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

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

July 28, 2015

Exemption No. 12188
Regulatory Docket No. FAA–2015–1783

Mr. Greg Sherwin
President
Ocelleye, LLC
600 Kentucky Avenue,Suite 100
Indianapolis, IN 46225

Dear Mr. Sherwin:

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

By letter dated May 5, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Ocelleye, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography and videography.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner is a TBS Discovery Pro.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in

consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

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

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

Our Decision

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

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

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

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

1. Operations authorized by this grant of exemption are limited to the TBS Discovery Pro when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed.

Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

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

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

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

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

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

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

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be

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

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

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

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

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

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

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

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

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification

(N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

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

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

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

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

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

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

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

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

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

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

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

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

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

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

Enclosures

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May 5, 2015

U.S. Department of Transportation
Docket Management System
120 New Jersey Ave., SE
Washington, DC 20590

RE: Exemption Request Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 CFR Part 11, Ocelleye, LLC, an operator of small Unmanned Aircraft Systems (sUAS) for aerial photography and video capture for the Architectural Engineering and Construction (AEC) industry, on behalf of itself and its related affiliates under common ownership and control, hereby applies for an exemption from the listed Federal Aviation Regulations (FARs) to allow commercial operation of its sUAS for aerial imaging of secured and controlled environment construction and survey sites, so long as such operations are conducted within and under conditions outlined herein or as maybe established by the FAA as required by Section 333.

As described more fully below, the requested exemption would permit the operation of small, unmanned and relatively inexpensive sUAS under controlled conditions in airspace that is 1) limited 2) predetermined 3) controlled to access and 4) would provide safety enhancements to the already safe operations in the AEC industry benefitting public interest because it provides an equivalent or greater level of safety than approved manned aircraft operations or traditional surveying means.

The name and address of the applicant is:

Ocelleye, LLC
Attn: Greg Sherwin
PH: 317-491-4306
Email: gsherwin@ocelleye.com
Address: 600 Kentucky Ave. Suite 100, Indianapolis, IN 46225

Regulations from which the exemption is requested:

14 CFR Part 21 Subpart H
14 CFR 45.23(b)
14 CFR 61.113(a) & (b)
14 CFR 91.7(a)

14 CFR 91.9 (b)(2)
14 CFR 91.103
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151(a)
14 CFR 91.203(a)&(b)
14 CFR 91.405(a)
14 CFR 407(a)(1)
14 CFR 409(a)(2)
14 CFR 417(a)&(b)

This exemption application is expressly submitted to fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act. This law directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of sUAS do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

- The sUAS size, weight, speed, and operational capability;
- Operation of the sUAS in close proximity to airports and populated areas; and
- Operation of the sUAS within visual line of sight of the operator.

Reform Act 333(a). Lastly, if the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." *Id*. 333(c)

Ocelleye's sUAS is a multirotor vehicle, weighing 10 lbs. or less, including payload. It operates under normal conditions at speeds or no more than 50 knots and has the capability to hover, move in the vertical and horizontal planes simultaneously. The sUAS will operate in the pilot's visual line of sight at all time and will operate only within a sterile area as defined by the construction site or survey area limits. Such operations will insure that the sUAS will "not create a hazard to users of the national airspace system or the public." Reform Act Section 333 (a)

Ocelleye LLC's Operations

The sUAS

The sUAS will have the following specifications or equivalent:

Airframe: TBS Discovery Pro (See Exhibit 1)
Control System: APM 2.5 (See Exhibit 2)
Pilot Controls: FrSKY Tarnais (See Exhibit 3)

Tx: EzUFH JR Module 433 Mhz (See Exhibit 4)
Rx: ExUHF 8-channel 433 Mhz (See Exhibit 4)
Motors: 900KV brushless w/ 30A ESC
Propellers: 9x5
Data Link: 3DR Radio 915 Mhz (See Exhibit 5)
Batteries: 4S 4.5Ah TBS LiPo

Flight Conditions

The sUAS will be flown in airspace under 400 feet AGL and under controlled conditions on restricted, rural, and private property. The sUAS will be used to monitor two different types of sites, active construction sites and proposed construction sites.

Flight Operations

The purpose of every sUAS flight will be to safely, accurately, and efficiently create logistical overlays for potential construction sites and to measure progress of ongoing construction sites. The survey data will be 3D surface models and high resolution aerial photographs.

The standard pre-flight and operational procedure will be as follows:

1. Meet at security gate and complete pre-flight security appropriate to each site (described below)
2. Drive or walk the area to be surveyed.
3. The pilot in command begins to ready sUAS for flight.
    a. Check over airframe, connections, and propellers for damage during transport in the vehicle.
    b. Turn on and ready laptop computer.
    c. Connect data link antenna to computer.
    d. Open ground station software and load pre-planned photogrammetry flight path.
    e. Remove main Tx from case, power up, verify voltage and settings.
    f. Strap battery to sUAS frame (do not connect main power supply).
    g. Move sUAS to takeoff point, approximately 30 feet from vehicles and crew.
    h. Attach main power on sUAS.
    i. Listen to power up sequence of beeps on speed controls.
    j. Set up traffic cones around sUAS with approximately a 20 foot radius. This is considered the “home” area and the operators are not allowed inside this area while the sUAS is armed.
    k. Walk back to vehicle with Tx.
    l. Using laptop Ground Control Station connect the data link with the sUAS.
    m. sUAS should appear on the map on the screen along with recorded “home” point, battery voltage, current altitude relative to ground, and current velocity and heading.
    n. Upload the mission flight path data to sUAS.
    o. Verify good upload and connection to data link.

p. Record time and weather in Flight Log.
q. sUAS is no fully prepped and ready to operate.

4. While pilot in command is readying the sUAS, support team members are preparing the ground control points and walking the site.
5. Pilot double checks takeoff area is clear.
6. Pilot arms the sUAS and increases the throttle to takeoff and rises to an altitude of approximately 10 feet AGL.
7. Pilot performs a short test of the controls to ensure the sUAS to responding properly to control inputs.
8. Pilot sets Tx flight mode switch to "Auto" and the sUAS starts to execute its preprogrammed mission.
9. During the entire preprogrammed flight pilot always has visual line of sight and is prepared to take over flight operations. Pilot's Tx has a countdown timer set to alarm at 30 minutes. The timer begins from the point the throttle is raised above minimum.
10. During the flight the Ground Control Station announces each waypoint upon arrival and voltage levels at one minute intervals.
11. Upon completion of the preprogrammed flight, the sUAS returns to the "home" point and automatically lands itself. During the landing sequence the pilot is observing the decent and is ready to take over flight operations.
12. Upon landing pilot disarms the sUAS using the Tx.
13. Pilot checks the battery voltage displayed on the Ground Control Station and records flight battery and flight information in the Flight Log.
14. After disarming the sUAS the pilot enters the "home" area inside the cones and disconnects the main power.
15. Pilot turns off Tx.
16. Pilot review airframe of sUAS for and damage or wear during flight.
17. Pilot packs up equipment for safe transport.

Given the small size of the sUAS involved and the restricted and sterile environment within which it will operate, our application falls squarely within the zone of safety (an equivalent level of safety) in which Congress envisioned that the FAA must, by exemption, allow commercial operations of sUAS to commence immediately. Also due to the small size of the sUAS and the low altitudes and restricted areas in which the sUAS will operate, approval of the application presents no national security issue.

Given the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations, and the significant public benefit, including enhanced safety, the grant of the requested exemptions is in the public interest. Accordingly, Ocelleye respectfully requests that the FAA grant the requested exemption without delay.

The use of sUAS on a construction site can significantly reduce the risk to workers of falls while inspecting, surveying, or monitoring site progress. sUAS can inspect, photograph, and collect data on hard to get to areas that otherwise would require worker inspection. Falls are among a leading source of workplace fatality and injury on construction sites, and reducing falls through sUAS use for site imaging could save workers lives and or prevent injuries.

Additionally, sUAS could replace the use of helicopters and small fixed wing aircraft to monitor sites. The sUAS we propose to fly in this application is under five pounds, and carries no combustible material on board, as opposed to the much larger conventionally powered small aircraft. Shifting to sUAS from helicopters and small fixed wing aircraft presents a marked safety increase for our workers and the public.

Lastly, sUAS reduce the environmental impact by dramatically decreasing the energy used for aerial imaging and data collection over a construction site. Our sUAS uses rechargeable lithium ion batteries, as opposed to fossil fuels burned in operation of helicopters and small fixed wing aircraft that are many hundreds of times heavier.

Ocelleye proposes that the exemption requested herein applies to sUAS that have the characteristics and that they operate with the limitations listed herein. These limitations provide for at least an equivalent or even higher level of safety to operations under the current regulatory structure because the proposed operations represent a safety enhancement to the already safe protocols followed on construction sites and imaging and surveying operations conducted with helicopters and other small conventional aircraft.

Ocelleye will be bound by the following limitations when conducting its sUAS operations under and FAA issued exemption:

1. The sUAS will weigh less than 10 pounds including payload.
2. Flights will be operated within visual line of sight of the pilot
3. Maximum total flight time for each operational flight will be 30 minutes. The sUAS calculates battery reserve in real-time, and will return to its point of launch with at least 20% battery power reserve should that occur prior to the 30 minute limit.
4. Flights will be operated at an altitude of no more than 400 feet AGL.
5. Crew for each operation will consist of the sUAS pilot will keep the sUAS within his visual line of sight at all time.
6. The sUAS pilot will be trained in flight, operations, and safety procedures as detailed in the sUAS systems manuals.
7. The sUAS will only operate within a confined “Sterile Area” as defined by the survey or construction site limits. This area will be kept free of persons not involved in the activities being monitored on the site or not directly connected with the survey production.
8. A briefing will be conducted in regard to planned sUAS operations prior to each day’s production activities. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for this briefing.

9. All onsite personnel will consent to the sUAS flyover on site by waiver, and the operator will obtain additional verbal or written connect of all persons who will be allowed within the 100 of the flight operation.
10. Pilot will have been trained in operation of sUAS generally and received up-to-date information in the particular sUAS to be operated as required by the sUAS systems manuals.
11. Written and/or oral permissions from the relevant property holders will be obtained.
12. All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
13. If the sUAS loses communications or loses its GPS signal, it will have the capability to enter "loiter mode" and hover, reestablish connection or return to a pre-determined location within the construction site or survey area and land.
14. The sUAS will not operate with 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with ARP, the center of the airport symbol as denoted on a the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of Agreement with the airport management will be made available to the Administrator or any law enforcement official upon request.

14 CFR 61.113(a) & (b): Private pilot privileges and limitations: Pilot in command

Sections 61.113(a) & (b) limit private pilots to non-commercial operations. Because the sUAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the Pilot operating the aircraft to have completed a sUAS flight training course of 100 hours before flying a sUAS. Unlike a conventional aircraft that carries the pilot and passengers, the sUAS is remotely controlled with no living thing or cargo on board. The sUAS proposed in the application is also operated by an autopilot, which greatly reduces the danger of human error. The area of operation is controlled and restricted to hard hat areas, and all flights are planned and coordinated in advance.

The sUAS to be operated hereunder is less than 10 lbs. fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operated exclusively within a controlled area. Like other civil aircraft, operations under this exemption will be tightly controlled and monitored by the operator and under the requirements and in compliance with local public safety requirements, to provide security for the area of operations as is currently done on active construction sites.

The risks associated with the operation of the sUAS are therefore diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, and allowing operations of the sUAS as requested achieves the level of safety contemplated by 14 CFR 61.113(a) & (b).

14 CFR 91.103: Preflight action

This regulation requires each pilot in command take certain actions before flight to ensure the safety of flight. An exemption is needed from this requirement as the pilot will take separate preflight actions, including checking for weather conditions, checking flight battery requirements, checking takeoff and

landing areas, and all other actions in the Preflight Checklist (See Exhibit 6) in the sUAS systems manuals. These actions will provide and equivalent level of safety.

14 CFR 91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. The exemption is for a multirotor craft that flies similarly to a helicopter, with vertical takeoff and vertical landing, which will operate at altitudes no more than 400 feet AGL, so an exemption may be needed to allow such operations. The sUAS will never operate at an altitude higher than 400 feet AGL and will be operate in a controlled area with security perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, speed of the sUAS as well as the location where it is operated. No flight will commence without the permission of the property owner or their agent or local officials. Because of the advance notice to the property owner and any onsite personnel, all affected individuals will be aware of the planned flight operations. Unlike flight operations with conventional small aircraft or helicopters weighing far more that the maximum 10 lbs. proposed herein, our sUAS will not carry flammable fuel. In addition, the low-altitude operations of the sUAS will ensure separation between sUAS operations and the operations of conventional aircraft that must comply with Section 91.119.

14 CFR 91.121: Altimeter settings

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "…to the elevation of the departure airport or an appropriate altimeter setting available prior to departure." As the sUAS may not have a barometric altimeter, but instead a GPS altitude readout, an exemption may be needed. An equivalent level of safety will be achieved by the operator, pursuant to the uUAS systems manuals and Preflight Checklist (See Exhibit 6), confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 CFR 91.151(a): Fuel requirements for flight in VFR conditions

Section 91.151(a) outlines fuel requirements for beginning a flight in VFR conditions. Our sUAS is limited to operations in controlled environments, and has a limited range and flight time which require an exemption from 14 CFR 91.151(a).

The battery powering the sUAS provides approximately 35 minutes of powered flight. To meet the 30 minute reserve requirement in 14 CRF 91.151, sUAS flights would be limited to approximately 5 minutes in length. Given the limitations of the sUAS's proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or night VFR conditions is reasonable.

Ocelleye believes that an exemption from 14 CFR 91.151(a) falls within the scope of prior exemptions. See Exemption 10673 (allowing Lockheed Martin Corporation to operate without the compliance with FAR 91.151 (a)). Operating the sUAS, in a tightly controlled area where only people and property owners or official representatives who have signed waivers will be allowed, with less than 30 minutes of reserve fuel, does not endanger the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the sUAS. Additionally, limiting the sUAS flights to 5 minutes would greatly reduce the utility for which the exemption will be granted.

An equivalent level of safety can be achieved by limiting flights to 30 minutes, or enough battery reserve to ensure that the sUAS land at the point of launch with at least 20% of battery power (as determined by the onboard monitoring system and the pilot), whichever happens first. This restriction would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

14 CFR 91.405(a); 407(a)(1); 409(a)(2); 417(a) & (b): Maintenance inspections

These regulations require that an aircraft operator or owner "shall have the 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…," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections would not apply to Ocelleye's operations proposed by this application. Maintenance will be accomplished by the operator pursuant to the sUAS systems manuals. An equivalent level of safety will be achieved because these sUAS are very limited in size and will carry a small payload and operate only in controlled areas for limited periods of time. If mechanical issues arise the sUAS can land immediately and will be operating from no higher than 400 feet AGL. As provided in the uUAS systems manuals, the pilot will ensure that the sUAS is in working order prior to initiating flight, perform required maintenance as recommended by the manufacturer, and keep a log of any maintenance performed. Moreover, the pilot is the person most familiar with the craft and best suited to maintain the craft in an airworthy condition to provide the equivalent level of safety.

14 CFR 45.23(b): Marking of the aircraft

The regulation requires "When marks include only the Roman capital "N" and the registration number is displayed on limited, restricted, or light-sport category aircraft or experimental or provisionally certified aircraft, the operator must also display on that aircraft near the entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable."

Even though the sUAS will have no airworthiness certificate, an exemption may be needed as the sUAS will have no entrance to the cabin, cockpit or pilot station on which the required words can be placed. Given the size of the sUAS, two inch lettering would be impossible.

14 CFR Part 21, Subpart H: Airworthiness Certificates 14 CFR 91.203(a)(1)

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of the airworthiness certificates as required by FAR 91.203(a)(1). Given the size and limited operating area associated with the aircraft to be utilized by Ocelleye, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act (49 USC 44701(f)) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular sUAS. In all cases, an analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional small aircraft or helicopter operating with an airworthiness certificate without the restrictions and conditions proposed.

The sUAS to be operated hereunder is less than 10 lbs. including its payload, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a controlled area. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by both the operator and under the requirements and in compliance with local public safety requirements, to provide security for the area of operations as is now done with construction and survey sites. These safety enhancements, which already apply to civil aircraft operated in connection with construction site monitoring and surveying, provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under 14 CFR Part 21 Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the sUAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

14CFR 91.7(a): Civil aircraft airworthiness

This regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the craft and the requirement contained in the uUAS systems manuals for maintenance and use of safety checklists prior to each flight, an equivalent level of safety will be provided.

14 CFR 91.9(b)(2): Civil aircraft flight manual in the aircraft

This regulation requires the craft's flight manual to be located onboard the craft. The sUAS, given it size and configuration, has no ability to carry such a manual on the craft, not only because there is no pilot onboard, but because there is no room or capacity to carry such on item on the craft.

The equivalent level of safety will be maintained by keeping the sUAS systems manuals at the point of launch where the pilot flying the sUAS will have immediate access to it. The FAA has issued the following exemptions to this regulation: Exemption Nos. 8307, 8737, 8738, 9299, 9299A; 9565, 9565B, 10167, 10167A, 10602, 62827, and 10700.

14 CFR 91.203(a) & (b): Carrying civil aircraft certification and registration

This regulation provide in pertinent part:

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

(1) An appropriate and current airworthiness certificate…

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

The sUAS fully loaded weighs no more than 10 lbs. and is operated with an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the sUAS.

An equivalent level of safety will be achieved by keeping these documents at the point of launch where the pilot operating the sUAS will have immediate access to them, to the extent they are applicable to the sUAS. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption Nos. 9656, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

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Pursuant to 14 CFR Part 11, the following summary s provided for publication in the Federal Register, should it be determined that publication is needed:

Applicant seeks an exemption from the following rules: 14 CFR Part 21, Subpart H; 14 CFR 45.23(b); 14 CFR 61.113(a) & (b); 14 CFR 91.7(a); 14 CFR 91.9 (b)(2); 14 CFR 91.103; 14 CFR 91.119; 14 CFR 91.121; 14 CFR 91.151(a); 14 CFR 91.203(a) & (b); 14 CFR 91.405(a); 14 CFR 407(a)(1); 14 CFR 409(a)(2); and 14 CFR 417(a) & (b) to operate commercially a small unmanned vehicle (55 lbs. or less) in construction and survey operations.

Approval of exemptions allowing commercial operations of sUAS in the construction industry enhances safety while reducing risk. Manned aircraft monitoring and surveying creates a greater risk because the craft of much larger, have combustible fuel, and carry an onboard human pilot. In contrast, a sUAS weighing fewer than 10 lbs. and powered by batteries eliminates virtually all of that risk given the reduced mass and lack of combustible fuel carried onboard. The sUAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of small sUAS, weighing less than 10 lbs., conducted in the strict conditions outlines above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein,

including exempting the applicant from Part 21 and allowing commercial operations. These lightweight crafts operate at slow speeds, close to the ground, and in a sterile environment and, as a result, are far safer than conventional operations conducted with conventional small aircraft and helicopters operating in close proximity to the ground and people.

Privacy

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Images taken will be of the individuals who have also consented to being filmed or otherwise have agreed to be in the area where aerial imaging will take place.

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Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012—size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security—provide more than adequate justification for the grant of the requested exemptions allowing commercial operations of Ocelleye's sUAS in the Architectural Engineering and Construction industry pursuant to the Manual appended hereto.

Sincerely,

Gregory A. Sherwin
President
Ocelleye, LLC