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

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

March 15, 2016

Exemption No. 11473A
Regulatory Docket No. FAA–2015–0297

Mr. Jonathon Hill
Counsel for Chapman Aerospace LLC
1299 Pennsylvania Avenue, NW Suite 700
Washington, DC 20004

Dear Mr. Hill:

This letter is to inform you that we have granted your petition for an amendment. It explains the basis for our decision, describes its effect, and lists any changes to the original conditions and limitations.

By letters dated May 5, 2015, [1] you petitioned the Federal Aviation Administration (FAA) on behalf of Chapman Aerospace LLC (hereinafter petitioner or operator) for an amendment to Exemption No. 11473. That exemption from §§ 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) of Title 14, Code of Federal Regulations (14 CFR) allows the petitioner to operate an unmanned aircraft systems (UAS) for the purpose of aerial data collection and closed set motion picture and filming. You requested an amendment to update your revised small unmanned aircraft systems (sUAS) manual, to add use cases in Section 16 to include wind turbine, oil rig, platform inspections, vessel inspections, and disaster response. Also, in Section 17, you requested to add the DJI S900 (tethered) and DJI S1000+ (tethered) aircraft to your exemption.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

[1] The petitioner responded to the FAA's request for information on Oct 30, 2015.

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

The Basis for Our Decision

The FAA granted the petitioner the ability to conduct aerial data collection in exemption No. 11473. Aerial data collection covers all data collection methods used by unmanned aircraft (UA) and is not specific on type of operation, (i.e., wind turbine, oil rig, etc., etc.). The petitioner must comply with appropriate Federal Aviation Regulations and Certificate of Authorization (COA).

Your request to expand your services to include wind turbine, oil rig, platform inspections, vessel inspections, and disaster response is reflected in the term "aerial data collection"[2] used below to describe the nature of your UAS operations. All operations must be conducted under the terms of the ATO-issue Certificate of Authorization (COA).

Having reviewed your reasons for requesting an amendment to 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 an amendment is in the public interest.

Note that the request has not been granted in full. Specifically, your request was to operate as close as 100 feet to nonparticipating persons, vessels, vehicles, and structures with the use of a tethered UAS. The FAA was not provided with any safety analysis in relation to the addition of attaching a tether to any of the petitioner's UASs. The addition of tethered operations to the petitioner's operating manual is not a waiver to operate closer to nonparticipating persons, vessels, vehicles, and structures without the proper safety barriers outlined in the condition and limitations.

[2]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.

Our Decision

The FAA has determined that the justification for the issuance of Exemption No. 11473 remains valid and is in the public interest. Therefore, under the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, the operator is granted an amendment to add new aircraft to its UAS operations.

The operator shall add this amendment to its original exemption.

Conditions and Limitations

The conditions and limitations within Grant of Exemption No. 11473 have been superseded, and are amended as follows.

In this grant of exemption, Chapman Aerospace 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. The operator is authorized by this grant of exemption to use any aircraft identified on the List of Approved Unmanned Aerial Systems (UAS) under Section 333 at regulatory docket FAA-2007-3330 at www.regulations.gov, when weighing less than 55 pounds including payload. Proposed operations of any aircraft not on the list currently posted to the above docket will require a new petition or a petition to amend this exemption.

2. If operations under this exemption involve the use of foreign civil aircraft,[3] the operator must obtain a Foreign Aircraft Permit pursuant to 14 CFR § 375.41 prior to conducting any commercial air operations under the authority of this exemption. Application instructions are specified in 14 CFR § 375.43. Applications should be submitted by electronic mail to the DOT Office of International Aviation, Foreign Air Carrier Licensing Division. Additional information can be obtained at https://cms.dot.gov/policy/aviation-policy/licensing/foreign-carriers

3. *PIC certification*: Under this 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

[3] *Foreign civil aircraft* means (a) an aircraft of foreign registry that is not part of the armed forces of a foreign nation, or (b) a U.S.-registered aircraft owned, controlled or operated by persons who are not citizens or permanent residents of the United States. 14 CFR § 375.1.

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.

4. *PIC qualifications:* The PIC must demonstrate the ability to safely operate the UAS in a manner consistent with how it will be operated under this exemption, including 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. PIC qualification flight hours and currency may be logged in a manner consistent with 14 CFR § 61.51(b), however UAS pilots must not log this time in the same columns or categories as time accrued during manned flight. UAS flight time must not be recorded as part of total time.

5. Under 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. All training operations must be conducted during dedicated training sessions and may or may not be for compensation or hire. The operation must be conducted with a dedicated visual observer (VO) who has no collateral duties and is not the PIC during the flight. The VO must maintain visual sight of the aircraft at all times during flight operations without distraction in accordance with the conditions and limitations below. Furthermore, the PIC must operate the UA not closer than 500 feet to any nonparticipating person without exception.

6. 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.

7. 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.

8. 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.

9. All operations must utilize a VO. The UA must be operated within the 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.

10. This exemption, the List of Approved Unmanned Aerial Systems (UAS) under Section 333 at regulatory docket FAA-2007-3330 at www.regulations.gov, 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 may be contacted if questions arise regarding updates or revisions to the operating documents.

11. 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.

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

13. 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.

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

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

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). Flights under special visual flight rules (SVFR) are not authorized.

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. For tethered UAS operations, the tether line must have colored pennants or streamers attached at not more than 50 foot intervals beginning at 150 feet above the surface of the earth and visible from at least 1 mile. This requirement for pennants or streamers is not applicable when operating exclusively below the top of and within 250 feet of any structure, so long as the UA operation does not obscure the lighting of the structure.

19. For UAS operations where GPS signal is necessary to safely operate the UA, the PIC must immediately recover/land the UA upon loss of GPS signal.

20. If the PIC loses command or control link with the UA, the UA must follow a pre-determined route to either reestablish link or immediately recover or land.

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

22. The PIC must abort the flight operation if circumstances or emergencies that could potentially degrade the safety of persons or property arise. The PIC must terminate flight operations without causing undue hazard to persons or property in the air or on the ground.

23. 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 enclosed COA.

24. All aircraft operated in accordance with this exemption must be registered in accordance with 14 CFR parts 47 or 48, and have identification markings in accordance with 14 CFR part 45, Subpart C or part 48. For applicability and implementation dates of part 48 see 80 FR 78594 (Dec. 16, 2015).

25. 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.

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

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

28. All flight operations must be conducted at least 500 feet from all persons, vessels, vehicles, and structures unless when operating:
    a. *Over or near people directly participating in the operation of the UAS.* People directly participating in the operation of the UAS include the PIC, VO, and other consenting personnel that are directly participating in the safe operation of the UA.
    b. *Near but not over people directly participating in the intended purpose of the UAS operation.* People directly participating in the intended purpose of the UAS must be briefed on the potential risks and acknowledge and consent to those risks. Operators must notify the local Flight Standards District Office (FSDO) with a plan of activities at least 72 hours prior to flight operations.
    c. *Near nonparticipating persons.* Except as provided in subsections (a) and (b) 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 where 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.

d. *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 determined that it does not present an undue hazard.

29. All operations shall be conducted over private or controlled-access property with permission from a person with the legal authority to grant access. Permission will be obtained for each flight to be conducted.

30. 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 within 24 hours. Accidents and incidents must be reported to the National Transportation Safety Board (NTSB) in accordance with 49 CFR § 830.5 per instructions contained on the NTSB Web site: www.ntsb.gov.

For operations conducted closer than 500 feet to people directly participating in the intended purpose of the operation, not protected by barriers, the following additional conditions and limitations apply:

31. The operator must have an operations manual that contains at least the following items, although it is not restricted to these items.
    a. Operator name, address, and telephone number.
    b. Distribution and Revision. Procedures for revising and distributing the operations manual to ensure that it is kept current. Revisions must comply with the applicable conditions and limitations in this exemption.
    c. Persons Authorized. Specify criteria for designating individuals as directly participating in the safe operation of the UAS. The operations manual must include procedures to ensure that all operations are conducted at distances from persons in accordance with the conditions and limitations of the exemption.
    d. Plan of Activities. The operations manual must include procedures for the submission of a written plan of activities.
    e. Permission to Operate. The operations manual shall specify requirements and procedures that the operator will use to obtain permission to operate over property or near vessels, vehicles, and structures in accordance with this exemption.
    f. Security. The manual must specify the method of security that will be used to ensure the safety of nonparticipating persons. This should also include

procedures that will be used to stop activities when unauthorized persons, vehicles, or aircraft enter the operations area, or for any other reason, in the interest of safety.

g. Briefing of persons directly participating in the intended operation. Procedures must be included to brief personnel and participating persons on the risks involved, emergency procedures, and safeguards to be followed during the operation.
h. Personnel directly participating in the safe operation of the UAS Minimum Requirements. In accordance with this exemption, the operator must specify the minimum requirements for all flight personnel in the operating manual. The PIC at a minimum will be required to meet the certification standards specified in this exemption.
i. Communications. The operations manual must contain procedures to provide communications capability with participants during the operation. The operator can use oral, visual, or radio communications as along as the participants are apprised of the current status of the operation.
j. Accident Notification. The operations manual must contain procedures for notification and reporting of accidents in accordance with this exemption.

In accordance with this exemption, the operating manual and all other operating documents must be accessible to the PIC during UAS operations.

32. At least 72 hours prior to operations, the operator must submit a written Plan of Activities to the local Flight Standards District Office having jurisdiction over the proposed operating area.

The Plan of Activities must include at least the following:

a. Dates and times for all flights. For seasonal or long-term operations, this can include the beginning and end dates of the timeframe, the approximate frequency (e.g. daily, every weekend, etc.), and what times of the day operations will occur. A new plan of activities must be submitted prior to each season or period of operations.
b. Name and phone number of the on-site person responsible for the operation.
c. Make, model, and serial or N-Number of each UAS to be used.
d. Name and certificate number of each UAS PIC involved in the operations.
e. A statement that the operator has obtained permission from property owners. Upon request, the operator will make available a list of those who gave permission.
f. Signature of exemption holder or representative stating the plan is accurate.
g. A description of the flight activity, including maps or diagrams of the area over which operations will be conducted and the altitudes essential to accomplish the operation.

In accordance with this exemption, the Plan of Activities and all other operating documents must be accessible to the PIC during UAS operations. A new Plan of Activities must be submitted should there be any changes to items (a) through (g).

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 January 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan
Director, Flight Standards Service