



In the matter of the petition of

**KIWI TECHNOLOGIES, INC.
D/B/A GUARDIAN
AGRICULTURE**

For an exemption from
§§ 61.3(a)(1)(i), 91.7(a), 91.119(c),
91.121, 91.151(b), 91.403(b),
91.405(a), 91.407(a)(1), 91.409(a)(1)
and (2), 91.417(a) and (b), 137.19(c),
137.19(d), 137.19(e)(2)(ii),
137.19(e)(2)(iii), 137.19(e)(2)(v),
137.31, 137.33, 137.41(c), and
137.42 of Title 14, Code of Federal
Regulations

Exemption No. 19866
Regulatory Docket No. FAA-2022-0077

GRANT OF EXEMPTION

By letter dated January 19, 2022, and additional information on April 20, 2022, Ms. Lisa Ellman and Mr. Matthew J. Clark, attorneys of record for Kiwi Technologies, Inc. d/b/a Guardian Agriculture (Guardian Agriculture), Columbia Square, 555 Thirteenth Street, NW, Washington, DC 20004, petitioned the Federal Aviation Administration (FAA) on behalf of Guardian Agriculture for an exemption from §§ 61.3(a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1), 91.409(a)(2), 91.417(a), 91.417(b), 137.19(c), 137.19(d), 137.19(e)(2)(ii), 137.19(e)(2)(iii), 137.19(e)(2)(v), 137.31, 137.33, 137.41(c), and 137.42 of Title 14, Code of Federal Regulations (14 CFR). If granted, the exemption would allow Guardian Agriculture to operate its proprietary MOE unmanned aircraft system (UAS), which is a multi-rotor electric vertical take-off and landing (eVTOL) aircraft, with a maximum takeoff weight (MTOW) of 494 pounds (lbs.) to provide aerial application services in the delivery of crop protection products in connection with a Part 137 agricultural aircraft operation.

Petition for Exemption

Guardian Agriculture requests relief from the following regulations:

Section 61.3 prescribes, in pertinent part, the *requirement* for certificates, ratings, and authorizations.

(a) Required pilot certificate for operating a civil aircraft of the United States. No person may serve as a required pilot flight crewmember of a civil aircraft of the United States, unless that person:

- (1) Has in the person's physical possession or readily accessible in the aircraft when exercising the privileges of that pilot certificate or authorization—
 - (i) A pilot certificate issued under this part and in accordance with § 61.19;

Section 91.7(a) prescribes that, no person may operate a civil aircraft unless it is in an airworthy condition.

Section 91.119 prescribes, in pertinent part, that -

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

- (c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Section 91.121, prescribes that -

- (a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating—
 - (1) Below 18,000 feet MSL, to—
 - (i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;
 - (ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or
 - (iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or
 - (2) At or above 18,000 feet MSL, to 29.92" Hg.
- (b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation.
- (c) To convert minimum altitude prescribed under §§ 91.119 and 91.177 to the minimum flight level, the pilot shall take the flight level equivalent of the minimum altitude in feet and add the appropriate number of feet specified below, according to the current reported altimeter setting.

Section 91.151(b) prescribes that no person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

Section 91.403(b) prescribes that no person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including part 43 of this chapter.

Section 91.405 prescribes that each owner and operator of an aircraft –

- (a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter;

Section 91.407 prescribes the Operation after maintenance, preventive maintenance, rebuilding, or alteration –

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

Section 91.409 prescribes aircraft inspections –

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

No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an “annual” inspection in the required maintenance records.

Section 91.417 prescribes aircraft maintenance records –

- (a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
 - (1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include -
 - (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 which 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) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.
- (b) The owner or operator shall retain the following records for the periods prescribed:
- (1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.
 - (2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.
 - (3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

Section 137.19 prescribes, in pertinent part, that –

- (c) Commercial operator—pilots. The applicant must have available the services of at least one person who holds a current U.S. commercial or airline transport pilot certificate and who is properly rated for the aircraft to be used. The applicant himself may be the person available.
- (d) Aircraft. The applicant must have at least one certificated and airworthy aircraft, equipped for agricultural operation.
- (e) Knowledge and skill tests. The applicant must show, or have the person who is designated as the chief supervisor of agricultural aircraft operations for him show, that he has satisfactory knowledge and skill regarding agricultural aircraft operations, as described in paragraphs (e) (1) and (2) of this section.
 - (1) The test of knowledge consists of the following:
 - (i) Steps to be taken before starting operations, including survey of the area to be worked.
 - (ii) Safe handling of economic poisons and the proper disposal of used containers for those poisons.
 - (iii) The general effects of economic poisons and agricultural chemicals on plants, animals, and persons, with emphasis on those normally used in the areas of intended operations; and the precautions to be observed in using poisons and chemicals.
 - (iv) Primary symptoms of poisoning of persons from economic poisons, the appropriate emergency measures to be taken, and the location of poison control centers.

- (v) Performance capabilities and operating limitations of the aircraft to be used.
- (vi) Safe flight and application procedures.
- (2) The test of skill consists of the following maneuvers that must be shown in any of the aircraft specified in paragraph (d) of this section, and at that aircraft's maximum certificated take-off weight, or the maximum weight established for the special purpose load, whichever is greater:
 - (i) Short-field and soft-field takeoffs (airplanes and gyroplanes only).
 - (ii) Approaches to the working area.
 - (iii) Flare-outs.
 - (iv) Swath runs.
 - (v) Pullups and turnarounds.
 - (vi) Rapid deceleration (quick stops) in helicopters only

Section 137.31 prescribes that no person may operate an aircraft unless that aircraft—

- (a) Meets the requirements of §137.19(d); and
- (b) Is equipped with a suitable and properly installed shoulder harness for use by each pilot.

Section 137.33 prescribes that —

- (a) No person may operate an aircraft unless a facsimile of the agricultural aircraft operator certificate, under which the operation is conducted, is carried on that aircraft. The facsimile shall be presented for inspection upon the request of the Administrator or any Federal, State, or local law enforcement officer.
- (b) Notwithstanding part 91 of this chapter, the registration and airworthiness certificates issued for the aircraft need not be carried in the aircraft. However, when those certificates are not carried in the aircraft they shall be kept available for inspection at the base from which the dispensing operation is conducted.

Section 137.41 prescribes, in pertinent part, that —

- (c) Pilot in command. No person may act as pilot in command of an aircraft unless he holds a pilot certificate and rating prescribed by §137.19 (b) or (c), as appropriate to the type of operation conducted. In addition, he must demonstrate to the holder of the Agricultural Aircraft Operator Certificate conducting the operation that he has met the knowledge and skill requirements of §137.19(e). If the holder of that certificate has designated a person under §137.19(e) to supervise his agricultural aircraft operations the demonstration must be made to the person so designated. However, a demonstration of the knowledge and skill requirement is not necessary for any pilot in command who—
 - (1) Is, at the time of the filing of an application by an agricultural aircraft operator, working as a pilot in command for that operator; and
 - (2) Has a record of operation under that applicant that does not disclose any question regarding the safety of his flight operations or his competence in dispensing agricultural materials or chemicals.

Section 137.42 prescribes that no person may operate an aircraft in operations required to be conducted under part 137 without a safety belt and shoulder harness properly secured about that person except that the shoulder harness need not be fastened if that person would be unable to perform required duties with the shoulder harness fastened.

The petition for exemption and documents listed in Attachment 1 are hereinafter referred to as the operating documents. This exemption is limited to the MOE Unmanned Aircraft.

Guardian Agriculture supports its request with the following information:

Guardian Agriculture states that it proposes to conduct agricultural aircraft operations similar to those granted to DroneSeed Co. in exemption No. 17936 (DroneSeed Exemption)¹ and Yamaha Motor Corporation, UAS in exemption No. 11448 (Yamaha Exemption).² Specifically, Guardian Agriculture proposes to operate the MOE UAS weighing over 55 lbs., but no more than 494 lbs., for various agricultural operations and vegetation control. Guardian Agriculture also states that they intend to pursue type certification of the MOE UAS. To support the certification activities, Guardian Agriculture states that it applied for a Special Airworthiness Certificate (SAC-EC), and that the SAC-EC was issued December 1, 2021 for the purposes of research and development (R&D) and crew training. Additionally, Guardian Agriculture indicates that it has a separate pending Part 11 Petition for Exemption seeking relief necessary to operate the UAS for R&D and crew training purposes.³

Description of the Unmanned Aircraft Systems (UAS)

Guardian Agriculture states that they manufacture the MOE UAS which is a large eVTOL four-rotor (quadcopter) UAS with a MTOW of 494 lbs., that is designed specifically for conducting 14 CFR Part 137 agricultural operations. According to Guardian the MOE is a highly-automated battery powered eVTOL that will typically operate a series of short duration flights and has a maximum endurance of up to 12 minutes depending on the payload weight. Its maximum operating speed is 25 knots (kn) and its maximum operating altitude is 100 feet (ft) above ground level (AGL).

According to the petition, when the UAS is powered on it reports real-time diagnostic and condition data back to the operator via integrated high reliability, low latency, bidirectional data links, including temperature and battery information. Command and Control (C2) traffic on the network is separated and prioritized by a specially engineered low latency high reliability data channel. The C2 channel is reserved for traffic necessary for the remote pilot-in-command (PIC) supervision and provides the mechanism to assert control over the aircraft and remove traction power from the motors. The data link has redundant antennae, radio-frequency (RF) amplifiers, and RF receivers. Further, Guardian explains that if the C2 traffic

¹ Exemption No. 17936 issued August 13, 2018.

² Exemption No. 11448 issued May 1, 2015.

³ On June 9, 2022, the FAA issued Exemption No. 19139 to Guardian Agriculture to the extent necessary to allow Guardian Agriculture to operate its UAS at 100 feet AGL or less for the purposes of conducting research and development (R&D) and crew training in accordance with 14 CFR §§ 21.191(a) and 21.191(c) for type certification.

on the data link is interrupted the Flight Termination System (FTS) handles it. Finally, Guardian Agriculture states that the aircraft will be remote ID compliant.

Guardian Agriculture explains that its UAS has three computers onboard: a chassis controller (CC), the flight controller (FC) and the FTS. The CC performs flight mode control, spray control, data logging, realtime data feedback, and high level mission sequencing functions. The FC is a Pixhawk running a minimally modified version of the PX4 open-source flight control stack that Guardian has extended to support the motor controller, data, logging and aircraft-level fall back control mode requirements to detect and handle CC failure modes. The FTS acts as an independent safety monitor to enable and support aircraft supervision by the remote PIC, controls the power states of the high-voltage propulsion power system, operates safety-related aircraft lighting, and responds to command traffic.

When the propulsion system is active the aircraft uses a lighting system that includes a Technical Standard Orders (TSO)-approved ACS beacon. Auxiliary lighting aids the remote PIC in situational awareness and includes, but is not limited to, Aircraft Orientation Visual Indicators, Traction Battery Live Visual Indicators, Aircraft Safe to Approach Indicator and a Aircraft Summary Alarm Visual Indicator. Guardian Agriculture explains that the aircraft's electronics have a redundant power source, including a back up battery that maintains power to all electronics when the battery is disconnected or the primary isolated DC to DC Converter is in a fault state.

Guardian Agriculture also explains the modular payload isolates agricultural products from interacting with conflict payloads, and allows the aircraft to be refitted for different missions, such as missions that involve liquid payloads versus solid payloads.

Regulatory Relief Requested

UAS Pilot in Command (PIC) and Flight Personnel

Guardian Agriculture requests relief from 14 CFR §§ 61.3(a)(1)(i), *Requirement for certificates, authorizations and ratings*, and 137.19(c), *Certification Requirements*.

Guardian Agriculture requests relief from these provision to the extent necessary to allow persons holding a remote PIC certificate issued with a small UAS rating to act as remote PIC when conducting commercial agricultural operations using the MOE UAS. According to Guardian Agriculture, the training and knowledge requirements of a Part 61 certificate are unnecessary due to the unique design and the highly automated operation of the MOE UAS, and that an equivalent level of safety will be maintained because: 1) all the pilots conducting the proposed operations will have to demonstrate compliance with the relevant knowledge and skills requirements of 14 CFR § 137.19; 2) the operations will occur in a low-risk environment; and 3) Guardian Agriculture has a comprehensive hiring, training, and testing protocols. Guardian Agriculture states that the FAA relied on factors like these when it determined in the DroneSeed Exemption that the agricultural operations proposed could safely be conducted using a remote PIC holding a Part 107 remote pilot certificate. According to Guardian Agriculture, like in DroneSeed, they will recruit and retain remote PICs and VOs

that already hold a Part 107 certificate in good standing or who have prior experience operating an agricultural aircraft. Moreover, Guardian Agriculture states that their pilots will hold a valid FAA Class II Medical certificate and have prior experience operating a UAS. Additionally, Guardian states that they will leverage available resources provided through membership in industry organizations.

Guardian Agriculture states that the Chief Supervisor of Agricultural Operations (Chief Pilot)⁴ will hold a Part 61 certificate, Part 107 remote pilot certificate and be proficient in the knowledge and skill requirements of 14 CFR § 137.19. According to Guardian Agriculture's Concept of Operations, the Chief Pilot also will complete a knowledge and skills test per FAA Order 8900.1, Volume 5, Chapter 11, pesticide applicator training per 40 CFR § 171.4, hazardous materials transport training per 49 CFR § 172.700-704, commercial/aerial pesticide applicator certification, and Environmental Protection Agency (EPA) compliant worker protection standards (WPS) training for agricultural workers/pesticide handlers. Guardian Agriculture also states that all new remote PIC's and visual observers (VOs) will undergo Guardian's Agriculture MOE PIC Training Syllabus modeled after the FAA Industry Training Standard and includes 50 plus hours of ground and flight instruction. Guardian Agriculture asserts that upon completion of the training syllabus, all new employees whether PIC or VO will be required to perform field operations in the VO role until the individual has demonstrated sufficient knowledge of the MOE UAS, and then will be tested in accordance with knowledge and skill requirements of 14 CFR § 137.19.

Unmanned Aircraft System

Guardian Agriculture requests relief from 14 CFR §§ 91.403(b), *General*; 91.405(a), *Maintenance required*; 91.407(a)(1), *Operation after maintenance, preventive maintenance, rebuilding, or alteration*; 91.409(a)(1)(2), *Inspections*; and 91.417(a) and (b), *Maintenance records*.

Guardian Agriculture claims that an exemption is needed because these regulations only apply to an aircraft with an airworthiness certificate and the MOE UAS does not have an airworthiness certificate and because compliance with these regulations in the context of UAS operations is not feasible. Additionally, Guardian Agriculture asserts that an exemption is necessary from 14 CFR § 91.403(b) because it relates to the issue of who is permitted to perform maintenance, and that while Part 43 does not apply to an aircraft without an airworthiness certificate the applicability requirements found in 14 CFR § 91.401 indicate that § 91.403(b) would be applicable to the MOE UAS and therefore an exemption is necessary.

According to Guardian Agriculture, an equivalent level of safety to these maintenance, inspection and record keeping requirements will be maintained by complying with the Guardian Agriculture MOE Operations and Maintenance Handbook which addresses daily maintenance requirements, including schedules for regular maintenance and inspection intervals, and testing and inspection criteria. Additionally, Guardian Agriculture states that they will adhere to the limitations in the Yamaha Exemption, including having the PIC

⁴ Guardian Agriculture's Concept of Operations indicates that the Chief Supervisor of Agricultural Operations is also called the Chief Pilot.

conduct pre-flight inspections of the UAS and all associate equipment to account for all discrepancies and/or inoperable components; prohibiting operation of the aircraft until the necessary maintenance has been performed and the aircraft is found to be in a condition safe for flight; conducting a functional flight test in a controlled environment following replacement of flight critical components and having the PIC record the functional flight test in the aircraft records. Finally, Guardian Agriculture indicates that it has developed comprehensive pre-flight checklists that will identify any components requiring maintenance and the PICs will be trained and certified by Guardian Agriculture to perform the maintenance functions described in the Maintenance Handbook.

UAS Operating Parameters

Guardian Agriculture requests relief from 14 CFR §§ 91.7(a), *Civil aircraft airworthiness*; 91.119(c), *Minimum safe altitudes*; 91.121, *Altimeter settings*; and 91.151(b), *Fuel requirements for flight in VFR conditions*.

With respect to UAS operating parameters, Guardian Agriculture proposes commercial operations with the MOE UAS in remote agricultural environments and over private property with permission from the property owner or controller. Guardian Agriculture states that at least one VO will be utilized for all operations and that visual line of sight (VLOS) will be maintained throughout the entire flight operations. Additionally, Guardian Agriculture states that the MOE UAS is firmware limited, restricting operations to below 100 feet AGL, and under 25 kts.

With respect to the relief sought from 14 CFR § 91.7(a) Guardian Agriculture states that there is no airworthiness certificate for the MOE UAS, and, therefore, consistent with the FAA's prior determination in Exemption No. 11448,⁵ the PIC may determine the UAS to be in airworthy condition prior to flight. According to Guardian Agriculture, this is achieved by adherence to the Guardian Agriculture MOE Maintenance Manual and MOE Pocket Checklist.

As to the relief sought from 14 CFR § 91.119(c), Guardian Agriculture asserts that the ability to operate at lower altitudes is one of the key benefits to using UAS for its proposed agricultural activities, and that an equivalent or greater level of safety is achieved due to the remote, rural and controlled agricultural locations of the proposed operations. Additionally, Guardian Agriculture indicates that the UAS firmware limits operation to 100 ft AGL, and claims that flying at a low altitude increases the aircraft efficiency without posing an increased risk to people or property. Finally, Guardian states that they will comply with the requirements in any Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA).

With respect to the request for relief from 14 CFR § 91.121, Guardian Agriculture asserts that the FAA has previously stated that an equivalent level of safety can be achieved when the PIC uses an alternative means for reporting UAS altitude, such as a global positioning system (GPS). Guardian Agriculture explains that they have three methods of localization that each

⁵ Issued to Yamaha Motor Corporation, USA on May, 1, 2015

supply the Flight Controller with information about the position orientation, and motion of the airframe. These methods include a real time kinematics (RTK) enabled differential global positioning system (DGPS) with on-site RTK ground control point, Inertial Measurement Unit (IMU), and machine vision with ground-based fiducials. According to Guardian Agriculture, all of these operate simultaneously providing improved accuracy and fault tolerance. Additionally, the PIC will check the UAS altitude reading prior to take-off, effectively zeroing the altitude at that point. Guardian Agriculture asserts that this will ensure that an equivalent level of safety to § 91.121 will be achieved.

With respect for the relief requested from 14 CFR § 91.151(b), Guardian states that the FAA has previously determined in the Yamaha Exemption that a five minute reserve power or reserve power recommended by the manufacturer if greater would provide an equivalent level of safety. Guardian Agriculture explains that the MOE UAS operates with short flights limited by its nominal endurance time of approximately 12 minutes or payload depletion, whichever occurs first, and proposes a minimum fuel/power reserve of 20% of the max available UAS battery charge. Guardian Agriculture contends that a 20% power reserve will provide sufficient time for the PIC to designate an alternate landing site and transit to that point to land because the proposed operations are always operated under VLOS and visual meteorological conditions (VMC) in undeveloped, sparsely populated and/or agricultural fields. Based on these factors, Guardian Agriculture states that a 20% fuel reserve will provide an equivalent level of safety to the fuel requirements in § 91.151(b).

Regulations Pertaining to Part 137 Certification Requirements

According to Guardian Agriculture relief from 14 CFR § 137.19(d) is necessary because the MOE UAS will not have an airworthiness certificate. Guardian Agriculture explains that through pre-flight inspections and compliance with operating documents, they are capable of ensuring the aircraft is in a condition for safe operation, and that this is consistent with prior exemptions authorizing operation of UAS over 55 pounds in agricultural operations. Furthermore, Guardian Agriculture states that because 14 CFR § 137.31(a) requires an aircraft operated under Part 137 to meet the requirements of § 137.19(d), relief from § 137.31(a) is also required.

Guardian also requests relief from the knowledge and skill requirements of 14 CFR § 137.19(e)(2)(ii), (ii), and (v) asserts that, consistent with the FAA's determination in the DroneSeed Exemption, demonstration of the skills described in these paragraphs is not necessary because they are not compatible with the operation of the MOE UAS during the proposed agricultural operations. According to Guardian Agriculture the training provided to PICs and the training requirements contained in the PIC MOE UAS Training Syllabus provides the PICs with the skills to operate the MOE UAS safely in the proposed operations. Additionally, Guardian Agriculture claims that because the operation of the MOE UAS does not include any of the operations contained in 14 CFR § 137.19(e)(2)(ii), (iii), and (v) safety is not adversely impacted. Moreover, Guardian states is pilots will be required to demonstrate all other skill requirements in 14 CFR § 137.19(e)(2) from which an exemption is not sought.

With respect to the relief Guardian Agriculture requests from the requirements of 14 CFR §§ 137.31(b) and 137.42 relating to the installation and use of safety belts and shoulder harnesses, Guardian Agriculture explains that the relief is necessary because the MOE UAS does not have an onboard pilot and these regulations are meant to ensure the safety of the onboard pilot and crew during crewed agricultural aircraft operations.

With respect to the request for relief from 14 CFR § 137.33(a) and (b), Guardian Agriculture explains that the FAA has previously determined in the DroneSeed Exemption that relief is warranted provided that a facsimile of the agricultural aircraft operator certificate and all certificates of registration are kept in a location accessible to the PIC. Additionally, Guardian Agriculture explains that the MOE UAS will not have an airworthiness certificate and therefore, it cannot keep it available at the base of the dispensing operations as required by § 137.33(b). However, Guardian Agriculture states that it will keep its registration certificates available for inspection.

Public Interest

Guardian Agriculture states that the proposed Part 137 UAS agricultural operations will significantly improve safety as compared to manned aircraft and reduce risk by alleviating human exposure to danger and emissions associated with using full-size fixed wing aircraft for crop spraying. Additionally, Guardian Agriculture explains that its proposed operations will benefit the environment by providing precise applications of agricultural chemicals and minimizing chemical resistance through improved accuracy. Guardian Agriculture also asserts that the use of a battery powered UAS also adds to the environmental benefit for society because it creates no emissions, and the reduced environmental impact is in the public interest. Finally, Guardian Agriculture claims that its proposed operations will benefit American farmers and the American public by supporting agricultural output needs in the U.S.

Other Information Provided

As part of its petition, Guardian Agriculture provided materials marked as “proprietary.” The FAA relied on this information marked as “proprietary” in the FAA’s safety risk analysis to make determinations about Guardian Agriculture’s capabilities. Accordingly, while the entirety of these materials have not been released, they have been identified in the docket for this exemption. *See Attachment 1.*

Federal Register Notice

The FAA has determined that good cause exists for waiving the requirement for *Federal Register* (FRN) publication. The FAA has determined that good cause exists because the exemption, if granted, would not set a precedent and any delay in acting on this petition would be detrimental to Guardian Agriculture. Although the FAA determined that good cause exists for waiving the requirement for FRN, the FAA received two comments from the Airline Pilots Association (ALPA) and the Small UAV Coalition (the Coalition).

Comment in Support

The Small UAV Coalition stated it supports granting the petition for several reasons. First, the UAS offers a safe and efficient means of conducting commercial agricultural operations. Second, the ground and air risk are negligible due to the fact that the operations are not close to non-participating persons, structures or vehicles. Third, it supports granting relief from Part 61 and Part 137 knowledge and training requirements and allowing a Part 107 remote pilot certificate in lieu of a Part 61 pilot certificate for the same reasons that the FAA has previously granted such relief. Finally, the Small UAV Coalition supports the request for relief from specific Part 91 and Part 137 provisions because those provisions are either incompatible or unnecessary in the context of UAS operations.

FAA's Response

The FAA agrees with the Small UAV Coalition regarding safety because of the UAS' low altitude, safety features, and restricted operating location.

Comment in Opposition

The Air Line Pilots Association, International (ALPA) is concerned that documents Guardian Agriculture submitted as proprietary were not available to review. According to ALPA without access to the safety justifications contained in these proprietary documents it is unclear as to how ALPA and other industry representatives can thoroughly review and comment on the petition for exemption.

ALPA also submitted a comment, stating they "cannot support the petition for exemption (PE) without additional information and discussion on this broad package of regulatory exemptions." ALPA elaborated that because Guardian Agriculture requested to withhold proprietary company manuals and related material that it does not have sufficient information to determine whether Guardian Agriculture has provided the necessary risk mitigations for an equivalent level of safety. Specifically, ALPA states that it is unaware as to whether petitioner has addressed the safety-critical operations and systems such as remote PIC and VO training and education, GPS accuracies and redundancies, aircraft detection and avoidance systems, minimum power reserve requirements and fly-away protections.

ALPA also is concerned that the petition does not clearly identify and describe the location(s) areas where the proposed operations will take place. ALPA stated, without this crucial information, it could be surmised that operations (if granted) will be conducted in airspace, near manned commercial operations throughout the National Airspace System (NAS). ALPA opposes commercial UAS operations in controlled airspace (i.e., Class B, C, D, and E) and suggests limiting operational areas, via "Geo-fencing" and requiring the use of Detect and Avoid (DAA) systems. ALPA also articulated several safety concerns with granting the petition on a variety of subjects, such as Command and Control (C2) link failure, chemical spills, pilot minimum qualifications, aircraft airworthiness, altimeter settings, fuel requirements, and maintenance inspections.

FAA's Response

ALPA correctly cited 14 CFR § 11.35(b) as the rationale why proprietary information is not posted on the docket. If received, the FAA will process a Freedom of Information Act (FOIA) request for proprietary information under the DOT procedures found in 49 CFR Part 7. Additionally, the FAA has considered carefully ALPA's concerns regarding if there has been sufficient information furnished to determine whether Guardian Agriculture has provided the necessary risk mitigations for an equivalent level of safety. The FAA has thoroughly reviewed the submitted documents and concluded Guardian Agriculture has provided the necessary information for evaluation and risk mitigation.

The FAA also recognizes the concerns ALPA expressed in its comments, and has incorporated associated conditions and limitations into this exemption designed to mitigate the risks that could occur as a result of the proposed operations, including: issuance of a Notice to Air Missions (NOTAM) issued for all operations; requiring operations be conducted within VLOS of the PIC and the VO; and requiring the UAS PIC always to yield right-of-way to manned aircraft. Furthermore, the FAA developed additional conditions and limitations designed to mitigate certain aspects of the petitioner's operation. In addition, this exemption requires the petitioner to obtain an Agricultural Aircraft Operator Certificate under 14 CFR § 137.11 and list the MOE UAS on the letter of authorization that will accompany the certificate. Finally, the FAA requires FAA observation of the knowledge and skills test required by 14 CFR § 137.19(e) to ensure the pilots have appropriate aeronautical knowledge and training to conduct the proposed operations prior to issuance of a 14 CFR Part 137 Agricultural Aircraft Operator Certificate.

The FAA has concluded there is a public interest in permitting the operations described in this exemption and in Exemption No. 18009, upon which this exemption is based. As discussed later in detail, the limitations under which the petitioner will operate the UAS, combined with the design features, risk mitigation measures described in the operating documents, and the provisions of the FAA-required COA relevant to the mitigation measures to address the risks the proposed operations present. As a result, the FAA concludes the operations the petitioner proposes will not adversely affect safety.

The FAA's Analysis

Except for the relief requested from 14 CFR § 91.403(b), the FAA finds that Guardian Agriculture's reasons for requesting an exemption are similar in all material respects to relief previously requested in Exemption No. 18009. Thus, the reasons stated by the FAA for granting Exemption No. 18009 also apply to the situation the petitioner presents. Specifically, the FAA finds that Exemption No. 18009 contains the FAA's analysis for the relief granted from 14 CFR §§ 61.3(a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1), 91.409(a)(2), 91.417(a), 91.417(b), 137.19(c), 137.19(d), 137.19(e)(2)(ii), 137.19(e)(2)(iii), 137.19(e)(2)(v), 137.31, 137.33, 137.41(c), and 137.42. As a result, the conditions and limitations contained herein substantially mirror the conditions and limitations in the aforementioned exemptions.

For the reasons stated above, the FAA's analysis is therefore limited to the 47 U.S.C. § 44807 determination and 14 CFR § 91.403(b).

Unmanned Aircraft Systems (UAS)

49 U.S.C. § 44807

The MOE UAS does not currently have an airworthiness certificate. Title 49 U.S.C. § 44807 provides the Secretary of Transportation (hereinafter Secretary) with authority to determine whether a certificate of waiver, certificate of authorization, or a certificate under Section 44703 or Section 44704, is required for the operation of certain UAS. Section 44807(b) instructs the Secretary to base their determination on which types of UAS do not create a hazard to users of the National Airspace System (NAS) or the public. In making this determination, the Secretary must consider the size, weight, speed, operational capability of the UAS, and other aspects of the proposed operation. The Secretary delegated this authority to the Administrator on October 1, 2021. In accordance with the statutory criteria provided in 49 U.S.C. § 44807, and in consideration of the size, weight, speed, and operational capability, proximity to airports and populated areas, and specific operations, a determination has been made that this aircraft does not create a hazard to users of the NAS or the public.

As the petitioner proposes to operate a different UAS from what is utilized in Exemption No. 18009, the speed limitation in Condition and Limitation No. 2 is modified to 25 knots (rather than 30 miles per hour as in Exemption No. 18009) because this is the maximum operating speed of the MOE UAS. The size, method of operation, and very low operating speed of the MOE UAS, in conjunction with the terms of this exemption, would provide a level of safety at least equal to that provided by the rules from which the petitioner will be exempt. A review of the data supplied to the FAA during its evaluation supports this finding.

14 CFR § 91.403(b)

The FAA previously has determined that 14 CFR Part 91, subpart E ("Maintenance, Preventative Maintenance, and Alterations") applies to UAS operations conducted under the general operating and flight rules of Part 91, and that therefore, relief from 14 CFR 91.403(b) is necessary. This is consistent with Exemption No. 18413A (issued to DroneXum LLC) and Exemption No. 18596 (issued to Overwatch Aero, LLC.). In Exemption 18413A, the FAA determined that providing relief from 14 CFR § 91.403(b) was appropriate since the UAS operator was unable to comply with the requirements of subpart E. In that exemption, the FAA determined that the relief from 14 CFR § 91.403(b), addressed in the exemption, is limited only to how to perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in that subpart and other applicable regulations, including Part 43 of Title 14. To ensure a level of safety equivalent to what would be achieved by strict compliance with those regulations, the FAA required, as part of the exemption, that the operator follow the UAS manufacturers' operating limitations, maintenance instructions, service bulletins, overhaul, replacement, inspection, and life limit requirements for the UAS and its components. Additionally, each UAS operated under that exemption was required to comply with all manufacturers' safety bulletins. Furthermore, the FAA required that all

maintenance be performed by individuals who have been trained by the operator in proper techniques and procedures for these UAS. Additionally, the FAA required that all maintenance be recorded in the aircraft records; including a brief description of the work performed, date of completion, and the name of the person performing the work. Based on the information provided by the Guardian Agriculture and the Guardian Agriculture's compliance with the conditions and limitations provided in this exemption, relief from the referenced portion of 14 CFR § 91.403(b) would not adversely affect safety and is granted. The FAA finds that the relief granted in Exemption No. 18413A is also appropriate for the proposed operations of Guardian Agriculture.

Public Interest

The FAA finds that a grant of exemption is in the public interest. The enhanced safety achieved using the MOE UAS 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 operations enabled by this exemption are in the public interest. Manned aircraft conducting agricultural operations can weigh thousands of pounds and carry hundreds of gallons of fuel and payload. The MOE UAS weighs much less than other UAS approved for similar applications and carries no flammable onboard fuel. In contrast, manned aircraft are operated by an onboard pilot and may carry other onboard crewmembers. The pilot and crew will be remotely located from the aircraft and will remain outside a designated safety zone when the MOE UAS is operating, ensuring that the pilot and observer are never so close as to pose a hazard to the crew. The risk to an onboard pilot and crew during an incident or accident is eliminated with the use of a UAS for the proposed operation. Furthermore, Guardian Agriculture's MOE UAS carries no fuel and would impact the surface with much less energy than a manned aircraft and therefore lower the potential risk and severity of fire following an incident or accident due to fuel or payload spillage.

The FAA's Decision

In consideration of the foregoing, I find that a grant of an exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 106(f), 40113, 44701 and 44807, delegated to me by the Administrator, Kiwi Technologies, Inc. d/b/a Guardian Agriculture is granted an exemption from 14 CFR §§ 61.3(a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.403(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b), 137.19(c), 137.19(d), 137.19(e)(2)(ii), 137.19(e)(2)(iii), 137.19(e)(2)(v), 137.31, 137.33, 137.41(c) and 137.42 to the extent necessary to allow Guardian Agriculture to provide aerial application services in the delivery of crop protection products in connection with a Part 137 agricultural aircraft operation, subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Kiwi Technologies, Inc. d/b/a Guardian Agriculture is hereinafter referred to as "the Operator" or "Exemption Holder."

1. Operations authorized by this grant of exemption include the MOE unmanned aircraft system (UAS) as described in the operating documents with a maximum individual take-off weight not to exceed 494 pounds (lbs.), and are limited to agricultural aircraft operations. Additionally, the MOE UAS aircraft must be listed on the operator's Part 137 Letter of Authorization (LOA) prior to use in any Part 137 operation.
2. The MOE UAS described in this exemption may not be operated at an airspeed exceeding 25 knots (kts) or at an airspeed greater than the maximum operating airspeed recommended by the aircraft manufacturer, whichever is lower.
3. All operations must be conducted in accordance with an Air Traffic Organization(ATO) issued Certificate of Waiver or Authorization (COA).. The exemption holder must apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the COA. If a conflict exists between the COA and this condition, the more restrictive provision will apply. The COA will also require the operator to request a Notice to Air Missions (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to each operation. Unless the COA or other subsequently issued FAA authorization specifies an altitude restriction lower than 100 feet above ground level (AGL), operations under this exemption may not exceed 100 feet AGL. Altitude must be reported in feet AGL.
4. The pilot in command (PIC) must be designated before the flight and cannot transfer his or her designation for the duration of the flight. In all situations, the PIC is responsible for the safety of the operation. The PIC is also responsible for meeting all applicable conditions and limitations as prescribed in this exemption and ATO-issued COA, and operating in accordance with the operating documents. The aircraft must be operated within visual line of sight (VLOS) of the PIC at all times. The PIC must 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.
5. The PIC may manipulate flight controls in the operation of no more than one unmanned aircraft (UA) at the same time. Proposed operation of more than one UA at the same time (by one PIC) requires a new petition or a petition to amend this exemption.
6. All operations must utilize the services of at least one or more visual observers (VO). The VO must be trained in accordance with the petitioner's training program. For purposes of this condition, a VO is someone: (1) who maintains effective communication with the PIC at all times; (2) who the PIC ensures is able to see the unmanned aircraft with human vision as described in condition and limitation No. 4; and (3) coordinates with the PIC to scan the airspace where the UA is operating for any potential collision hazard and maintain awareness of the position of the UA through direct visual observation. The aircraft must be operated within VLOS of both the PIC and VO at all times. The operation must be conducted with a dedicated VO who has no collateral duties and is not the PIC during the flight. 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 VO must maintain visual sight of the aircraft at all times during flight operations without distraction. The PIC must ensure that the VO can perform the duties required of the VO. If either the PIC or a VO is unable to maintain VLOS with the UA during flight, the entire flight operation must be terminated as soon as practicable.

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 Guardian Agriculture MOE UAS Operation and Maintenance Handbook, Emergency Procedures, all Checklists, and this Exemption and any ATO-issued COA that applies to operations under this exemption must be accessible during all UAS operations that occur under this exemption 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 documents⁶ to the Administrator or any law enforcement official upon request. The operator must also present the most current documents if it petitions for extension of or amendment to this grant of exemption. If the operator determines that any update or revision would affect the operator's ability to comply with any requirement of this exemption, then the operator must petition for an amendment to its grant of exemption. If questions arise regarding updates or revisions to the operating documents, the Operator may contact the Flight Standards Service General Aviation and Commercial Division (AFS-800), 800 Independence Ave. SW, Washington, DC 20591. Telephone: 202-267-1100, Email: 9-AFS-800-Correspondence@faa.gov.
8. The Operator must follow the manufacturer's operating limitations, maintenance, service bulletins, overhaul, replacement, inspection, and life limit requirements for the MOE UAS, and its components. Each UAS operated under this exemption must comply with all original equipment manufacturer (OEM) safety bulletins. The Operator must follow the Original Equipment Manufacturers (OEM) operating limitations, maintenance, service bulletins, overhaul, replacement, inspection, and life limit requirements for the MOE UAS, and its components. Each UAS operated under this exemption must comply with all OEM safety bulletins. Maintenance must be performed by qualified individuals who have been trained by the manufacturer in proper techniques and procedures for these UAS and all maintenance must be recorded in the aircraft records including a brief description of the work performed, date of completion and the name of the person performing the work.
9. Any aircraft 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 for each aircraft 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.

⁶ Updated documents should be sent to the FAA General Aviation and Commercial Division (AFS-800).

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the aircraft is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, such as 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 aircraft is found to be in a condition for safe flight.
11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, safety bulletins, and life-limit requirements for the aircraft and aircraft components.
12. PIC certification: Under this exemption, a PIC must hold a current remote pilot certificate.
13. The PIC must also hold at least a current FAA second-class airman medical certificate. The PIC may not conduct the operation if he or she knows or has reason to know of any medical condition that would make him or her unable to meet the requirements for at least a second-class airman medical certificate, or is taking medicine or receiving treatment for a medical condition that results in the PIC being unable to meet the requirements for at least a second-class airman medical certificate. The VO or any other direct participant may not participate in the operation if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of the aircraft.
14. The PIC must demonstrate the ability to safely operate the UAS in a manner consistent with how it will be operated under this exemption. The PIC must demonstrate the applicable knowledge and skills requirements for agricultural aircraft operations outlined in 14 CFR Part 137, evasive and emergency maneuvers, and maintaining appropriate distances from persons, vessels, vehicles and structures before operating non-training, proficiency, or experience-building flights under this exemption. Additionally, all PICs must satisfactorily complete the operator's training program requirements, the completion of which must be documented. Furthermore, the PIC must satisfactorily demonstrate his or her ability to respond appropriately to a lost-link occurrence as part of the knowledge and skill assessment that will occur in accordance with 14 CFR § 137.19(e). PIC qualification flight hours and currency may be logged in a manner consistent with 14 CFR § 61.51(b). However, time logged for UAS operations may not be recorded in the same columns or categories as time accrued during manned flight, and UAS flight time does not count toward total flight time required for any Part 61 requirement.
15. All training operations must be conducted during dedicated training sessions and may not be conducted for compensation or hire. Furthermore, the PIC must operate the UAS not closer than 500 feet to any nonparticipating person while conducting training operations.
16. 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). Operations may not be conducted under special visual flight rules (SVFR).

17. The aircraft 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. For UAS operations where GPS signal is necessary to safely operate the aircraft, the PIC must immediately recover/land the UA upon loss of GPS signal.
19. If the PIC loses command or control (C2) link, the aircraft must follow a pre-determined route to either reestablish link or immediately recover or land.
20. The PIC must abort the flight operation if unexpected circumstances or emergencies arise that could degrade the safety of persons or property. The PIC must terminate flight operations without causing undue hazard to persons or property in the air or on the ground.
21. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for each aircraft involved in the operation to conduct the intended operation with sufficient reserve such that in the event of an emergency, the PIC can land the aircraft in a known area without posing an undue risk to aircraft or people and property on the ground. In the alternative, if the manufacturer's manual, specifications, or other documents that apply to operation of the MOE UAS recommend a specific volume of reserve power, the PIC must adhere to the manufacturer's recommendation, as long as it allows the aircraft to conduct the operation with sufficient reserve and maintain power to land the aircraft in a known area without presenting undue risks, should an emergency arise.
22. This exemption does not grant relief from the requirements concerning registration and marking of aircraft. 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, 91.203, and 137.33 must be available to the PIC at the ground control station of the UAS any time any aircraft operates in accordance with this exemption. 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 persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:
 - a. *Over or near people directly participating in the operation of the UAS.* No person may

operate the UAS directly over a human being unless that human being is directly participating in the operation of the UAS, to include the PIC, VO, and other personnel who are directly participating in the safe operation of the UA.

- b. *Near nonparticipating persons.* Except as provided in subsection (a) of this section, a UA may only be operated closer than 500 feet to a person when barriers or structures are present that sufficiently protect that person from the UA and/or debris or hazardous materials such as fuel or chemicals in the event of an accident. Under these conditions, the operator must ensure that the person remains under such protection for the duration of the operation. If a situation arises in which the person leaves such protection and is within 500 feet of the UA, flight operations must cease immediately in a manner that does not cause undue hazard to persons.
- c. *Near vessels, vehicles and structures.* Prior to conducting operations, the operator must obtain permission from a person with the legal authority over any vessels, vehicles or structures that will be within 500 feet of the UA during operations. The PIC must make a safety assessment of the risk of operating closer to those objects and determine that it does not present an undue hazard.

27. All operations shall be conducted from and over predetermined, uninhabited, segregated, private or controlled-access property as described in the Guardian Agriculture's MOE Operations Manual. The PIC must ensure the entire operational area will be controlled⁷ to reduce risk to persons and property on the ground, as well as other users of the NAS. This area of operation will include a defined lateral and vertical area where the aircraft will operate and must be geo-fenced to prevent any lateral and vertical excursions by the operating aircraft. Safety procedures must be established for persons, property and applicable airspace within the area of operation. A briefing must be conducted regarding the planned UAS operations prior to operation at each location of operation in which the operator has not previously conducted agricultural aircraft operations. All personnel who will be performing duties within the boundaries of the area of operation must be present for this briefing. Additionally, all operations conducted under this exemption may only occur in areas of operation that have been physically examined by Guardian Agriculture prior to conducting agricultural aircraft operations and in accordance with the associated COA.

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 within 24 hours as required by the applicable COA issued by the FAA Air Traffic Organization. Additionally, any incident or accident that occurs, or any flight operation that transgresses the lateral or vertical boundaries of the operational work area, must be reported to the FSDO that holds the operator's Part 137 certificate.

Failure to comply with any of the above conditions and limitations may result in the immediate suspension or rescission of this exemption.

Unless otherwise specified in this grant of exemption, the UAS, PIC, and operator must comply with all applicable parts of 14 CFR including, but not limited to, Parts 45, 47, 91, and 137. In addition, the petitioner must comply with all limitations and provisions of petitioner's agricultural aircraft operator certificate, which the petitioner must obtain prior to conducting agricultural operations in accordance with 14 CFR § 137.11.

⁷ The operator will control access to minimize hazards to persons and property in the air and on the ground.

The Effect of the FAA's Decision

This exemption terminates on March 31, 2025, unless sooner superseded or rescinded.

To request an extension or amendment to this exemption, please submit your request by using the Regulatory Docket No. FAA-2022-0077 (<http://www.regulations.gov>). In addition, you should submit your request for extension or amendment no later than 120 days prior to the expiration listed above, or the date you need the amendment, respectively.

Any extension or amendment request must meet the requirements of 14 CFR § 11.81.

Issued in Washington, D.C., on March 6, 2023.

Sincerely,

/s/

Wesley L. Mooty
Acting Deputy Executive Director
Flight Standards Service

Attachment 1

Supplemental Document(s)	Information Received
Guardian Agriculture Concept of Operations	Document describes Guardian Agriculture CONOPs. Provides background on the applicant as a UAS operator, an overview of the requested operations, and a high level description of systems and procedures.
Guardian Agriculture MOE Operations and Maintenance Handbook	MOE UAS operational procedures, system descriptions, maintenance policies and procedures.
Guardian Agriculture MOE Unmanned Aircraft System Remote Pilot in Command Training Syllabus	Document contains a description of the training segments associated with Guardian Agriculture's unmanned aerial system (UAS) operations and establishes the standards and procedures to be followed by all personnel to ensure that training is conducted as intended.
Guardian Agriculture MOE Pocket Checklists	Operating Procedures, Flows and Checklists
Guardian Agriculture Operational Risk Assessment	This document presents a Specific Operational Risk Assessment for the use of Guardian Agriculture's Aircraft to meet the operational requirements outlined in FAA orders for exemptions and Part 137 Agricultural Operations.