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

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

August 12, 2015

Exemption No. 12447
Regulatory Docket No. FAA−2015−0812

Mr. Donald K. Wirthlin
Cochise College
4190 West Highway 80
Douglas, AZ 85607

Dear Mr. Wirthlin:

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 March 26, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Cochise College (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct training[1] and demonstrations.

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.

[1] The petitioner also requested authority to conduct UAS training. At this time, the FAA is unable to authorize UAS operations for training until a further assessment is completed. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner. However, the petitioner is permitted to train its own pilot in commands and visual observers in accordance with condition no. 14 and the other conditions and limitations in this exemption.

Airworthiness Certification

The UAS proposed by the petitioner is a Prioria Maveric.

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[2]. 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,

[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.

delegated to me by the Administrator, Cochise College 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.

Conditions and Limitations

In this grant of exemption, Cochise College 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 Prioria Mavcric 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

COCHISE COLLEGE
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Donald K. Wirthlin
wirthlin@cochise.edu

March 26, 2015

U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

RE: Exemption Request under Section 333 of the FAA Modernization and Reform Act of 2012 and 14 C.F.R. Part 21; 14 C.F.R Parts 45.23(b); 14 C.F.R. 61.113(a)&(b); 14 C.F.R. 61.133(a); 91.7(a)&(b); 91.9(b) (2); 91.103(b); 91.109(a); 91.119; 91.121; 91.151(a); 91.203(a)&(b); 91.405(a); 91.407(a) (1); 91.409(a) (2); 91.417(a)&(b)

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("FAA Reform Act") and 14 C.F.R. Part 11, Cochise Community College District, also known as "Cochise College", requests exemptions from the Federal Aviation Regulations ("FARs") listed below and discussed in Appendix A to allow Cochise College to conduct commercial operations with Prioria's Maveric small Unmanned Aircraft System ("sUAS") (the "Maveric") to provide, among other things, commercial operations of its Aircraft for training and demonstrations in remote and rural areas of the United States, as further defined herein, by a Pilot in Command holding, as minimum, a private pilot certificate.

Cochise College has an approved COA (2014-WSA-188-COA) for this sUAS.

Cochise College is a Public Entity of the State of Arizona and resides within Cochise County. Cochise College has been in existence for 50 years and has had an Aviation Training Department for 47 of those years. Cochise College has shared our runway (P03) and student training operations with UAS operations for approximately 27 years to date. The U.S. Army's RQ-5 Hunter System has been tested and evaluated in the same environment with our student training operations without incident or accident between manned and unmanned operations during these 27 years. Operations with manned and unmanned systems is not new to our daily operations.

All participants know and understand the regulatory requirements and Safety requirement to make these daily operations Safe. The community is committed to safety with each flight.

Cochise College requires that each UAS student be a U.S. citizen, have in their possession a valid Private Pilot certificate, be current in manned aircraft, have a third class medical prior to the flight phase of the training program and be cleared through TSA.

Cochise College will put SOP's in place to instill safety protocols and controls to avoid and prevent public hazards, as well as manned aircraft hazards/catastrophe. Cochise College will utilize the UAS Risk Assessment Matrix prior to daily flight operations.

Applicant Information:

The name of the applicant is:

Cochise College

The contact for this application is:

Cochise College
Address: 4190 West High Way 80,
Douglas, AZ 85607
Attn: Director of Aviation Programs
Belinda Burnett
Ph: (520) 417-4029
Fax: (520) 417-4090
Email: burnettb@cochise.edu

Primary POC and UAS instructor:

Cochise College
Address: 4190 West High Way 80,
Douglas, AZ 85607
Attn: Don Wirthlin
Certificate number, 2781713 ATP, CFII
Ph: (520) 417-4092
Fax: (520) 417-4090
Email: wirthlin@cochise.edu

Cochise College would welcome the opportunity to consult with FAA staff in order to address any issues or concerns related to this proposal that they believe may require modification.

Exemptions Requested

Cochise College does not believe that it needs an exemption from 14 C.F.R. §§ because the Maveric's flight manual, airworthiness exemption, maintenance records, and registration certificate will be maintained near the pilot's in commands (PIC) control station (Aircrew Flight Stations). Should the FAA determine that an exemption is required, Cochise College respectfully requests one on the basis that similar exemptions have been granted on numerous occasions. *See* Exemptions 8607, 8737, 9299, 9565, 9665, 9789, 9797 10167, 10602, 10700, and 32827.

Cochise College requests exemptions from the following regulations:

14 C.F.R. Part 21;	(Aircraft certification requirements)
14 C.F.R. 45.23(b);	("N" numbers and markings)
14 C.F.R. 61.113(a) & (b);	(Private pilots operating for hire)
14 C.F.R. 61.133(a);	(Commercial pilots as related to above)
14 C.F.R. 91.7(a) & (b);	(Civil aircraft airworthiness)
14 C.F.R. 91.9(b)	(Civil aircraft flight manual, marking, and placard requirements)
14 C.F.R. 91.109(a);	(Dual controls for instruction)
14 C.F.R. 91.119;14;	(Safe altitudes over obstacles)
14 C.F.R. 91.121;	(Altimeter Setting)
14 C.F.R. 91.151(a);	(Fuel mínimum)
14 C.F.R. 91.203(a) & (b);	(Maintenance inspections)
14 C.F.R. 91.405(a);	(Maintenance related)
14 C.F.R. 91.407(a)(1);	(Maintenance related)
14 C.F.R. 91.409(a)(2);	(Airworthy certificates)
14 C.F.R. 91.417(a);	(Maintenance record keeping)

The Extent of relief Cochise College seeks and the Reason they Seeks Such Relief:

Prioria Robotics ("Maveric")

The battery-powered Maveric weighs 2.6 pounds, has a wingspan of 39.2 inches, and a length of 29.7 inches, and has a flight time of 40-75 minutes depending on operating conditions, can operate in temperatures ranging from -22°F to 122°F. It employs a self-stabilizing aircraft configuration with stability augmentation avionics that provides ease-of-control and steady video imagery. Its high-performance design leverages advanced composite materials, innovative electronics, and cutting-edge sensor technology to increase mission capabilities and make Maveric a reliable and accurate solution to meet a variety of industry needs. The Maveric has operated in the United States under two Certificate of Waiver or Authorizations ("COAs").

Certificate Waiver or Authorization 2014-WSA-188-COA, issued to Cochise College, Certificate of Waiver or Authorization 2011-ESA-26, issued to the Department of Energy Oak Ridge National Laboratory, and Certificate of Waiver or Authorization 2012-WSA-53, issued to Oregon State University.

Additionally, the Maveric has received operating approvals in Canada and Australia, and has been operated by the U.S. Army. Operations under the exemption will be conducted under the limitations and conditions set forth in Appendix B and as may be modified by the FAA as required by Section 333.

The Maveric is capable of transmitting live airborne video images and location information to a Ground Control Station ("GCS"). The Maveric's minimum cruising speed and maximum speed are 18 Knots and 55 Knots, respectively. Normal cruise speed is 26 knots. The Maveric is hand-launched.

The Maveric can operate safely in the National Airspace System ("NAS"), without posing a threat to national security, by operating in accordance with the requirements discussed herein.

The Prioria Maveric's capabilities, along with Cochise College's long experience to date, make it ideally suited to conduct commercial operations such as Training Pilots to operate UAS in the NAS, agriculture, aerial surveying, and patrolling in remote areas (*i.e.* non-congested or sparsely populated areas, private or controlled-access property) under Class G airspace and within Visual Line of Sight ("VLOS"). Use of the Maveric reduces the need to operate manned aircraft, decreasing the risk to the pilot, crew, and those on the ground, as the Maveric is carried to the site and not flown there with a load of flammable fuel.

As a result of the Maveric's size, weight, maximum speed, operational capability, and safety record; the distance at which it will operate from populated areas; and its operation using visual observers to provide de-confliction from other air traffic. The Maveric does not create a hazard to users of the NAS or the public. Neither does it pose a threat to national security. Therefore, we request the FAA grant Cochise College the requested exemptions. Alternatively, if the FAA finds that modification of Cochise Community College's application is required for safe operation of the Maveric in the NAS, Cochise College requests that the FAA delineate the

required modifications and either process Cochise Community College's application as if the modifications were already made or allow Cochise College to amend its application to incorporate the FAA's findings.

Airworthiness of the sUAS

The Maveric has been shown to be airworthy and compliant through a history of granted flight operations in the United States, Canada, and Australia and successful flights in all three countries. The U.S. Military has accepted the Maveric for use as well and has flown it since 2011 in places like Afghanistan. Globally, the Maveric has amassed over 4,000 flight hours. For additional safety, the Maveric is equipped with automated features that ensure safe takeoff, flight, and landing in many conditions, further details of which are provided in Appendix C. In support of this application, Cochise College will submit, under separate cover and with a request for confidentiality, the Maveric Operator's Manual ("Operator's Manual") if requested.

Operating Conditions

Cochise College requests an exemption subject to the conditions listed in Appendix B, which are substantially similar to the operating conditions required for the FAA's previous grants of exemptions under Section 333.

In accordance with the conditions approved in previous exemption grants, Cochise College is requesting authority to operate the Maveric within visual line of sight and below 400 feet AGL except as provided by FAA Air Traffic Control via COA. Given that the training sites are flat, Cochise College will use the elevation of the highest predominant terrain within 1 mile of the launch point and within the visual line of sight as a ground reference point to establish the 400 feet ceiling. In other words, Cochise College will not operate the Maveric any higher than 400 feet above the highest point within 1 mile from the launch point, and will only do so provided the UAS is within the line of sight. These operating conditions, along with those listed in Appendix B, would provide an equivalent level of safety for the reasons described below.

The Maveric is visible up to 2,000 meters (1.24 miles) in a clear sky, making the selection of the predominant terrain within 1 mile of the launch point as a ground reference a logical and easily manageable reference.

Reasons Why Cochise College's Exemption Will Not Adversely Affect Safety Or How the Exemption Will Provide a Level of Safety At Least Equal To Existing Rule:

Cochise College's, exemption will not adversely affect safety. Quite the contrary, for the reasons stated permitting Cochise College to log more flight time in FAA controlled airspace, with communication with the FAA, will allow Cochise College to contribute to the innovation and implementation of new and novel, as of yet undiscovered safety protocols for students that can be embraced by the FAA and NTSB for development in cooperation with the FAA. In addition, Cochise College, submit the following representations of enhancements to current aerial videography and photography for student training:

- UAS weighs less than 2.6 pounds complete with a small ultra-light weight high quality camera;
- Operate the UAS below 400 feet (well within the 400 foot permissible ceiling set by the FAA Modernization and Reform Act of 2012);
- Cochise College's UAS only operate for 30-45 minutes per flight;
- Students/Flight Instructor land the UAS prior to manufacturer recommended minimum level of battery power;
- The aircraft is piloted by UAS ground control station or through remote control and only operates by visual line of sight;
- The aircraft and ground control station has GPS, utilizing a flight safety feature whereby it Returns Home and then automatically lands if communication with the GCS or remote pilot control is lost;
- Cochise College actively analyze flight data and other sources of information to constantly update and enhance safety protocols;
- Cochise College only operates in reasonably safe environment that are strictly controlled, are away from power lines, elevated lights, and actively populated areas; Students conduct extensive pre-flight inspections and protocol, during which safety carries primary importance;
- Cochise College always obtains all necessary permissions prior to operation; and, procedures in place to abort flights in the event of safety breaches or potential danger.
- Cochise College will also train Visual Observers (VO's) as crew members to enhance safety.
- Cochise College will conduct "Crew Briefings" prior to each training period.

Cochise College's safety protocols provide a level of safety equal to or exceeding existing rules. It is important to note that airplanes and helicopters are the primary means of aerial video and photography for community awareness and pilot training. While the safety record of such aircraft is remarkably astounding, it is far safer to operate a battery powered ultra-light weight UAS.

First, the potential loss of life is diminished because UAS's carry no people on board and Certified Flight Instructors/students only operates the UAS in specific areas away from mass populations.

Second, there is no fuel on board a UAS and thus the potential for fire or explosions is greatly diminished.

Third, the small size and extreme maneuverability of the UAS allow Certified Flight Instructors/students to remotely pilot away from and avoid hazards quickly and safely.

Lastly, given its small size and weight, even when close enough to capture amazing images, the UAS need not be so close to the objects they are focused on instead of flying the UAS and use post editing software for pan and zoom functions.

Accordingly, the UAS has been experimentally operated for familiarization/competency and will continue to operate at and above current safety levels.

In summary, Cochise College seeks an exemption from the following Regulations:

14 C.F.R. 21, subpart H; 14 C.F.R. 45.23(b); 14 C.F.R. §§ 61.113 (a) & (b); 14 C.F.R. § 91.7 (a); 14 C.F.R. § 91.9 (b)(2); 14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. §§ 91.203(a) and (b); 14 C.F.R. § 91.405 (a); 14 C.F.R. § 91.407 (a)(1); 14 C.F.R. § 91.409 (a)(2); 14 C.F.R. § 91.409 (a) (2); and, 14 C.F.R. §§ 91.417 (a) & (b) to commercially operate Cochise College's small lightweight unmanned aircraft vehicle in Pilot training, community awareness, agriculture operations and demonstrations. Currently, Pilot training, area awareness and aerial videography/photography relies primarily on the use of larger aircraft running on combustible fuel. Posing potential risk to the public. Granting Cochise College's request for exemption will reduce current risk levels and thereby enhance safety. The Maveric aircraft does not contain potentially explosive fuel, is smaller, lighter and more maneuverable than conventional aircraft. Further, Cochise College will operate at lower altitudes and in class G airspace eliminating potential public risk flying to and from established air fields. Cochise College, has been informally analyzing flight information and will compile safety protocols and the implementation of a flight operations manual for Flight Training usage that exceeds currently accepted means and methods for safe flight. Formal collection of information shared with the FAA will enhance the FAA's internal efforts to establish protocols for complying with the FAA Modernization and Reform Act of 2012. There are no personnel on board the Cochise College's UAS and therefore the likelihood of death or serious bodily injury is significantly diminished. Cochise College's operation of the UAS, weighing less than 2.6 pounds and traveling at lower speeds within limited areas will provide an equivalent level of safety as that achieved under current FARs. Accordingly Cochise College, respectfully request that the FAA grant this exemption request and is willing to cooperate in sharing information to benefit the FAA, safety of manned aircraft, and the general public at large.

Respectfully submitted,

Belinda Burnett
Director of Aviation Programs
Cochise Community College
4190 West Highway 80
Douglas, AZ 85607

APPENDIX A

EXEMPTION REQUEST AND EQUIVALENT LEVEL OF SAFETY SHOWINGS UNDER APPLICABLE RULES SUBJECT TO EXEMPTION

Cochise College requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the Maveric sUAS:

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates

Part 21, Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by § 91.203(a)(1). Given the size and weight of the aircraft, the operating conditions, design safety features, and the proposed conditions and limitations, it is unnecessary to go through the certificate of airworthiness process under Part 21 Subpart H to achieve or exceed current safety levels.

Such an exemption meets the requirements of an equivalent level of safety under Part 11 and Section 333. Section 333 and 49 U.S.C. § 44701(f) both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the sUAS involved.

In this case, an analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate, under the conditions proposed herein, will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) with an airworthiness certificate. The Maveric weighs 2.6 pounds fully loaded. It will not carry a pilot, passenger or flammable fuel. The Maveric operates exclusively within a controlled area pre-disclosed and in compliance with conditions set forth herein. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by the PIC and observer(s), pursuant to the conditions set forth in Appendix B, the Operator's Manual, and local public safety requirements. The FAA will have advance notice of all operations through the filing of NOTAMs. The lack of flammable fuel and the fact that the aircraft is carried to the location and not flown there all establish the equivalent level of safety. The sUAS provides at least an equivalent level of safety to that of such operations being conducted with conventional aircraft that would be orders-of-magnitude larger and would be carrying passengers, cargo, and flammable fuel.

14 C.F.R. § 45.23: Marking of the Aircraft.

Applicable Codes of Federal Regulation require aircraft to be marked according to certain specifications. These UAS are, by definition, unmanned. They therefore do not have a cabin, cockpit or on board pilot station on which to mark certain words or phrases. Further, two-inch lettering is difficult to place on such small aircraft with dimensions smaller than minimal lettering requirement. Cochise College will mark its UASs in the largest possible lettering by placing the word "EXPERIMENTAL" and the N number on its fuselage as required by 14 C.F.R. §45.29 (f) so that I the pilot, or anyone assisting as a spotter with the UAV will see the

markings. The FAA has previously issued exemptions to this regulation through Exemptions Nos. 8738, 10167, 10167A and 10700.

14 C.F.R. §§ 61.113(a) & (b): Private Pilot Privileges and limitations: Pilot in command

Sections 61.113(a) & (b) limit private pilots to non-commercial operations.

Unlike a conventional aircraft that carries a pilot, passengers, and cargo, the Maveric is remotely controlled with no passengers or property of others on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the Operator's Manual. In conjunction with the required training of the PIC and observers, the level of safety provided by the requirements included in the Operator's Manual exceeds that provided by a single individual holding a commercial pilot certificate operating a conventional aircraft.

Cochise College, can operate at an equivalent level of safety as required by current Regulations, because the UAS does not carry any pilots or passengers. Further, a licensed private pilot will ensure regulations and piloting skills are maintained. The risks to the operation of the UAS is far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, Thus, allowing Cochise College to operate the UAS and meet or exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b).

14 C.F.R. § 61.133 Commercial pilot privileges and limitations.

(a) *Privileges*—
(1) *General.* A person who holds a commercial pilot certificate may act as pilot in command of an aircraft—
(i) Carrying persons or property for compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation; and
(ii) For compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation.

Cochise College, can operate at an equivalent level of safety as required by current Regulations, because the UAS does not carry any pilots or passengers. Further, a licensed private pilot will ensure regulations and piloting skills are maintained. The risks to the operation of the UAS is far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, Thus, allowing Cochise College to operate the UAS and meet or exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b).

14 C.F.R. § 91.7(a): Civil aircraft airworthiness

Section 91.7(a) prohibits an individual from operating a civil aircraft unless it is in an airworthy condition. No FAA standard exists for determining an aircraft's airworthiness when an

airworthiness certificate is not issued. As the FAA has done with previous exemption grants, airworthiness will be ensured and an equivalent level of safety will be achieved by compliance with the operating documents prior to every flight.

14 C.F.R. § 91.9(b): Civil aircraft flight manual, marking, and placard requirements

Section 91.9 (b) (2) requires, No person may operate a U.S.-registered civil aircraft—
(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining all safety/flight manuals delineating areas of where safety can be defined at the Pilot control station. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827. 14 C.F.R. § 91.121 regarding altimeter settings is inapplicable insofar as my UAS utilizes electronic global positioning systems with a barometric sensor.

14 C.F.R. § 91.109 Flight instruction; Simulated instrument flight and certain flight tests.

Section 91.109 Flight instruction; simulated instrument flight and certain flight tests.
(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in an airplane that is equipped with a single, functioning throw over control wheel that controls the elevator and ailerons, in place of fixed, dual controls, when—
(1) The instructor has determined that the flight can be conducted safely; and
(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

Unlike a conventional aircraft that carries a pilot, passengers, and cargo, the Maveric is remotely controlled with no passengers or property of others on board. As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable.

14 C.F.R. § 91.119(c): Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Specifically, Section 91.119(c) limits aircraft flying over areas other than congested areas to an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. Because some of the training and survey work must be accomplished at altitudes less than 500 feet AGL and nonparticipating Cochise College employees/students will be working within 500 feet of the sUAS, an exemption from Section 91.119(c) is needed.
The equivalent level of safety will be achieved because Cochise College's employees/students are required to be part of the training program and because the Maveric, given its size, weight,

speed, and materials, does not pose a serious risk. Also, every flight will be conducted over land owned or controlled by Cochise College. Because Cochise College will notify its employees/students in advance of Maveric operations, all effected individuals will be aware of the flights. Compared to operations conducted with aircraft or rotorcraft weighing far more than 2.6 pounds and carrying flammable fuel, any risk associated with these operations will be far less than those currently allowed with conventional aircraft operating at or below 500 feet AGL.

14 C.F.R. § 121: Altimeter Setting

Section 121 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 before departure." As the sUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption is required. An equivalent level of safety will be achieved by the operator, pursuant to the Operator's Manual, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions

This regulation prohibits an individual from beginning "a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed – (1) During the day, to fly after that for at least 30 minutes; or (2) At night, to fly after that for at least 45 minutes."

The Maveric batteries provide approximately 40-75 minutes of powered flight. Without an exemption from 14 C.F.R. § 91.151, the Maveric's flights would be limited to approximately 10 minutes in length because the PIC would require the last 30 minutes to satisfy section 91.151(a). Given the limitations on its proposed operations, a longer time frame for flight in VFR conditions is reasonable.

Cochise College believes that an exemption from 14 C.F.R. § 91.151(a) provides an equivalent level of safety and is consistent with prior exemptions. Operating the sUAS, without 30 minutes of reserve fuel does not engender the type of risks that Section 91.151(a) was meant to prevent given the size and speed at which the sUAS operates. In the unlikely event that the sUAS battery runs low, it would simply follow the pre-programmed command to land at a designated location. Given its weight and construction material, the risks are less than contemplated by the current regulation.

Cochise College believes that an equivalent or enhanced level of safety can be achieved by maintaining 10 minutes of reserve power which, allowing at least 30 minutes of flight time, if not more, would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

14 C.F.R. § 91.203 Civil Aircraft: Certifications required.

§ 91.203 (a) and (b) provides for the carrying of civil aircraft certifications and registrations. As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. The equivalent level of safety will be achieved by maintaining any such required certifications, Exemptions, SOP's, and registrations by Cochise College at the Pilot control station.

14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a): Maintenance Inspections

Section 91.405(a) requires that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter." Section 91.407 similarly makes reference to requirements in Part 43. Section 91.409(a)(2) requires an annual inspection for the issuance of an airworthiness certificate. Section 91.417(a) requires the owner or operator to keep records showing certain maintenance work that has been accomplished by certificated mechanics, under Part 43, or licensed pilots and records of approval of the aircraft for return to service.

Pre-flight checks will be performed by a qualified person prior to each flight and at predefined intervals as part of the maintenance schedule.

The pre-flight checklist includes:
1. Visual inspection of the airframe;
2. Visual inspections of propeller;
3. Verify GPS acquisition;
4. Plan and upload mission;
5. Video and payload check;
6. Controls check;
7. Gyro/control surfaces check;
8. Throttle check;
9. Check Pitot tube readings;
10. Check sensors; and
11. Verify fail safes are set correctly.

An equivalent level of safety will be achieved because the sUAS will carry no external payload, will operate only in restricted predetermined areas, and is not a complex mechanical device. In addition, the operator will ensure that the sUAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance that is performed. Moreover, the operator is the person most familiar with the aircraft and is best suited to maintain the aircraft in an airworthy condition and to ensure an equivalent level of safety. The Operator's Manual will have instructions to develop and document maintenance, overhaul, replacement, and inspection requirements. In the absence of Prioria requirements, and procedures to document and maintain maintenance records for the sUAS Cochise will develop standard practices and procedures.

The sUAS maintenance guidelines provide an equivalent level of safety to the maintenance requirements in Part 91.

APPENDIX B

COCHISE COLLEGE OPERATING LIMITATIONS

1) Operations authorized by the grant of exemption are limited to the following aircraft: Prioria's Maveric, which weighs less than 5 kg.

2) The sUAS shall not be flown at a ground speed exceeding 60 kts.

3) The sUAS will not be operated at an altitude more than 400 feet above the highest predominant terrain except as may be provided by FAA Air Traffic Control ("ATC") via COA. The highest predominant terrain is the defined as terrain within 1 mile of the launch point and within the visual line of sight of the PIC. All altitudes reported to ATC shall be in feet AGL.

4) The sUAS must be operated within visual line of sight 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.

5) All operations must use a VO. The VO and PIC must be able to communicate verbally at all times. The PIC must be designated before the flight. The PIC must ensure that the VO can perform the functions prescribed in the operating documents.

6) The operating documents and this grant of exemption must be accessible during UAS operations and made available to the Administrator upon request. If a conflict exists between the conditions and limitations in the exemption and the procedures outlined in the operating documents, the conditions and limitations in the exemption take precedence and must be followed. Otherwise, Cochise College must follow the procedures as outlined in its operating documents. Cochise College may update or revise its operating documents. It is Cochise College's responsibility to track such revisions and present updated and revised documents to the Administrator upon request. Cochise College must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption.

7) Prior to each flight the PIC must inspect the sUAS to ensure that it is in a condition for safe flight. The PIC shall not operate the aircraft if the inspection reveals a condition that affects the safe operation of the sUAS until the necessary maintenance has been performed and the sUAS is found to be in a condition for safe flight. The Ground Control Station, if utilized, must be included in the preflight inspection. All maintenance and alternations must be properly documented in the aircraft records.

8) Any sUAS that has undergone maintenance or alterations that affect the sUAS operation or flight characteristics (e.g., replacement of a flight critical component) must undergo a functional test flight in accordance with the Operator's Manual. The PIC who conducts the functional test flight must make an entry in the aircraft records of the flight. The requirements and procedures for a functional test flight and aircraft record entry shall be included in the Operator's Manual.

9) The pre-flight inspection must account for all discrepancies, e.g. inoperable components, items, or equipment, not already covered in the relevant sections of the operating documents.

10) Cochise College must follow Prioria's aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements.

11) Cochise College must carry out its maintenance, inspections, and record keeping requirements, in accordance with the operating documents. Maintenance, inspection, alterations, and status of replacement/overhaul component parts must be noted in the aircraft records, including total time in service, description of work accomplished, and the signature of the person authorized to return the sUAS to service.

12) Each sUAS operated under this exemption must comply with all manufacturer Safety Bulletins.

13) The PIC must possess at least a private pilot certificate and at least a current third-class medical certificate. The PIC must also meet the flight review requirements specified in 14 C.F.R. § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14) Cochise College may not permit any PIC to operate unless the PIC meets the operator's qualification criteria and demonstrates the ability to safely operate the sUAS in a manner consistent with how the sUAS 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 C.F.R. § 61.51(b). The PIC must ensure that the VO is trained appropriately in order to fulfill his or her duties. A record of training and qualification must be documented and made available upon request by the Administrator. Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building), 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 these operating conditions.

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

16) The sUAS may not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by Cochise College's COA. The letter of agreement with the airport management must be made available to the Administrator upon request.

17) The sUAS 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 sUAS loses communications or loses its GPS signal, the sUAS must return to a pre-determined location within the security perimeter and land or be recovered in accordance with the Operator's Manual.

19) The PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with the Operator's Manual.

20) sUAS operations must be completed within flight time as prescribed by the manufactures operators manual.

21) Cochise College must obtain an ATC-issued COA prior to conducting any operations under this exemption. This COA will also require the filing of the NOTAM not more than 72 hours in advance, but not less than 48 hours prior to the operation, or if this exemption allows for a shorter notification.

22) All aircraft operated in accordance with the requested exemption must be identified by serial number, registered in accordance with 14 C.F.R. Part 47, and have identification (N-Number) markings in accordance with 14 C.F.R. Part 45, Subpart C. Markings shall be as large as practicable.

23) The radio frequency spectrum used for operation and control of the sUAS must comply with Federal Communication (FCC) or other appropriate government oversight agency requirements.

24) The documents required under 14 C.F.R. §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the sUAS any time the aircraft is operating. These documents shall be made available to the Administrator or any law enforcement official upon request.

25) The sUAS must remain clear and yield the right of way to all other manned operations and activities at all times.

26) The sUAS may not be operated from any moving device or vehicle.

27) The sUAS may not be operated over congested or densely populated areas.

28) Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, structures, and public access roads unless:

a. The nonparticipating persons are authorized to access Cochise College, have received Cochise College's safety Briefing;

b. For non-participants who do not qualify as Cochise College employees/students, barriers or structures are present that sufficiently protect them from the sUAS and/or debris in the event of an accident. The operator must ensure that nonparticipating persons who are not Cochise College employee/students remain under such protection. If a situation arises where nonparticipating persons who are not Mine Parties leave such protection and are within 500 feet of the sUAS, flight operations must cease immediately; or

c. The aircraft is operated near vessels, vehicles or structures where the owner/controller of such vessels, vehicles or structures has granted permission 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.

29) Operations nearer than 500 feet to the PIC, VO, operator trainees or essential persons as defined in the operating documents are permitted if those operations do not present an undue hazard to those persons per § 91.119(a) as determined by the PIC.

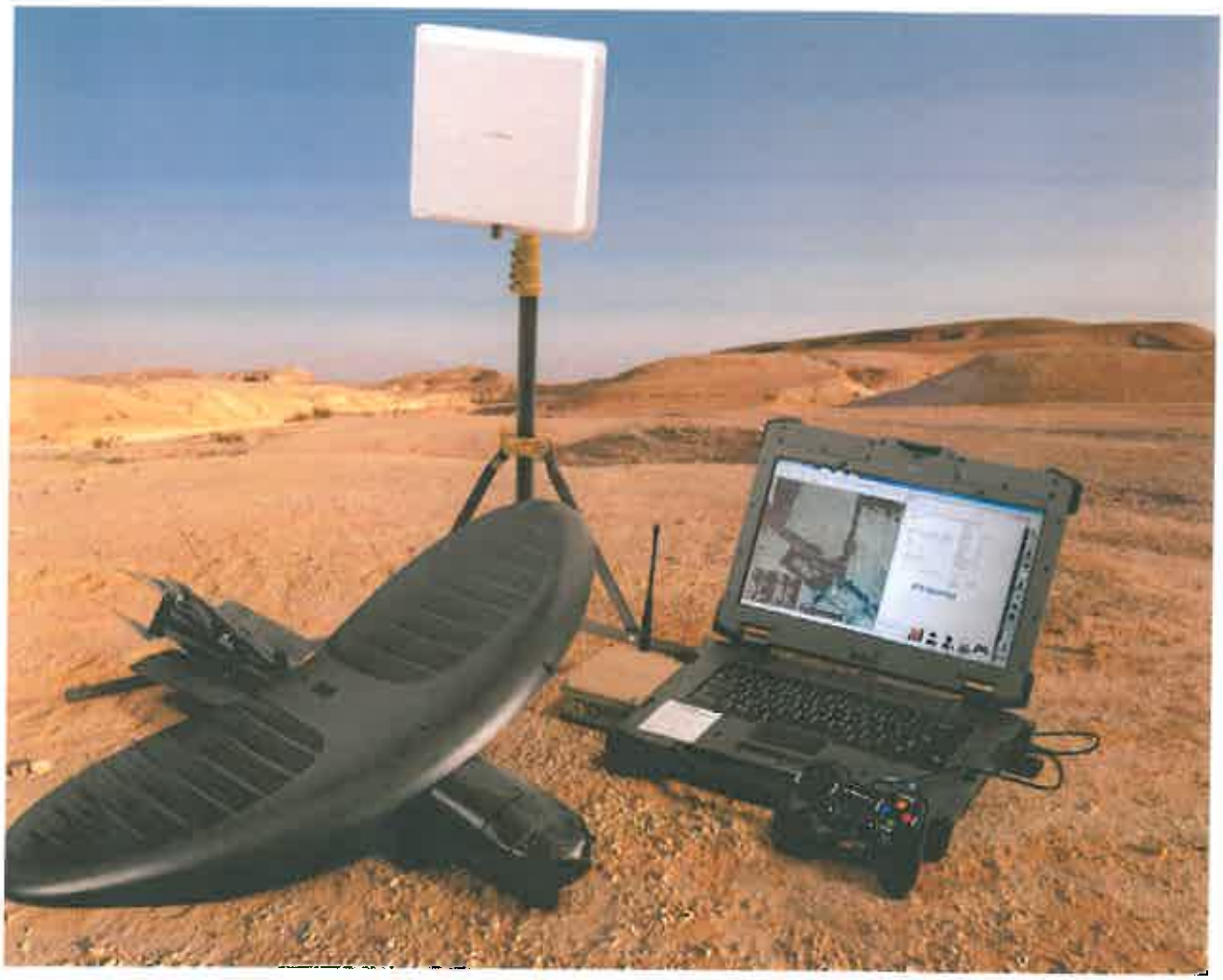
30) All operations must be conducted over private or controlled-access property.

31) Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA shall 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.

APPENDIX C

SMALL UNMANNED AERIAL SYSTEM DESCRIPTION

sUAS Operating Overview: The Maveric is a fixed-wing aircraft constructed of a rugged carbon fiber composite with bendable wings that requires no assembly. It has fully autonomous operation for takeoff, navigation, and landing.



Parameter	Characteristic
Wingspan	29.5 in
Length	26.5 in
Weight, with EO side-look payload	2.6 lbs
Wireless Range	5 – 15 km LOS
Cruise Speed (Best Endurance)	26 kts (30 mph)
Dash Speed	55 kts (63 mph)
Stall Speed	18 kts (21 mph)
Max wind	20 kts sustained, 30 kts gusting
Precipitation	Light rain (0.1 inches per hour)
Flight Duration	45 – 70 minutes
Turn Rate	360 degrees in 12 seconds
Climb Rate	500 ft/min @ 2,000 AMSL
Launch	Hand launch, tube launch optional
Landing	Deep-stall, skid, net optional
Flight Control	Autonomous or manual
Exterior Lighting	Visible and IR Strobe Lights
Command and Control Frequency	350 MHz, 900 MHz
Video Bands	1.7 GHz, 2.4 GHz

The sUAS can be operated in fully autonomous flight modes. Creating pre-planned flight paths to fly in autonomous mode is as simple as clicking on the map to create a pre-planned flight path. Pre-mission waypoints, landing zone points, and flight area dimensions can all be entered during preflight, ensuring the sUAS operates only within specified parameters.

The Maveric includes many advanced safety features that makes it the safest choice for areas like Cochise College's. Built-in intelligent fault handling allows the sUAS to detect a system fault while in the air, and to automatically respond with a set command (one such option being to fly back to a pre-selected rally point and land). Faults that can be detected include: loss of communication, loss of GPS, and low battery levels. In addition, the operator can create no fly zones, and the system will visually and audibly warn the operator if the planned flight path would enter the no fly zone.

Operator's Manual – The Maveric Operator's Manual will be provided under separate cover with a request for confidential treatment.

Power – The Maveric and its ground control station are both powered by a Lithium polymer rechargeable battery pack. A new battery has a fully charged voltage of approximately 12.4V. A "full-pack" has a capacity of 4 Amp-hours. An additional "half-pack" can be installed for extended operation. A new "half-pack" has a fully charged voltage of 12.4V and a capacity of 2 Amp-hours. The Maveric's battery charge is displayed in real-time on the ground control terminal, ensuring maximum flight duration and safety.

Takeoff and Landing style/type – The Maveric is hand launched and can be tube launched with additional equipment. The Maveric lands by returning to a pre-determined rally point and beginning a spiral descent. Once it reaches a pre-selected altitude, it heads toward the landing waypoint, descending until it lands and skids to a stop.

Navigation System – Specific maps can be downloaded to the display screen (such as air sectional and geographic maps) which are overlaid with GPS positional data. Waypoints can be created before and during flight operation creating specific locations and sequences for the aircraft.

Defined "Keep Out" Areas – The navigation software allows for preplanning Keep Out Areas that allow the operator to designate airspace he or she does not want the Maveric to enter. If defined flight paths pass through an area designated as keep-out, the individual waypoints and waypoint connection segments turn red as a warning. Additionally, if a mission is uploaded and intersects with a keep out area, a warning is presented to the user. Also, if an aircraft in flight is navigated into a designated keep out area, an audible warning is sounded.

Maintenance – The Maveric sUAS needs very little maintenance, and operators may perform most required maintenance in the field with the field repair kit.

Command and Control Systems - The sUAS Ground Control Station (GCS) allows the operator simultaneous control over aircraft and payloads. The display screen provides all essential flight data to the operator. Telemetry data is transmitted to the command station at least once per second.

Displayed on GCS:

- Current position
- Registered home position
- Any autopilot flight plans
- Registered emergency landing zone
- Aircraft attitude
- Altitude
- Airspeed
- Groundspeed
- Compass reading/heading
- Estimated wind heading

- Communication strength
- Range from home
- Bearing from home
- Duration of current mission
- Rate of climb
- Mode of the aircraft
- Battery level

Emergency Procedures and System Failures

Loss of Link – The sUAS does not need constant signal from the GCS to continue flying. Communications outages are detected by the system and are reported to the PIC. During the communication outage, the sUAS continues on its pre-determined flight path until a failsafe is triggered. Once a failsafe is triggered, the sUAS will perform in accordance with the failsafe conditions uploaded before launch. This is accomplished without input from the operator.

Security

The system and communication links may be encrypted.