them know of the proposed location, times, and SUAS Operator contact information.
    - By implementing the controls listed above and in the "Operation Guidelines" section of this document, Menet Aero feels they can provide a level of safety greater than those listed in this section.
- 14 CFR 91.121 – Altimeter settings
    - Most UAS do not have the ability to adjust altimeter settings. Additionally, many UAS use GPS to determine altitude. In both cases, it is impossible to comply with 14 CFR 91.121
    - Since operations occur within a confined area of operations and they are usually less than one hour in duration, it is unnecessary to update altimeter settings once a base altitude has been established.
    - To provide an equivalent level of safety the Operator will determine the altitude reading at the point of takeoff and use that to determine the altitude of the aircraft throughout the flight abiding to the altitude limitations listed above. They must also take into account rising or falling terrain to maintain within the prescribed altitudes.
- 14 CFR 91.151 – Fuel requirements for flight in VFR conditions.
    - Currently, most SUAS currently have flight time limited to 30 minutes or less. Therefore, it is impractical to maintain a 20 or 30-minute fuel reserve.
    - The FAA proposes and Menet Aero endorses that: "Proposed § 107.49(a)(4) would require a small UAS Operator to ensure that, if powered, the small UAS has enough power to operate for its intended operational time and an additional five minutes. The 5-minute buffer would ensure that the small UAS has sufficient power to return to the Operator, or another location, and be able to make a controlled landing. Additionally, control inputs to a small UAS may degrade as batteries lose charge because power to the flight control system(s) may be lost. Accordingly this proposed rule would help to ensure that the small UAS remains controllable throughout its intended

operational time. The FAA notes that a small UAS travelling at 10 miles per hour would be able to cover nearly one mile in 5 minutes."[1]
    - Menet Aero believes that operating with a 5 minute buffer would provide a equivalent level of safety as presented in 14 CFR 91.151
- 14 CFR 91.203 (a) & (b) – Civil aircraft: Certifications required.
    - As previously mentioned, Menet Aero petitions to be waived from the airworthiness requirements of 14 CFR 21 Subpart H for the reasons listed above.
    - Since the SUAS operated by Menet Aero will not be issued an airworthiness certificate, none will be available to meet this requirement.
    - With a max weight of 55 lbs, SUAS are too small to carry documentation, they don't have an entrance, and are not capable of carrying passengers or crew.
    - To provide an equivalent level of safety, Menet Aero will maintain all required documentation at the control station for review if requested.
- 14 CFR 91.213 – Inoperative instruments and equipment
    - As previously mentioned, Menet Aero petitions to be waived from the airworthiness requirements of 14 CFR 21 Subpart H for the reasons listed above. If approved, Menet Aero will not be able to meet the requirements of 14 CFR 91.213.
    - To provide an equivalent level of safety, Menet Aero will prepare a Minimum Equipment List for each aircraft it operates that which instruments and equipment are essential for safe operations under all operating conditions. These items will be checked during preflight and if any are found to be inoperative or unreliable, the SUAS will be prohibited from taking off until the deficiency is corrected.
- 14 CFR 91 Subpart E – Maintenance, Preventive Maintenance, and Alterations
    - Regulations require that aircraft be maintained in accordance with 14 CFR 39 and 43, which apply to aircraft and components issued an airworthiness certificate. Since Menet Aero is requesting that our SUAS be exempt from requiring an airworthiness certificate, we request exemption to 14 CFR 91 Subpart E. This does not apply to any components used that are governed by an airworthiness certificate.
    - To provide an equivalent level of safety, Menet Aero plans to establish a maintenance program that mirrors the one in use by the US Army Aviation program. The intent is to track the usage, repair, and component failure rates of our SUAS fleet with the overall goal of developing a preventative maintenance program and associated operational procedures (including preflight and periodic checks) to enhance overall safety. This is intended to be a shared responsibility between the SUAS Operators, designated maintainers, and maintenance supervisors.

[1] Reference NPRM Draft SUAS Law RIN 2120-AJ60 (15Feb2015) page 95.

Why Granting Menet Aero, Inc.'s Request Would Be in the Public Interest

The FAA and Congress have already acknowledged that there are many potential societal and economic benefits to SUAS operations. The largest hurdle has been integrating this new technology safely into the existing NAS environment. Menet Aero is comprised of a team of professional aviators who have thousands of hours and decades of experience planning and performing operations inside the NAS and other complex airspace. As such, we want to make it our business to operate SUAS as safely and efficiently as possible and not jeopardize the safety of our fellow aviators. Menet Aero therefore intends to be a proactive organization in terms of coordinating with the FAA and other stakeholders to help alleviate potential regulatory, workload and coordination challenges that could affect SUAS ability to safely and routinely operate in the NAS.

Furthermore, since SUAS technology is still in its infancy, Menet Aero will be seeking partnerships with universities, non-profit organizations, and academic organizations to increase positive public awareness of responsible SUAS use and seek opportunities to advance potentially society-benefiting applications such as those involving precision agriculture. Additionally, Menet Aero has deep ties to the National Guard, State Departments of Emergency Management, and other federal emergency organizations, such as FEMA. It is our goal to be able to work with these organizations to develop plans to safely integrate SUAS into emergency planning in order to leverage their unique and economical capabilities in the hopes of saving lives in a natural disaster scenario, such as was attempted during a Mudslide in Colorado on May 25, 2014[1]. The ability to contribute positively in this type of situation requires prior planning and coordination across several agencies. Granting Menet Aero this exemption will allow us to build those relationships and test procedures so that we can be counted on when lives are on the line.

Summary for Federal Register

Menet Aero, Inc. seeks exemption from the requirements of 14 CFR 21, Subpart H, 14 CFR 61.3 ©, 14 CFR 61.113 & 14 CFR 61.133, 14 CFR 91.9, 14 CFR 91.105, 14 CFR 91.109, 14 CFR 91.119, 14 CFR 91.121, 14 CFR 91.151, 14 CFR 91.203 (a) & (b), 14 CFR 91.213, and 14 CFR 91 Subpart E.

This exemption will allow Menet Aero, Inc. to operate Unmanned Aerial Systems (UAS) for commercial and non-recreational purposes over various areas within the United States. Menet Aero is a team of experienced aviation personnel whose goal is to provide manned and unmanned aviation services to a variety of industries and organizations under the experienced and watchful oversight of professional aviators. Our core business focus is providing our clients and partners with the most economical aviation solutions to meet their needs while not compromising the

[1] Reference: http://www.cpr.org/news/story/how-mesa-county-used-drones-search-and-rescue-efforts-after-landslide

safety or integrity of the National Airspace System (NAS). UAS operations conducted by Menet Aero will benefit the public as a whole by allowing commercial entities, public agencies, and research institutions access to potentially game-changing technology with the oversight of those intimately familiar with FAA regulated operations.

Additional Information, View, or Arguments to Support Menet Aero's Request

To further illustrate the potential societal and economic benefit of using an SUAS versus a traditional manned platform in a natural disaster scenario such as search and rescue, it is worth noting that the 2014 rate of reimbursement for the use of a National Guard UH-60 Blackhawk helicopter during an emergency ranges from $3,496 to $5,253 per hour, depending on the model.[1] If a SUAS were employed, the reimbursement rate is more likely to be less than $100 per hour. Additionally, the imagery gather by an SUAS can be electronically distributed via cloud technology and scoured over by hundreds of eyes, versus being limited to the just the crew of a traditionally manned search and rescue platform. With technologies such as 3D terrain mapping, SUAS can bring a level of situational awareness to FEMA planners that was not previously routinely available. This presents an opportunity to more effectively employ manned aviation assets by pinpointing their search efforts based of the information gathered with SUAS assets, as well as by providing better assessments of the operational environment.

Conclusion

As presented above, Menet Aero, Inc. seeks an exemption pursuant to 14 CFR 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012. This will permit the safe operation of various SUAS commercially and non-recreationally, without and airworthiness certificate, for the purposes of providing business, research institutions, and government agencies access to the most economical aviation solutions to meet their needs, while not compromising the safety or integrity of the National Airspace System. By granting this petition, the FAA Administrator will be fulfilling the Congressional mandate of the FAA Modernization and Reform Act of 2012, while also advancing the interests of the public.

[1] Reference: *Office of the Secretary of Defense Memo*; Subject: *Fiscal Year 2014 Department of Defense Fixed Wing and Helicopter Reimbursement Rates* http://comptroller.defense.gov/Portals/45/documents/rates/fy2014/2014_f_h.pdf