Exemption No. 11112

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20591

In the matter of the petition of **VDOS GLOBAL, LLC** for an exemption from §§ 91.9 (b)(2); 91.9(c); 91.203(a) and (b); 91.207(a)(2) 91.405(a) and (b); 91.407(a)(1); 91.409(a)(1); and 91.417(a) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2014-0382**

GRANT OF EXEMPTION

By letter dated June 2, 2014, Mr. Brian Whiteside, President of VDOS Global, LLC, 230 SW 6th Street, Corvallis, Oregon 97333 petitioned the Federal Aviation Administration (FAA) for an exemption from §§ 91.9(b)(2); 91.9(c); 91.203(a) and (b); 91.207(a)(2); 91.405(a) and (b); 91.407(a)(1); 91.409(a)(1); and 91.417(a) of Title 14, Code of Federal Regulations (14 CFR). The exemption would allow operation of unmanned aircraft systems (UAS) for the purpose of flare stack inspections on fourteen Shell Oil Gulf of Mexico production platforms that are beyond 12 nautical miles (nm) from the coast of the United States.

The petitioner requests relief from the following regulations:

> Section 91.9(b)(2) prescribes that no person may operate U.S.-registered civil aircraft unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.
>
> Section 91.9(c) prescribes that no person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of the chapter.

Section 91.203(a) prohibits any person from operating a civil aircraft unless it has within it (1) an appropriate and current airworthiness certificate; and (2) an effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft Registration Application as provided for in § 47.31(c)

Section 91.203(b) prescribes that no person may operate a civil aircraft unless the airworthiness certificate or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

Section 91.207(a)(2) requires, in pertinent part, that when operating a flight other than one under parts 121, 125, or 135, there must be attached to the airplane an approved personal type or an approved automatic type emergency locator transmitter that is in operable condition.

Section 91.405(a) requires that an aircraft operator or owner shall have that aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in part 43 of the chapter.

Section 91.405(b) requires that an aircraft operator or owner shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service.

Section 91.407(a)(1) prescribes that no person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of this chapter.

Section 91.409(a)(2) prescribes that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21.

Section 91.417(a) prescribes that—

(a) Each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or

approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft that are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

The petitioner supports its request with the following information:

The petitioner has provided the following information – contained in its petition and proprietary supporting documentation: 1) VDOS Operations Guide, and 2) Aeryon SkyRanger™ User Guide (all collectively referred to as operator's manual) – in support of its exemption request.

The FAA has organized the petitioner's information into four sections: 1) the unmanned aircraft system, 2) the UAS Pilot In Command (PIC), 3) the UAS operating parameters and 4) public interest.

Unmanned Aircraft System

The unmanned aircraft system (UAS) VDOS proposes to use is constructed by Aeryon Labs, Inc. and referred to as the *Aeryon SkyRanger* (hereafter referred to as SkyRanger). The SkyRanger is commonly referred to as a quad copter (4 rotors and 4 motors) which weighs a total of 5.3 pounds (lbs.) without payload and is powered by lithium polymer batteries. It can carry payloads up to 600 grams (1 lb., 5 ounces) resulting in a total weight of no more than 6½ lbs. and has an operational range of up to 1.6 nautical miles. The SkyRanger can be operated with a maximum wind threshold of 40 miles per hour (MPH) for sustained winds and wind gusts up to 55 MPH.

The SkyRanger can be operated entirely by a touch-screen, map-based interface. This means the operator only needs to command the system where to go, and the system does all the flying for the operator. The SkyRanger can be operated in both semi and fully autonomous flight modes, with the operator simply clicking on a map to create a pre-planned flight path for a flight. In addition, the operator can create no fly zones or maximum flight ranges and altitudes so the system cannot enter areas deemed unsafe or unnecessary to fly over.
The petitioner states further that the UAS has built-in intelligent fault handling which allows the SkyRanger to detect a system fault while in the air and automatically fly back to its take-off location and land. Faults that can be detected include: loss of communication; exceeding pre-set wind thresholds; and low battery levels.

All flight operations are global positioning system (GPS) controlled, making the system easy to navigate. At any point if the operator is not explicitly commanding the system to move, the system automatically holds its GPS position. The flight control system employs not only GPS positioning but a variety of sensors including sonar, barometric pressure, temperature, wind speed and others to ensure stability so long as wind thresholds are not exceeded. Also a flight

termination link – to prevent a "fly away" or other potentially dangerous situation – is available to the operator.

The petitioner did not request an exemption under part 45 concerning the display of marks on the UAS; however it did request an exemption under § 91.9(c) which specifically references part 45. The petitioner requests an exemption from § 91.9(c) because no official marking systems for UAS have been established yet for operations inside the National airspace System (NAS). The petitioner has instead offered to mark the system with the name of the organization and location or origin.

The petitioner also requests relief from maintenance and inspection requirements under §§ 91.405(a) and (b), 91.407(a)(1), 91.409(a)(1) and 91.417(a). The petitioner states that an exemption should be granted under these sections because the UAS to be used is not a U.S. registered civil aircraft and therefore 14 CFR 91 regulations do not apply and further a designated official certified by the FAA to have maintenance signature authority does not exist. However, VDOS has indicated it will employ a maintenance and quality assurance program which meets or exceeds applicable regulatory standards for U.S. registered aircraft. No operations will take place without inspections and maintenance items being completed. All inspections and maintenance action items will be documented in aircraft logs, which will be made available upon request and kept with the control station equipment during all operations. These inspections will occur offshore in the Gulf of Mexico, further than 12 nm from the coast line and outside of the U.S. Air Defense Identification Zone (ADIZ).

The petitioner states further that the SkyRanger is nearly maintenance free since it performs automatic pre-flight checks prior to flight and the failure of any check will prevent take-off. The petitioner notes that checks which cannot be done by the system will be performed by a qualified person prior to each flight. The petitioner further states that Original Equipment Manufacturer (OEM) requirements will be followed in the performance of maintenance, inspection and record keeping for the SkyRanger as provided in the Operations Guide. Also, the petitioner will implement a maintenance and quality assurance program for the SkyRanger.

The Petitioner states that the OEM defines the maintenance requirements for the unmanned aircraft and per those requirements VDOS will ensure that OEM qualified maintainers are performing all inspections to precise OEM standards. No operations will take place without required inspections and maintenance items being completed. Further, all inspections and maintenance action items will be documented in aircraft logs and communicated to the OEM as required. Aircraft maintenance logbooks will be made available upon official request.

UAS Pilot In Command (PIC)

The petitioner states that it has two operators who are both commercially rated pilots and have years of experience in multiple unmanned systems. These operators will be flight current for both manned and unmanned aircraft and will hold a current Class II FAA medical certificate with appropriate flight currency. Further, the petitioner indicates that the PICs will be certified to operate by the unmanned system manufacturer.

The petioner notes that for all flight operations a PIC will be designated and this person will be directly responsible for the operation of the UAS and the safety of the operation. It will be the responsibility of the PIC to ensure the operation complies with all applicable regulations and/or ensures professional "best practice" to all applicable regulations.

In addition, for each operation an observer/back-up pilot will be responsible to visually maintain contact with the SkyRanger and scan the area for undetected aircraft or obstacles. The observer will also handle the communications between the PIC, external crew, air safety officer and the platform safety officer. The observer will also be a certified and current system operator and will assume control of the SkyRanger should the PIC become incapacitated.

UAS Operating Parameters

The petitioner states that according to § 91.101, it is not subject to §§ 91.103 - 91.199 since all VDOS operations will be outside the 12 nm limit of the United States.

The petitioner states that all flights will remain within visual line of sight (VLOS) of the pilot or observer. The petitioner further states that if a pilot's view becomes obstructed and line-of-sight is lost, the pilot may instruct the UAS to hover in place until line-of-sight is reestablished, to return to the take-off position, or to land at the current position. The petitioner notes that the UAS will operate at or below 300 feet mean sea level and will occur offshore in the Gulf of Mexico, further than 12 nm from the coast line. The petitioner further notes that it will launch and recover its unmanned aircraft vehicle from the production platform in international water and will not be transitioning to/from any applicable airports, airways or waypoints. The petitioner states that all flights will take place only under visual flight conditions and all applicable visual flight rules will be followed. No flights will occur from sunset to sunrise. Each flight will be operated in autonomous mode with manual operations permitted only in case of an emergency and the flights will be operated during periods when no helicopter traffic to or from the platform is planned or is occurring.

The petitioner notes that a launch operation will take place at a pre-detemined Landing Zone and that the Landing Zone will be clearly marked to ensure safety with ground personnel. The petitioner further notes that the PIC cannot launch the system without approval from the platform safety officer, air traffic officer, and the observer. Flights will not last any longer than 50 minutes.

The petitioner has requested an exemption from § 91.207(a)(2),which requires an emergency locator transmitter (ELT) attached to the aircraft. The petitioner states that an ELT would not be needed on the UAS because all operations will be conducted within VLOS of the PIC and observer. VDOS further states that should communications with the system be lost, the aircraft has a lost link protocol that returns it to a pre-planned waypoint. Its GPS location is saved at all times with the aircraft's recorded telemetry and with these measures in place. The aircraft'slocation will be known at all times and should a mishap occur the aircraft will be immediately accounted for.

Public Interest:

The petitioner states that, performing these stack inspections with unmanned systems is a benefit to the public for the following reasons: 1) the operation significantly improves safety and reduces risk by alleviating human exposure to danger; 2) there is a compelling need to improve such inspection processes and save operating costs; 3) this service can provide a means of environmental monitoring during inspections since the inspections will aid in documenting and ensuring the structure emissions process is working properly and that harmful gases are not being released into the environment; and 4) VDOS Global LLC is prepared to share operational data with the FAA.

Discussion of Public Comments:

A summary of the petition was published in the Federal Register on July 15, 2014 (79 FR 16524). The petition received two supporting comments.

Of the two comments received, one was from Association of Unmanned Vehicle Systems International (AUVSI) and the other from an individual. The individual indicated that risk to current safety inspectors would be reduced by utilizing UAS with no increased risk to the public or environmental safety. AUSVI commented that use of the UAS would allow certain activities that have never before been possible while maintaining at least the same level of safety.

The FAA's analysis is as follows:

Unmanned aircraft system (UAS)

Although the petitioner did not request relief from Part 21of 14 CFR, the FAA notes that Part 21 requires all aircraft in the NAS to hold an airworthiness certificate. However in accordance with the statutory criteria provided in Section 333 of P.L. 112-95 in reference to 49 USC 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 although not requested, relief from 14 CFR Part 21, and any associated noise certification and testing requirements of part 36, is not necessary.

The petitioner's Operations Guide reflects all maintenance of the UAS will be conducted as specifically required by the OEM and that all maintenance will be documented in the flight manual, which must be in possession of the operator at all times. The Operations Guide further states only qualified OEM maintainers will perform inspections and maintenance per OEM standards. The Operations Guide reflects that the petitioner will implement a maintenance and quality assurance program for the SkyRanger.

The FAA has carefully considered the petitioner's information and determined that its UAS operations will not adversely affect safety with regard to the regulatory maintenance and alteration requirements of §§ 91.405(a)(1), 91.407(a) (1), 91.409(a)(1) and (2), and recordkeeping requirements of 91.417(a) and (b), provided changes are made to the Operations Guide as required by the conditions and limitations included in this exemption. These changes include: requirements to develop and document the maintenance, overhaul, replacement, and inspection requirements, including inspection intervals, if applicable. The petitioner is also required to establish procedures for the documentation and retention of maintenance actions, alterations made, and inspections performed to the SkyRanger in the Operations Guide. Additionally, Operation Guide procedures will be necessary for the UAS technician qualification and authorization criteria. Lastly, the Operations Guide must include preflight inspection procedures that account for any discrepancies not already covered during maintenance and inspection of the SkyRanger. The FAA finds these additional requirements are necessary to ensure the petitioner's proposed UAS operations do not adversely affect safety in the NAS and of people and property on the ground. Therefore, the FAA finds that exemption from §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b) is warranted subject to the conditions and limitations below.

Pilot In Command of the UAS

As described in VDOS' petition, the PIC will be a commercially rated pilot and hold a current Class II FAA medical certificate along with appropriate flight currency. The PIC must complete all additional manufacturers required or recommended training.

Operating parameters of the UAS

The FAA disagrees with the petitioner's interpretation that an exemption from certain sections of part 91 do not apply because its operations will be outside the 12 nm limit of the United States. Section 91.703 requires compliance with International Civil Aviation Organization's Annex 2 "Rules of the Air" when over the "high seas" (beyond the 12 nm limit) and with most of the requirements of part 91[1] over the high seas when those requriements are not inconsistent with the Annex 2 standards.

In reviewing the VDOS petition, the FAA has determined that relief from § 91.119(c) is needed. Section 91.119(c) *Minimum safe altitudes*, states that no person may operate an aircraft below the following altitudes; *over other than congested areas,* an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. The petitioner states that it will operate pursuant to the following, self-imposed, restrictions the FAA has determined are related to § 91.119:

- Scheduling operations in between any scheduled departures or arrivals of helicopter traffic to or from the platform;
- Issuing a NOTAM 48 hours prior to the operation describing the location and times of the operation;
- Creating no fly zones or maximum flight ranges and altitudes so the system cannot enter areas deemed unsafe or unnecessary to fly over; and
- Securing approvals prior to launch and recovery from the platform safety officer, air traffic officer, visual observer (VO) and PIC.

Ultimately, it is the pilot's responsibility to maintain the minimum safe altitudes required by § 91.119. Thus, all nonparticipating persons, vessels, vehicles, and structures will be required to be at least 500 feet from flight operations. With regard to participating persons, vessels, vehicles and structures closer than 500 feet from the UAS, operations are permitted when operationally necessary. However at no time can operations be conducted so close as to

[1] Section 91.703(a)(3) excepts §§ 91.117(a), 91.307(b), 91.309, 91.323, and 91.711.

present an undue hazard to the PIC or VO, per § 91.119(a). Thus, the FAA finds that relief from § 91.119(c) is warranted provided adherence to the procedures in the operator's manual and the FAA's additional conditions and limitations outlined below. Relief from § 91.119(a) is not granted.

The FAA also has determined that the petitioner will need relief from § 91.151(a), *Fuel requirements for flight in VFR conditions*. Prior relief has been granted for manned aircraft to operate at less than the prescribed minimums, including Exemption Nos. 2689, 5745, and 10650. In addition, similar UAS-specific relief has been granted by Exemption Nos. 8811, 10808, and 10673 for daytime, Visual Flight Rules (VFR) conditions. The UAS batteries provide approximately 50 minutes of powered flight (with payload) and provide battery level and battery time remaining in minutes and seconds to the PIC. Further, the SkyRanger operating manual states: "start every flight with a fully charged battery in the aerial vehicle." Also, in the event that the UAS should run low on power, the PIC will be alerted and can land the SkyRanger as soon as possible. Given the location and limitations on the UAS, these factors provide the FAA with sufficient reason to grant the relief from § 91.151(a) in accordance with the conditions and limitations below.

Regarding an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA), Section 333, in pertinent part, states that a determination must be made regarding which types of UAS operations do not create a hazard to users of the NAS. The majority of current UAS operations occurring in the NAS are being coordinated through Air Traffic Control (ATC) by the issuance of a COA. This is an existing process that not only makes local ATC facilities aware of UAS operations, but also provides ATC the ability to consider airspace issues that are unique to UAS operations. The COA may require the operator to request a Notice to Airman (NOTAM), which is the mechanism for alerting other users of the NAS to the UAS activities being conducted. Therefore, the FAA believes that adherence to this process is the safest and most expeditious way to permit VDOS to conduct its proposed UAS operations. The conditions and limitations below prescribe the requirement for VDOS to obtain an ATO-issued COA.

Regarding the petitioner's requested relief from §§ 91.9(b)(2) *Civil aircraft flight manual, marking, and placard requirements* and 91.203(a) and (b) *Civil aircraft: Certifications required*, relief from these sections is not necessary. Relevant materials may be kept in a location accessible to the PIC in compliance with the regulations.

Although the petitioner did not request an exemption from Part 45, the petitioner did request an exemption under § 91.9(c) which specifically references Part 45 regarding identification and registration of the aircraft. As permitted under § 45.29, if surfaces authorized for

displaying marks are not large enough to meet the size requirement, marks may be as large as practicable.

The Petitioner has also requested an exemption from § 91.207 which requires an emergency locator transmitter on the aircraft. However, according to § 91.207(a) which references § 91.207(f)(9), no ELT is required if the aircraft is equipped to carry not more than one person. Thus, no exemption is required from § 91.207.

Public Interest

The FAA finds that a grant of exemption is in the public interest. The enhanced safety achieved using a 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.

The table below summarizes the FAA's determinations regarding the relief sought by the petitioner:

Relief sought by petitioner (14 CFR)	**FAA determination (14 CFR)**
91.9(b)(2)	Relief not necessary
91.9(c)	Relief not necessary
91.109	Relief not necessary
91.119(c)	Relief granted with conditions and limitations
91.151	Relief granted with conditions and limitations
91.203(a) and (b)	Relief not necessary
91.207(a)(2)	Relief not necessary
91.405(a) and (b)	Relief granted with conditions and limitations
91.407(a)(1)	Relief granted with conditions and limitations
91.409 (a)(1)	Relief granted with conditions and limitations
91.417(a)	Relief granted with conditions and limitations

The FAA's 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, VDOS Global, LLC is granted an exemption from 14 CFR 91.9 (c); 91.119(c), 91.151, 91.405(a) and (b); 91.407(a)(1); 91.409(a)(1); and 91.417(a) to the extent necessary to allow VDOS to operate unmanned aircraft systems for the purpose of flare stack inspections on 14 Shell Oil Gulf of Mexico production platforms with all platforms beyond 12 nm of the coast of the United States. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

Relative to this grant of exemption, VDOS 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 following aircraft described in the operator's manual which is a quad copter (4 blades, 4 rotors) weighing 6½ pounds: Aeryon Labs SkyRanger (SkyRanger or UAV). Proposed operations of any other aircraft will require a new petition or a petition to amend this grant.

2. The UA may not be flown at a ground speed exceeding 87 knots or 100 mph.

3. The UAS must be operated at an altitude of no more than 400 feet above ground level (AGL), as indicated by the procedures specified in the operator's manual. All altitudes reported to ATC must be in feet AGL.

4. The UA must be operated within visual line of sight (VLOS) of the PIC and the visual observer (VO) 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 medical certificate.

5. All 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 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 the operator's manual.

6. Provided the additional requirements identified in these conditions and limitations are added or amended, the operator's manual is considered acceptable to the FAA. The operator's manual and this grant of exemption must be maintained 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 operator's manual, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operator's manual.

7. Prior to each flight the PIC must inspect the UAS to ensure it is in a condition for safe flight. 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. The Ground Control Station must be included in the preflight inspection. All maintenance and alterations must be properly documented in the aircraft records.

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 in accordance with the operator's manual. The PIC who conducts the functional test flight must make an entry in the UAS aircraft records of the flight. The requirements and procedures for a functional test flight and aircraft record entry must be added to the operator's manual.

9. The preflight inspection section in the operator's manual must be amended to include the following requirement: The preflight inspection must account for all discrepancies, i.e. inoperable components, items, or equipment, not covered in the relevant preflight inspection sections of the operator's manual.

10. The operator must follow the manufacturer's UAS 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.

11. The operator must 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 logbook, including total flight hours,

description of work accomplished, and the signature of the authorized SkyRanger technician returning the SkyRanger to service.

12. SkyRanger technicians must receive and document training referenced in the operator's manual.

13. Each UAS operated under this exemption must comply with all manufacturer System and Safety Bulletins.

14. SkyRanger maintenance personnel must make a record entry in the UAS logbook or equivalent document of the corrective action taken against discrepancies discovered between inspections.

15. The Pilot In Command (PIC) must possess at least a commercial pilot certificate and at least a current second-class medical certificate. 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.

16. The PIC must complete all additional manufacturers required or recommended training.

17. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the security perimeter and land or be recovered in accordance with the operator's manual.

18. The PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with the operator's manual.

19. The PIC is prohibited from beginning a SkyRanger flight unless (considering wind and forecast weather conditions) there is enough power to fly to the first intended point of landing and, assuming normal cruising speed, to fly after that for at least 10 minutes.

20. The operator must obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

21. 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.

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

23. The documents required under14 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 yield the right of way to all other 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. UAS operations may not be conducted during night, as defined in 14 CFR 1.1.

27. All operations shall be conducted outside the U.S. 12 nm limit, but within airspace managed by the U.S. and within the U.S. Flight Information Region (FIR) boundary.

28. All operations must be conducted under visual meteorological conditions (VMC). 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.

29. Operation of the UA must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures.

30. Operations of the UA 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 as to present an undue hazard, per § 91.119(a).

31. Operations of the UA may be conducted at distances less than 500 feet from unoccupied vessels, vehicles or structures so long as the owner/controller grants such

permission and the operation closer to these objects presents no safety hazard to nonparticipating persons or property.

32. 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.

Unless otherwise specified in this grant of exemption, the unmanned aircraft system (UAS), pilot in command (PIC), and operator must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on December 31, 2016, unless sooner superseded or rescinded.

Issued in Washington, DC, on December 10, 2014.

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