August 25, 2014

Jonathan Evans
CEO
SkyWard IO, Inc.
233 Naito Parkway
Portland, OR 97204

Chris Blackford
Global Operations Director
Sky-Futures USA Inc.
100 Crescent Court Suite 700
Dallas, Texas 75201
EIN: 47-164667

The Honorable Anthony R. Foxx
Office of the Secretary
US Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

The Honorable Michael P. Huerta
Office of the Administrator
Federal Aviation Administration
800 Independence Ave., SW
Washington, DC 20591

RE: Sky-Futures USA, Inc. SUAS Airworthiness Exemption Petition

Dear Secretary Foxx and Administrator Huerta,

Sky-Futures is an internationally-recognized leader in on and off shore oil and gas platform inspection. We are certificated under the authority of the United Kingdom Civil Aircraft Authority, are underwritten by Lloyd's of London, and operate in 8 countries worldwide. We are committed to ensuring a safe and fully-integrated SUAS future and anticipate retaining United States UAS pilots for US operations in the Gulf of Mexico.

Therefore, in advance of the small UAS (SUAS) rule, we request regulatory relief for low-risk operations related to oil and gas platform inspection with SUAS. We believe that these operations are needed to provide valuable information for the safe integration of SUAS aircraft and supporting systems into the National Airspace System (NAS), and that these operations, given the characteristics of the SUAS, our operating procedures, and location of oil and gas inspections, pose no probable risk to persons, property, the NAS, or national security.

We support the FAA's three-phased approach of accommodation, integration, and evolution outlined in the 2013 Roadmap for Integration of Civil Unmanned Aircraft Systems (UAS) in the NAS. As a company that is at the forefront of SUAS applications globally, commercial operations within the United States is integral to our economic development; our operations directly improve worker and environmental safety, stimulate small business growth, and provide high-technology jobs for United States veterans. We have diligently sought a means of compliance with the FAA regulations, and thus we submit the following conclusions:

1. **SUAS oil and gas commercial inspection accommodation is essential for small business and is needed now.** Accommodation of small to medium businesses providing aerial inspection services are essential

to the emergence of an UAS industry that draws from aviation's safety heritage while at the same time championing innovation and small business economic development.

2. **CFR 14 § 21.191(a) provides the mechanism for SUAS R&D, but not for the commercial operations that are essential for innovation.** In § 21.191(a), the CFR allows for "testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft." We believe this mechanism recognizes the special need for SUAS R&D, and provides a needed accommodation for R&D. However, even restricted commercial operations are not authorized under a special airworthiness certificate and therefore further exemptions are required to operate.

3. **FAA Order 8130.34C implements CFR 14 § 21.191(a) but requires exemptions.** The intent of FAA Order 8130.34C, which implements § 21.191(a), provides a comprehensive and safe framework for seeking special airworthiness certificates for R&D, but are not sufficient to meet the need of SUAS aerial inspection service providers in the oil and gas industry. We believe that the safety considerations described in 8130.34C can be met while allowing restricted SUAS commercial operations.

4. **§21.185, Issue of airworthiness certificates for restricted category aircraft, provides the mechanism for permitting restricted operations for new manned aircraft, but not for SUAS of non-military origin.** The operating limitations described in §91.313, Restricted category civil aircraft: Operating limitations, if applied to SUAS operations, are appropriate for providing economic incentive to develop new SUAS businesses while at the same time maintaining aviation safety standards.

5. **Public Law 112–95, FAA Modernization and Reform Act of 2012 § 333(b)(2), allows the Secretary of Transportation to determine if airworthiness certification is necessary.** The FAA Modernization and Reform Act of 2012 (FMRA) allows the Secretary to determine, based on the characteristics of a particular SUAS and SUAS operation, "whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems."

6. **Aviation safety in manned and unmanned aviation can be maintained and small businesses empowered through exemptions to specific provisions of Title 14 CFR.** In the attachment to this letter we list each regulatory exemption request, provide the reason we require the exemption, and give an explanation of how Sky-Futures operations provide an alternative method of compliance or an equivalent level of safety.

7. **The requirements in FAA Order 8130.34C describe how SUAS may experimentally operate in safety; the attached confidential Sky-Futures documents describe how we have implemented such safe operations.** In the attachment to this letter we have analyzed 8130.34C and identified the major regulatory concerns, our requests for exemptions for our organization, and our plan to safely conduct SUAS commercial operations under these exemptions.

8. **Public Law 112–95, FAA Modernization and Reform Act of 2012 § 333(b)(1) allows the Secretary of Transportation to determine if certain SUAS and SUAS operations may be exempted from airworthiness requirements.** Exemptions are to be determined by evaluating the types of SUAS that, "as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard…" **We believe that the SUAS we fly under our operating procedures meet this standard and that Sky-Futures oil and gas inspections are not a probable risk of injury to persons or property, do not create a hazard to the NAS, nor pose a threat to national security.**

We recognize the formidable challenge of integrating SUAS into the NAS and we are strong advocates of responsible and considered exemptions to current federal laws in order to empower responsible, safe SUAS businesses for the integration and evolution of the SUAS economy. Please do not hesitate to contact Andrew McCollough via email at exemption@skyward.io for regulatory concerns or Nick Rogers via email at exemption@sky-futures.com for operational questions.

Very Respectfully Yours,

Jonathan Evans
CEO, SkyWard IO, Inc.

Chris Blackford
Global Operations Director, Sky-Futures USA Inc.

SkyWard

Sky-Futures USA, Inc. SUAS Airworthiness Exemption Petition

Supporting Information

August 25, 2014

SKY-FUTURES

Unmanned System Solutions

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1 INFORMATION SUPPORTING PETITION

1.1 SKY-FUTURES OPERATIONS PLAN SUMMARY

TABLE 1: OPERATIONS PLAN SUMMARY

Item	Plan
Overview	Sky-Futures will operate SUAS for oil and gas inspection services on remote locations of US partners.
Aircraft, manufacturers, descriptions, etc	Sky-Futures's SUAS, the Falcon 8, has a MTOW of less than 5 lb., a maximum speed of less than 40 mph, will be registered with AFS–750, and will display SUAS scale-appropriate identification marks.
Flight Operations	All Sky-Futures SUAS inspection operations will be conducted under VFR, below 400 ft AGL and within 1640 ft (500 m) laterally of the pilot, under VMC.
Flight Areas	Under this petition, Sky-Futures will safely operate their well-tested SUAS for the purpose of oil and gas inspection solely over private or public property that is: 1) at least 5 nm from airports, 2) in class G airspace, and 3) only when authorized by the owner of the property that the SUAS will take off, land, or fly over. These locations are typically over water.
Method for See-and-Avoid	Airspace deconfliction will be performed by the Pilot in command and assisted by a qualified observer for all operations.
Flight Recovery and Lost-Link	Normal, abnormal, and emergency procedures for Sky-Futures SUAS (Falcon 8) are defined in the Sky-Futures Operations Manual. In case of loss-link, SUAS are programmed to return safely to the pre-designated safe landing zone.
Pilot Qualifications	Sky-Futures pilots are significantly experienced veteran SUAS pilots with applicable Sky-Futures operations training. Sky-Futures pilots will be qualified on the specific SUAS flown, as described in the Sky-Futures Operations Manual.
Inspection, Maintenance, Training, SMS	Maintenance, inspection, and training will be performed according to aviation standards as set forth in the Sky-Futures Operations Manual submitted as confidential business information under separate cover. The operations manual also provides a description of the Sky-Futures Safety Management System.

1.2 SKY-FUTURES SUAS SYSTEM DESCRIPTION

The Sky-Futures SUAS described below is the primary SUAS for Sky-Futures operations. We believe that the Sky-Futures SUAS described below meets the Public Law 112–95, FAA Modernization and Reform Act of 2012

§ 333(b)(1) exemption guidelines for size, weight, speed, and operational capability.

1.3 MODEL & MANUFACTURER

The AscTec Falcon 8 is manufactured by Ascending Technologies GmbH of Krailling, Germany. The AscTec Falcon 8 is an Electric UAS with a total maximum takeoff weight of 2.2 kg that has been the workhorse UAS for Sky-Futures for several years. Sky-Futures UAS Operators have over 5,000 hours of combined UAS experience and delivered UAS inspection services to oil and gas operations around the world. Additional operational details may be found in the Pilot Operators Manual 1 POM1/Part B submitted separately. Full, three-view drawings of the Falcon 8 are presented below, while the performance characteristics of the Falcon 8 are listed in UAV Specifications (Table 2).

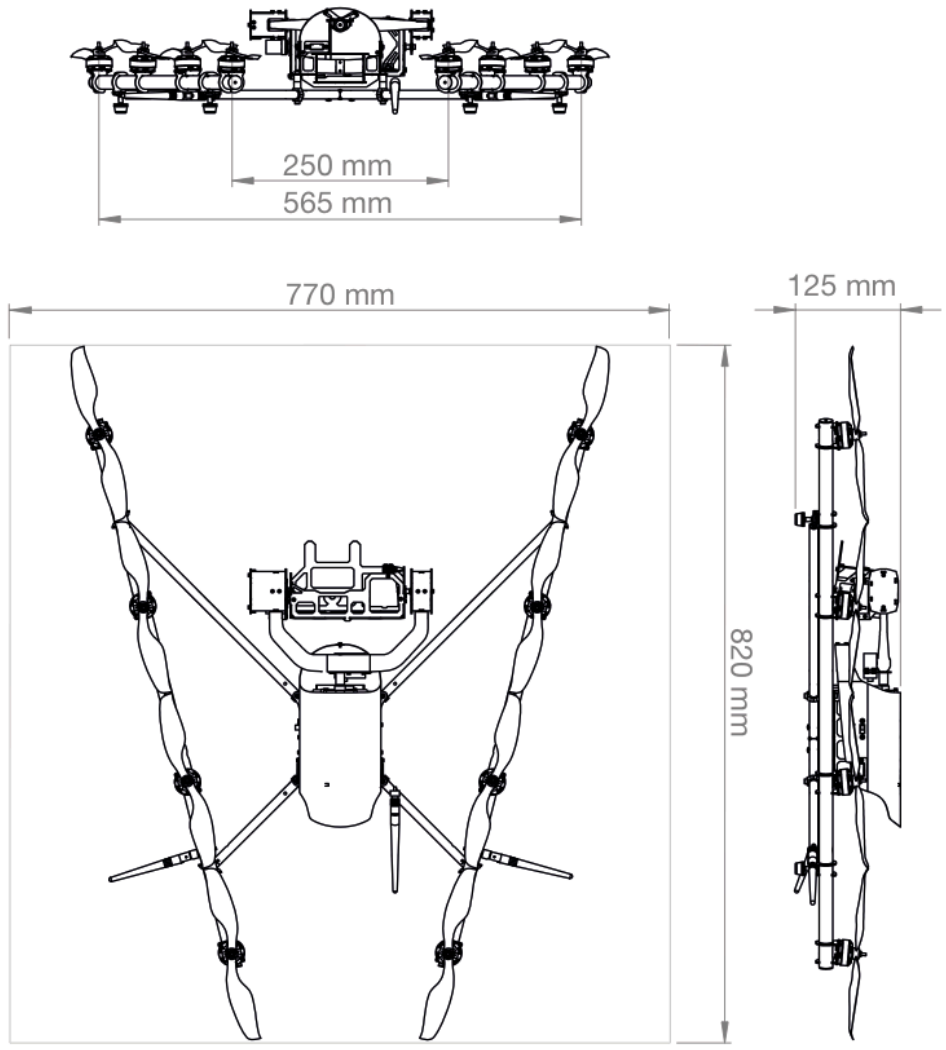

FIGURE 1: FALCON 8 THREE-VIEW DRAWING

1.4 SKY-FUTURES OPERATIONS DESCRIPTION

1.4.1 OPERATING CONDITIONS

According to the Sky-Futures Operations manual, the Falcon 8 may only be flown under the following conditions:

1. Day time (at least ½ hour after sunrise and before sunset),

TABLE 2: UAV SPECIFICATIONS

Part	Description
Engines	8x brushless motors, 8“ propellers
Controls	Based on Futaba FX–30
Transmitter	AscTec 2-channel 2.4 GHz diversity
Receiver	AscTec 2-channel 2.4 GHz diversity
Battery	Lithium-Polymer battery, 3s4p 8000 mAh
Type	Thunder Power (military specified)
Operating endurance	Approx. 16–18 minutes with 500 g payload
Charge time	Approx. 1.5 h
Rotor size	Approx. 204 mm (8“)
Max. thrust	Approx. 30 N
Max. climb rate	Approx. 4 m/s
Max. airspeed	Approx. 3 m/s in GPS controlled flight, approx. 15 m/s in manual flight
Flight time	16–18 minutes with 500 g payload
Range	Approx. 150 m (recommended), in line of sight
Tolerable wind speed	GPS Position Hold in up to 10 m/s with 500 g payload
Empty weight	Approx. 800 g
Recommended payload	Approx. 500 g (+500 g battery)
Max. takeoff weight	Approx. 2200 g
Transport Case	PeliCase with precisely precut foam for flight system and accessories
Size of transport case	850 x 720 x 460 mm3
Payloads	Various digital cameras, Full HD video cameras, infrared cameras, and various sensors
Data Link	Digital data transmission via 2 separate transmitter and receiver units on 2.4 GHz band, transmission power 10–63 mW
Video Link	Analogue video transmission on 5.8 GHz band, PAL or NTSC, transmission power 25 mW

2. VFR,
3. Within visual line-of-sight (VLOS),
4. Below 400 ft AGL and less than 500 meters (1640 ft) laterally,
5. Other considerations as described in the Sky-Futures Operations Manual.

1.4.2 FLIGHT CONDITIONS

The UAS may only be flown if the following criteria are met:

1. Direct, unaided visual contact with the SUAS,
2. Temperature range from −10°C to 35° C,
3. Wind speeds under 23 kt.,
4. No precipitation (rain, snow, or fog).

1.5 OPERATIONS

As described further in §A6.2.3.5 of the Sky-Futures Operations Manual, airspace assessment must be carried out and ATC permission obtained, if required. Sky-Futures UAS flight planning for each mission includes obtaining regulatory permission, land-use permissions, NOTAMs, and Met; determining mission objectives; performing a risk assessment, method statement, and map study of planned flight area; securing planned and alternate operating locations; establishing communications; and identifying emergency contingencies.

Therefore, we believe that the AscTec Falcon 8 SUAS and Sky-Futures operations, including proposed operations on secured, critical oil and gas infrastructure in remote areas, satisfy the guidelines in FAA Modernization and Reform Act of 2012 § 333(b)(1) for operation that, "as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security."

2 REGULATORY ANALYSIS

We have analyzed FAA Order 8130.34C in a two-fold manner. First, we have extracted citations to Public or Federal Law. Second, we analyzed the order for use of the term "must" to determine procedural requirements. For each legal reference, we have summarized our request for exemption below in Petition Justifications. For non-cited, procedural requirements, we have grouped them into broader categories to address the concerns normally found in the FAA Order 8130.34C program letter but tailored to these exemption requests. We believe that we have complied with 8130.34C requirements for operations or if not yet, are otherwise in communication with the appropriate FAA division (AIR−200, AFS−750, etc.) to fulfill the requirements. We recognize that the granting of the petition to waive airworthiness requirements under the Section 333 authorization would, as a consequence, waive 8130.34C; however, we believe that compliance to the fullest extent possible is the responsible approach to aviation safety.

2.1 SUMMARY OF LEGAL REQUIREMENTS

Unless otherwise noted, authorities are Title 14 CFR.

TABLE 3: LEGAL REQUIREMENTS

Citation	8130.34	Summary	Exemption Requested
§ 91.203	§3.1.1	Airworthiness Certificates	Y
49 USC §44704(c)	§2.1.1.a	Aircraft Registration	N
§ 47.16	§2.2.d	Temporary Registration Numbers	Y
§ 91.203(a)	§2.3, §3.1.10.a	Airworthiness certificate with registration number (within the aircraft)	Y
§ 91.203(b)	§2.3, §3.1.10.a	Display of airworthiness certificate	Y
§ 91.9(b,c)	§2.3	Manual, Marking, and Placards	Y
§ 43; §91.405 §91.407; §91.409 §91.417	§3.1.7, C.10	Inspection and Maintenance Programs; Maintenance required; Operation after maintenance, preventive maintenance, rebuilding, or alteration; Inspections; Maintenance Records.	Y
§45.§ 45.11§45. § 45.11 §45.21, § 45.22(d)	§3.1.10.d;§3.2.7.b;C.5	Registration and marking special rules	Y
21 (Subpart H)	§3.2.3.c	Airworthiness Certificate; Experimental Certificate-General	Y
§ 61	§3.2.3.b, C.9	Requirements for certification of instructors for Crew Training	Y
§91.319	§3.2.6	Operating limitations	Y
§91.119	NA	Minimum safe altitudes: General	Y
§91.413	§3.2.7.b.5	ATC transponder tests and inspections	Y
§91.215	C.4	ATC Transponder and Altitude Reporting Equipment and Use	Y
§91.155	C.1	Flight Conditions	N
§91.111,§91.113,§91.115	C.9.d; C.7	Visual observer roles and responsibilities; Method for see and avoid	N
§67	A.6.b(2), A.6.e(2), A.6.h(2); D.7.a.2.b, D.7.a.3.b	Medical standards and certification	Y
§91.109	D.7.a.1	Flight instruction; Simulated instrument flight and certain flight tests	Y
§91.151	C.3.a; D.3.g.9	Fuel requirements for flight in VFR conditions	Y

2.2 SUMMARY OF 8130.34 ORDER REQUIREMENTS

Granting of this airworthiness petition waives the requirements of 8130.34C; however, Sky-Futures believes strongly that the aviation operations standards explicated in the order are, in general, reasonable for SUAS research and development. Therefore, in Procedural Requirements (Table 4), we have marked the requirements in the 8130.34C with either "Compliant", "Alternative Method of Compliance", or "Equivalent Level of Safety". We will apply directly to the relevant FAA division with either the requested information, an equivalent level of safety, or other alternative method of compliance. Items that are considered confidential business information will be submitted (as applicable) under separate cover as supporting evidence for our petition.

TABLE 4: PROCEDURAL REQUIREMENTS

Citation	Procedure	Compliance Standard
2.1.a	Aircraft Registration	Compliant
2.1.b	Proof of ownership	Compliant
3.1	General (Airworthiness andCertificates)	Equivalent Level of Safety
3.2	Application for an AirworthinessCertificate	Equivalent Level of Safety
3.3	Flight Test Area and OperatingArea	Compliant
3.4	Flight Test Plan(s)	Compliant
3.5 (see Appendix C)	Program Letter	Alternative Method of Compliance
3.6 (see Appendix D)	Safety Checklist	Alternative Method of Compliance

3 PETITION JUSTIFICATIONS

Exemption Justifications (Table 5) presents our considered explanations for why we require waiver of the sections listed above, the public good derived, and why we believe our operations nonetheless provide an equivalent level of safety to the manned aviation regulations.

4 SPECIFIC EXEMPTION REQUESTS

This section presents information for each exemption request, defines the extent of each request, explains our reasons and provides more detailed justifications than described in Exemption Justifications (Table 5). In addition, we provide further details concerning the public good arising from our exemption requests and our means of establishing safety equivalence to the existing regulations.

4.1 §91.203 (A,B,C,D), AIRWORTHINESS CERTIFICATES

4.1.1 EXTENT OF RELIEF

Exemption from all provisions of part 91.203.

4.1.2 REASON FOR RELIEF

Integration of SUAS into the NAS requires rapid, iterative testing. It is an unreasonable burden to require airworthiness certification for each iteration, modification, or enhancement of each test airframe.

TABLE 5: EXEMPTION JUSTIFICATIONS

Item	Justification
Reason for Regulatory Relief	Integration of SUAS into the NAS requires rapid, iterative testing. It is an unreasonable burden to require airworthiness certification for each iteration, modification, or enhancement of each test airframe.
Public Benefit	The safe and reliable operation of SUAS will provide economic benefits historically unparalleled since the invention of flight to stakeholders at every level of public and private enterprise. SUAS operations will be able to create new high-tech jobs that will stimulate city and state governments, create new small and large businesses, infuse new interest in STEM for our children, and increase the safety of citizens through enhanced first-responder capabilities.
Safety Equivalence	Sky-Futures operates at a level of safety equivalent to that of professional manned aviation. As stated above, standard operating procedures, safety management systems, and flight operations standards are rigorously upheld across its global organization. In addition, SUAS below 5.0 lb., operating at low velocity and under 400 ft suggests an extremely small likelihood of risk, injury or harm to persons, property, vehicles or structures.

4.1.3 PUBLIC BENEFIT

As described above, the public benefit includes exponential economic growth, enhanced safety, and improved first-responder capabilities.

4.1.4 SAFETY EQUIVALENCE

The low kinetic energy profile of this SUAS class ($<$5.0 lb. MTOW) indicate no probable harm to persons or property. Additionally, adherence to Sky-Futures SOP procedures provide a professional aviation standard that mitigates operational risk.

4.2 §47.16, TEMPORARY REGISTRATION NUMBERS

4.2.1 EXTENT OF RELIEF

Exemption from all provisions of §47.16

4.2.2 REASON FOR RELIEF

Temporary registration numbers for each iteration of each test SUAS will create an unreasonable burden on both manufacturers and the FAA.

4.2.3 PUBLIC BENEFIT

As described above, the public benefit includes exponential economic growth, enhanced safety, and improved first-responder capabilities.

4.2.4 EQUIVALENT LEVEL OF SAFETY

Iterations on research and development vehicles are internal to the manufacturers and will not be sold, delivered, or otherwise move through third-party dealers.

4.3 § 91.9, MANUAL, MARKING, AND PLACARDS; §45, IDENTIFICATION AND REGISTRATION MARKING

4.3.1 EXTENT OF RELIEF

Exemption from all provisions of §91.9 and §45.

4.3.2 REASON FOR RELIEF

There is no space to place manuals, markings or placards of the specified sizes within or on an SUAS in this size and weight category, specifically the Falcon 8. Markings as specified in §45 are likewise inappropriate for a SUAS of this class.

4.3.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.3.4 EQUIVALENT LEVEL OF SAFETY

Appropriately scaled identification plates will be firmly attached to each vehicle in a location that will be easily accessible if required. Manuals for each vehicle will be located in the immediate proximity of the pilot during operations. Registration markings will be placed on the vehicle at an appropriate scale.

4.4 §43, INSPECTION AND MAINTENANCE PROGRAMS

4.4.1 EXTENT OF RELIEF

§43,Inspection and Maintenance, as well as ancillary sections §91.405, Maintenance required; §91.407, Operation after maintenance, preventive maintenance, rebuilding, or alteration; §91.409, Inspections; and §91.417, Maintenance records.

4.4.2 REASON FOR RELIEF

Exemption from §21 effectively obviates §43. Additionally, the part 91 provisions are not applicable to a SUAS of the described weight class. Furthermore, FAA certified mechanics for SUAS do not at this present time exist, so full compliance is not possible. Not only this, but the SUAS flown is modular and as such entire components including engines and propellers are minor replacements rather than major repairs. Finally, continuous minor alterations and payload reconfigurations of SUAS are designed and required for the operation of this SUAS and do not negatively impact airworthiness.

4.4.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.4.4 EQUIVALENT LEVEL OF SAFETY

Sky-Futures have developed inspection and maintenance manuals to maintain their SUAS in airworthy condition. Each SUAS is maintained according to the manufacturer standard or higher by technicians proficient in the building, repair, and maintenance of the SUAS. Inspection and Maintenance manuals utilized by Sky-Futures contain all SUAS relevant items as described in (§43 Appendix D (Scope and Detail of Items). Maintenance records are maintained in Sky-Futures logs as well as in the SkyWard Operations Database as an alternative method of compliance for Appendix B (Recording of Major Repairs and Major Alterations). SkyWard Operations Database logs are immediately auditable by regulators on demand.

4.5 21 (SUBPART H) §21.193, AIRWORTHINESS CERTIFICATE; EXPERIMENTAL CERTIFICATE-GENERAL

4.5.1 EXTENT OF RELIEF

§21 Subpart H Airworthiness certificate

4.5.2 REASON FOR RELIEF

See Exemption Justifications (Table 5).

4.5.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.5.4 EQUIVALENT LEVEL OF SAFETY

Sky-Futures adheres to internal operations, inspection, and maintenance manuals, as well as manufacturer maintenance manuals, which ensure that the SUAS are airworthy and pose no probable harm to persons or property. Furthermore, given the size, weight, and maximum velocity of the SUAS operated by Sky-Futures, it is unnecessary to go through airworthiness certification for each SUAS in order to ensure an equivalent level of safety. Sky-Futures adherence to Sky-Futures SOP further mitigates the risk profile of this SUAS.

4.6 § 61, CERTIFICATION: PILOTS, FLIGHT INSTRUCTORS, AND GROUND INSTRUCTORS

4.6.1 EXTENT OF RELIEF

§61, all sections.

4.6.2 REASON FOR RELIEF

§61 is not applicable to SUAS. The size, weight, and maximum velocity of SUAS ensures an equivalent level of safety, especially with SUAS operators trained specifically on the operational capabilities of their SUAS. In addition, the SUAS category is not a specified category in §61, hence compliance is not possible. Furthermore, actual control of the flight surfaces, rotors, motors, etc. is provided by the autopilot; SUAS operators simply specify heading or altitude direction to the autopilot. As a result, expertise in control of the SUAS can be obtained

rapidly. Finally, the operation of a manned aircraft is fundamentally different to that of the operation of a SUAS, and requires a skills set which is not addressed under §61.

4.6.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.6.4 EQUIVALENT LEVEL OF SAFETY

All operations will be conducted under the supervision of a pilot in command that either possess a current private pilots license or has completed FFA ground instruction and passed the FAA written examination or equivalent. In addition, operators of Sky-Futures SUAS are required to demonstrate proficiency in the normal, abnormal, and emergency operating procedures with each SUAS flown, as described in the Sky-Futures Operations Manual Part D. Furthermore, Sky-Futures USA, Inc operational pilots are US veterans with military SUAS experience and qualified on the Falcon 8 SUAS according to the Sky-Futures Operations Manual.

4.7 §91.319, AIRCRAFT HAVING EXPERIMENTAL CERTIFICATES: OPERATING LIMITATIONS.

4.7.1 EXTENT OF RELIEF

All provisions of §91.319.

4.7.2 REASON FOR RELIEF

This petition specifically requests exemption from airworthiness requirements and certification because the operating limitations preclude commercial operations.

4.7.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.7.4 EQUIVALENT LEVEL OF SAFETY

Operating limitations for aircraft are intended to reduce the likelihood of injury to persons or property. SUAS of this size and performance characteristics pose no probable risk of injury to persons or property. However, as described in the Sky-Futures Operations Manual: SUAS will only be operated under the authority of a pilot in command, under VFR in VMC, more than 5 nm from airports in class G airspace, and only when given authorization by the owner of the property that the SUAS will take off, land, or fly over. These operating restrictions will provide equal or greater safety as those outlined §91.319.

4.8 §91.119, MINIMUM SAFE ALTITUDES: GENERAL.

4.8.1 EXTENT OF RELIEF

Section 91.119, a,b, and c. This provision establishes safe altitudes for operation of civil aircraft. 91.119(c) limits aircraft flying over areas other than congested areas to an altitude of 500 feet above the surface.

4.8.2 REASON FOR RELIEF

Sky-Futures SUAS, as described above, will never be operated at greater than 400 ft AGL and as such, §91.119 is inappropriate to apply to SUAS. SUAS work in general, including aerial survey, oil and gas inspection, etc. is done at low altitudes below 500ft.

4.8.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.8.4 EQUIVALENT LEVEL OF SAFETY

See Exemption Justifications (Table 5). We believe that the SUAS may be operated safely, as per Sky-Futures Operations Manual, in a manner analogous to helicopter operation, as described in §91.119 (d).

4.9 §91.413, ATC TRANSPONDER TESTS AND INSPECTIONS. §91.215, ATC TRANSPONDER AND ALTITUDE REPORTING EQUIPMENT AND USE.

4.9.1 EXTENT OF RELIEF

§91.413 and §91.215.

4.9.2 REASON FOR RELIEF

ATC transponders are unnecessary for SUAS operating under 400 ft, VFR. Sky-Futures SUAS are operated outside of Class A, B, and C airspace. In addition, the transponder adds unneeded weight to the aircraft reducing payload and flight performance.

4.9.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.9.4 EQUIVALENT LEVEL OF SAFETY

The pilot in command and observer will deconflict airspace within VLOS. The PIC will communicate with ATC if required; however, operations will remain well outside a 5 nm radius around airports. See also Exemption Justifications (Table 5).

4.10 §67, MEDICAL STANDARDS AND CERTIFICATION

4.10.1 EXTENT OF RELIEF

§67, all provisions.

4.10.2 REASON FOR RELIEF

Manned aircraft pilot medical qualifications are stringent due to the great responsibility and safety concerns of operating multi-ton vehicles with passengers at high speeds and altitudes. SUAS in an ultralight class of less than 55 lb. (5 lb. in this case), operating at low velocity, and no more than 400 ft AGL do not pose the same level of risk as any manned aircraft and therefore may be able to be operated by individuals with medical qualifications of a different standard to that of manned aviation; namely, that of a Class C driver's license. Requiring individuals

to possess a First, Second, or Third Class Medical certificate to operate a 5 lb. vehicle below 400 ft flying at less than 33 mph places an unreasonable burden on both individuals as well as the FAA.

4.10.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.10.4 EQUIVALENT LEVEL OF SAFETY

Class C driver license medical requirements, verified by possession of a valid driver's license. Sky-Futures also complies with global, oil and gas offshore medical requirements which exceed those of a Class C driver license.

4.11 §91.109, FLIGHT INSTRUCTION; SIMULATED INSTRUMENT FLIGHT AND CERTAIN FLIGHT TESTS.

4.11.1 EXTENT OF RELIEF

§91.109, all provisions.

4.11.2 REASON FOR RELIEF

SUAS are operated from a ground station and are, by design, not operable with multiple ground station controllers. Dual-sticks, seats, and other manned-aviation appropriate requirements are unnecessary and impossible SUAS. Flight instruction, therefore, is accomplished with the instructor standing next to the operator and providing direction as needed.

4.11.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.11.4 EQUIVALENT LEVEL OF SAFETY

SUAS operators will be trained to the standard described in the Sky-Futures Operations Manual. An equivalent level of instruction and safety will be proved by instructors experienced on the Sky-Futures SUAS.

4.12 §91.151, FUEL REQUIREMENTS FOR FLIGHT IN VFR CONDITIONS.

4.12.1 EXTENT OF RELIEF

§91.151, all provisions.

4.12.2 REASON FOR RELIEF

The provision requires fuel sufficient for ½ hour flight beyond the destination. The model SUAS flown by Sky-Futures are powered by a set of batteries and have a maximum flight duration of less than 30 minutes unloaded under optimal flight conditions. Therefore, it is impossible to comply with this provision.

4.12.3 PUBLIC BENEFIT

See Exemption Justifications (Table 5).

4.12.4 EQUIVALENT LEVEL OF SAFETY

The short flight distances of less than 500 m from the operator and flight times of under 30 minutes obviates the otherwise reasonable expectation of reserve fuel as in manned aviation. Even in the case of low battery power insufficient to return home, the SUAS will simply and gradually land under control. Sky-Futures believes that an equivalent level of safety can be provided by reserving a minimum of 5 minutes of battery power to return to the designated safe landing zone. We believe that this is a SUAS scale appropriate level of reserve fuel.

5 SUMMARY FOR FEDERAL REGISTER

Petitioner: Sky-Futures USA Inc.

Sections of 14 C.F.R. Affected: 21; 45.23(b); 91.9(b); and 91.203(a) and (b) and ancillary provisions of 14 CFR.

Description of Relief Sought: Petitioner seeks relief from the requirements of 14 C.F.R. §21(Subpart H) §21.193; §91.203; §91.319; §91.119, §91.413; §91.215; §91.155; §91.109; §91.111, §91.113; §91.115, §91.151; §91.203(a), §91.203(b); §91.9(b,c); § 43; §45 including §45.11, §45.21, §45.22(d); §47.16, §49 §61, and §67. We request this regulatory relief in order to conduct private SUAS commercial operations over private and public property subject to the operating procedures described in the Sky-Futures Operations Manual.

6 ADDITIONAL INFORMATION

Please see the analysis above and the introduction to the exemption request, as well as separately submitted confidential documentation.

7 THE REASON FOR SKY-FUTURES TO EXERCISE EXEMPTION PRIVILEGES OUTSIDE OF THE UNITED STATES

The commercial oil and gas inspection operations described in this exemption request will be conducted both within the United States at secured, remote locations onshore and offshore in international waters. Commercial onshore and offshore oil platform inspections are the primary reason for this request.