The Dow Chemical Company
Midland, MI 48674
U.S.A.

November 3, 2014

U.S. Department of Transportation
Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Ave., SE
Washington, DC 20590

Electronically Submitted via www.regulations.gov

Regarding: The Dow Chemical Company Petition for Section 333 Exemption pursuant To Section 333 of the FAA Reform Act of 2012 and Part 11 of the Federal Aviation Regulations from 14 CFR Part 21; 61.113(a) and (b); 91.103; 91.119(c); 91.121; 91.151(a)(1); 91.405(a); 91.407(a)(1); 91.409(a)(1) and (2); 91.417(a) and (b).

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, The Dow Chemical Company ("Dow" or "Petitioner") hereby submits this petition for exemption to authorize civil operations of small Unmanned Aircraft Systems ("sUAS") for the purposes of aerial inspection and environmental monitoring of chemical plant production, transmission and storage facilities owned and operated by Dow and/or by Dow's wholly-owned subsidiaries, located in the United States.

Operations will be conducted by Dow within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

As described below, the requested exemption would permit the operation of sUAS for inspection of chemical facilities in the United States owned and operated by Dow and/or by Dow's wholly-owned subsidiaries. For convenience, the petition will refer to these as "Dow's Facilities." The sUAS will provide Dow maintenance and reliability engineers with high-resolution imagery of plant infrastructure and equipment, including flare stacks, elevated pipelines and power lines, tanks, and roofs within the secured confines of Dow's Facilities. Such sUAS operation will provide safety enhancements in the facility and surrounding areas and increase efficiency and reliability of facility inspections. The use of sUAS will reduce the risk of inspections by eliminating the need for human inspection by personnel on permanent and temporary elevated structures currently being performed by rope access, scaffolding, bucket trucks, and ladders. SUAS operation will improve efficiency and reliability of inspections by allowing for higher quality

inspections which serve the public interest by providing accelerated awareness of hazardous unexpected events that could impact plant personnel and the surrounding environments and communities.

The Reform Act gives the Secretary of Transportation the authority to determine if certain sUAS may operate safely in the national airspace system ("NAS") before completion of the FAA's plan and rulemaking to integrate sUAS into the NAS. The Act directs the Secretary to consider which types of sUAS 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 or a threat to national security. If the Secretary determines that such vehicles may operate safely in the NAS, the Secretary "shall establish requirements for the safe operation of such aircraft."[1] Dow's request for exemption falls within the Section 333 requirements.

The granting of this exemption request will provide immediate benefit to Dow by authorizing highly controlled sUAS operations within a very restricted, secured environment at Dow's owned and operated facilities. Failure to grant this exemption will cause unnecessary delay of an active program within Dow to develop methods and standards for sUAS operations.

Dow is not an indirect service provider or contractor, but is a direct operator with an immediate need for the requested sUAS exemption. The scope of this request is narrow; it is limited to Dow's Facilities, which are chemical manufacturing, transmission and storage facilities in the United States, owned and operated by Dow and/or by Dow's wholly-owned subsidiaries. The operation and inspection of Dow's Facilities will comply with all Federal, State, and Local regulations. This operation will not be for compensation or hire.

Given the direction of Section 333 of the Reform Act, the strong equivalent level of safety surrounding the proposed operations, and the significant public interest benefits including the provision of more efficient and safer facility inspections, Dow respectfully requests that the FAA grant the requested exemption.

The name and address of the applicant is:

The Dow Chemical Company
Attn: **Thomas L. Mounger, Director of Operations/Chief Pilot**
3259 Harriet Quimby Avenue
Baton Rouge Metropolitan Airport

[1] Reform Act § 333(b).

Baton Rouge, LA 70807
Fax: 225-345-1561
Phone: 225-354-1559
Email: tlmounger@dow.com

Chemical Plant Inspection by sUAS Serves the Public Interest

1. SUAS inspection is safer than human inspection. Plant inspection without sUAS requires qualified inspectors to be in close proximity to plant infrastructure and equipment, including flare stacks, elevated pipelines and power lines, tanks, and roofs within the secured confines of Dow's Facilities. Inspectors need to climb towers or otherwise perform elevated work, which exposes them to the risk of dangerous falls. In addition, proximity to the equipment involves a risk of exposure to hazardous chemicals or oxygen-deficient atmospheres, burns from steam or from hot equipment, and other mechanical hazards associated with industrial equipment.

2. SUAS inspection is of higher quality, more reliable, and can be reviewed by Subject Matter Experts (SMEs). SUAS inspections allow for the collection, dissemination and storage of visual and other sensory data with greater precision and duration.

3. SUAS inspection is more efficient and less costly.

4. SUAS inspection is safer than traditional manned commercial aircraft. In cases where commercial helicopters are employed for plant inspection, a significant flight equipment malfunction can result in severe collateral damage to the plant and personnel. SUAS's are less likely to cause damage in the event of contact.

The Dow Chemical Company Corporate Summary

1. Dow combines the power of science and technology to passionately innovate what is essential to human progress. The Company is driving innovations that extract value from the intersection of chemical, physical and biological sciences to help address many of the world's most challenging problems such as the need for clean water, clean energy generation and conservation, and increasing agricultural productivity. Dow's integrated, market-driven, industry-leading portfolio of specialty chemicals, advanced materials, agrosciences and plastics businesses deliver a broad range of technology-based products and solutions to

customers in approximately 180 countries and in high growth sectors such as packaging, electronics, water, coatings and agriculture. In 2013, Dow had annual sales of more than $57 billion and employed approximately 53,000 people worldwide. The Company's more than 6,000 products are manufactured at 201 sites in 36 countries across the globe. More information about Dow can be found at www.dow.com.

Dow Aviation Experience and Prior Efforts

1. Dow currently operates and has operational control of its own internal Corporate Flight Department which it has operated for more than fifty years. Currently Dow operates two (2) CRJ 700 aircraft under 14 CFR Part 125 in the furtherance of its U.S. Operations.

2. Dow directly employees eleven (11) FAA Licensed Airline Transport Pilots and five (5) FAA Licensed Airframe and Powerplant Technicians in support of this operation. The current staff has over 75,000 accident free hours of commercial flight experience and more than 100 years of technician experience. Within this group we have several employees who are active within the noncommercial remote controlled arena. The Flight Department has also been monitoring the progress of commercial sUAS operations, both in the USA and overseas. This proposed sUAS operation shall be directed by Dow's Corporate Flight Department and shall only be used for the benefit of Dow or its wholly owned subsidiaries at their secure facilities.

3. This request for exemption authority is a continuation of Dow's research and development efforts to employ sUAS for chemical site inspection which began in 2012 as described in the following paragraph. FAA's grant of this request is a necessary step in order to continue the vital work that Dow has done to date, which will assist in protecting the public, Dow employees and infrastructure.

4. Dow has worked in close cooperation with Northwestern Michigan College (NMC) under two Certificates of Waiver or Authorization (COA) permitting and regulating the research use of unmanned aircraft at Dow sites.

    a. Certificate 2013-CSA-14 issued by the FAA to Northwestern Michigan College is effective from March 11, 2013 to March 10, 2015. This COA covers the *"Operation of the Aeryon Scout Unmanned Aircraft System (SUASS) in Class G airspace at or below 400 feet Above Ground Level (AGL) at the Dow Chemical Facility in Freeport Texas under the jurisdiction of Houston Terminal Radar Approach Control (TRACON)."*

b. Certificate 2012-CSA-36 issued by the FAA to Northwest Michigan College was effective from September 14, 2012 to September 13, 2014. This COA covered the *"Operation of the Aeryon Scout Unmanned Aircraft System (SUASS) in Class G airspace at or below 400' Above Ground Level (AGL) in the vicinity of Midland, MI under the jurisdiction of Minneapolis Air Traffic Control Center."*

5. Dow understands that the FAA may be revising its views on private-public cooperation of this type,[2] and this makes the granting of this exemption request even more important to achieving the safety and efficiency objectives that were being pursued under these COAs, and expanding the resulting benefits to additional Dow facilities in the United States. Given the highly secured and regulated nature of Dow's Facilities, the limited risk posed by such operations, and the essential role Dow played in working with NMC to develop standards and guidelines for the safe and effective use of sUAS, Dow is requesting this exemption be given full consideration by the FAA.

6. Dow operates in a highly regulated environment. Dow has a robust regulatory compliance culture and a keen understanding of the importance of extensive security, planning, documentation and control of operations in a chemical plant environment; and as such Dow has the unique capability of developing and exercising the necessary procedures for safe and effective operations of sUAS at such facilities.

7. Dow's Facilities where flights would occur have restricted access and perimeter security. This includes a perimeter fence system, manned access gates, identification badges that must be displayed at all times on site, a site security force, and other measures to ensure that only authorized personnel are allowed within the site. Visitors are escorted at all times. With these measures, Dow is fully able to establish safe zones for flights, and to exclude from those safe zones anyone whose presence is not necessary for purposes of the flight.

8. Dow maintains compliance with all laws and regulations that govern its operations. This includes security of chemical sites as directed by the Department of Homeland Security. Dow has already studied and developed procedures for integrating sUAS operations in a manner that complies with those laws and regulations. This 333 exemption request continues Dow's commitment of

[2] June 13, 2014 Memorandum from FAA Senior Attorney Karen Patronis to James Williams, Manager, FAA SUASS Integration Office.

compliance in working with the FAA to serve the public interest, maintain the integrity of the NAS, and will not be a threat to national security.

SUAS Description – Aeryon SkyRanger

From the Internet site of the vendor: "The Aeryon SkyRanger is a small Unmanned Aerial System (sUAS) that sets the standard in aerial inspection. With an intuitive touch screen user interface and autonomous intelligence, SkyRanger enables you to be in control of a professional quality aerial inspection. The Aeryon SkyRanger provides reliable flight performance even in demanding weather conditions."

Endurance	Up to 50-minute flight time (with payload)
Wind tolerance	+40 mph
Environmental temperature range	-22 - 122°F (-30 - 50°C)
Launch & recovery method	Vertical Take-Off and Landing (VTOL)
Dimensions	Deployed: 40 in. Diameter, 9.3 in. Height
Weight (without payload):	5.3 lbs
Radio frequencies:	900 MHz, 2.4 GHz, 5.8 GHz

Note: Aeryon Sky Ranger Manufacturers Users Guide available upon request.

Dow Should be Authorized to Operate sUAS to Inspect its Facilities in the United States

1. Dow proposes to directly operate sUAS by Dow employees and contractors only for the benefit of Dow and its wholly-owned subsidiaries at Dow's Facilities. Dow shall not provide any sUAS services for compensation or hire.

This Exemption Request Is for Use of sUAS Subject to Extensive Operational and Safety Requirements

1. **Safety**
    a. The sUAS PIC shall possess at least a private pilot certificate and at least a current third-class medical certificate.
        i. The PIC shall also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on their pilot certificate.

ii. The PIC shall be trained in the operation of the specific Make and Model of the sUAS being piloted.
iii. The PIC must have accumulated and logged, in a manner consistent with 14 CFR § 61.51 (b), a minimum of 200 flight cycles and 25 hours of total time as a sUAS rotorcraft pilot and at least ten hours logged as a sUAS pilot with a similar sUAS type (multirotor). Prior documented flight experience that was obtained in compliance with applicable regulations may satisfy this requirement.
iv. The PIC must have accumulated and logged, in a manner consistent with 14 CFR § 61.51 (b), a minimum of five hours as sUAS pilot operating the make and model of sUAS to be utilized for operations under the exemption and three take-offs and three landings in the preceding 90 days.
v. Training, proficiency, and experience-building flights can also be conducted under this grant of exemption to accomplish the required flight cycles and flight time.
    1. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered non-participants, and the PIC must operate the sUAS with appropriate distance from non-participants in accordance with 14 CFR § 91.119.

b. The PIC and Safety Observer (SO) will be designated before each flight

    i. Minimum crew for each operation will consist of the sUAS PIC and the SO.

c. The PIC and SO will always be within visual line of sight (VLOS) of each other and in direct verbal communication at all times.

d. Safety Briefings will be conducted before each day's activities to include, but not limited to:

    i. Designated roles of PIC and SO

    ii. Risk Management and Mitigation

    iii. Prior to the sUAS flight(s), a team comprised of the PIC, Environmental, Health & Safety (EH&S), and Process Safety from the Dow facility will visually inspect the flight path and surrounding area and equipment to identify potential concerns. A

sUAS safety checklist will be completed by the review team to ensure all areas of concern have been identified and addressed. A flight will NOT be conducted if a concern cannot be resolved.

iv. On the day of the flight a Dow safe work permit will be issued by Dow Production Operations within the facility where sUAS activities will be conducted. Work permits will only be issued if it is determined the sUAS operation can be conducted safely within the facility.

2. SUAS Specifications and Design:

a. All sUAS flown under this exemption shall be less than 55 pounds including aircraft and payload. This exemption requests permission only with respect to the specific use of the Aeryon SkyRanger, which weighs less than 10 pounds including payload.

b. The radio frequency spectrum used for operation and control of the sUAS shall comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

c. Maximum speed shall be no more than 50 knots.

d. The sUAS shall be equipped with Inertial Navigation Sensor(s) (IRS/IRU/Accelerometer).

e. The sUAS shall be equipped with a Compass (Magnetometer/Heading Source).

f. The sUAS shall be equipped with a Global Positioning System (GPS) guidance system.

g. The sUAS shall be designed, should it lose communications or lose its GPS signal, to return to a pre-determined location within the security perimeter and land or be recovered in accordance with Dow's sUAS Operations Manual.

3. Maintenance

a. SUAS shall be maintained in accordance with the manufacturer's recommendations.

b. Dow will document and maintain a record of the sUAS maintenance, preventative maintenance, alterations, status of replacement/overhaul component parts, and the total time in service of the sUAS.

c. Dow shall comply with all manufacturer Safety Bulletins or equivalent pertaining to their sUAS.

d. Dow will maintain the sUAS under a Licensed Airframe and Powerplant technician's direction.

e. The PIC shall perform a preflight inspection of the sUAS, controller, and ground control station prior to each flight to ensure it is operational with no discrepancies. If the preflight inspection has any discrepancies that may affect a safe operation, repairs or maintenance shall be performed prior to flight. The sUAS will only be operated if it is free of all discrepancies.

f. Maintenance or repairs that may affect the sUAS operation or flight characteristics shall undergo a test flight in accordance with Dow's sUAS Operations Manual. This test flight shall be recorded in the sUAS's records. If the test flight is completed successfully, the sUAS will be returned to service by the PIC.

g. Dow shall follow the manufacturer's sUAS maintenance, overhaul, replacement, inspection, and life limit requirements. When not provided by the manufacturer, aircraft maintenance/component/overhaul, replacement, and inspection/maintenance requirements shall be established and included in Dow's sUAS Operations Manual. At a minimum, the following shall be included:

   i. Actuators / Servos
   ii. Powerplant(s) (motors)
   iii. Propellers
   iv. Electronic speed controller(s)
   v. Batteries
   vi. Remote controllers and Ground control station

h. All sUAS shall 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, except with respect to the size of the markings. Markings shall be as large as practicable.

4. Permissions and Permitting

a. All required permissions and permits shall be obtained from territorial, state, county or city jurisdictions, including local law enforcement, or other appropriate governmental agencies.

b. At least three days before a scheduled operational flight, Dow shall submit a written Plan of Activities to the local flight standards district office (FSDO) with jurisdiction over the area of the proposed flight. The 3-day notification may be waived with the concurrence of the FSDO.

i. The plan of activities shall include at least the following:

1. Dates and times for all requested flights
2. Name and phone number of Dow sUAS Flight Operations
3. Name and phone number of the PIC responsible for the on-scene operation of the sUAS
4. Make, model, and serial or N-number of sUAS to be used
5. Name and certificate number of sUAS PICs involved in the flight
6. A statement from Dow that it will be operating on its own property where the flight will be conducted; the list of those who gave permission shall be made available to the inspector upon request.
7. Signature of exemption-holder or representative
8. A description of the flight activity, including maps or diagrams of any area over which flights will be conducted, the relationship of that area to any nearby city, town, etc., and the altitudes essential to accomplish the operation

c. Documents required under 14 CFR § 91.9 and § 91.203 shall be readily available to the PIC any time the aircraft is in operation. These documents shall be made available to the Administrator or any law enforcement official upon request.

d. Dow shall obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under

this grant of exemption. (For clarity, we are not referring to the type of COA that the FAA has previously issued – as noted above – to allow research flights at two Dow locations. Rather, we are referring to a type of authorization that is required when operating within a specified distance of an airport. Dow shall also request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

e. Dow shall obtain the consent of all persons involved in the operation and ensure that only consenting persons be allowed within 200 feet of the "Safe Zone".

5. Operations

a. The sUAS shall not operate in Class B, C, or D airspace without written approval from the FAA. The sUAS shall not operate within 5 nautical miles of the geographic center of a non-towered airport 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 the operator's COA. This letter of agreement with the airport management shall be made available to the Administrator upon request.

b. The sUAS will only operate within the lateral boundaries of Dow's owned and operated property. Confined "Safe Zones" within those boundaries will be established for each flight. These zones will be free of unnecessary hazards or risks and non-participating personnel.

    i. The sUAS shall only operate within a pre-defined "Safe Zone" that shall be thoroughly inspected by the PIC for buildings, overhangs, obstacles, wires, poles, people, vehicles, sun angle, shadows, glare, reflective surfaces, clouds, smoke, and terrain among other potential hazards.

    ii. The PIC and SO shall have current Dow specific safety training for the area in which sUAS operations will take place.

c. Flights shall be conducted under day visual meteorological conditions (VMC).

    i. In addition, the sUAS shall 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.

ii. sUAS operations shall not be conducted during night, as defined in 14 CFR § 1.1.

iii. Flights shall not be conducted under special visual flight rules (SVFR).

d. Flights shall be operated at an altitude of no more than 400 feet above ground level (AGL), as indicated by the procedures specified in Dow's sUAS Operations Manual.

e. The PIC shall be prohibited from operating the sUAS from any moving device or vehicle.

f. The sUAS shall be operated within visual line of sight (VLOS) of the PIC.

i. The PIC shall maintain VLOS without the aid of telescopes, cameras or other devices.

ii. The PIC will maintain VLOS with their own vision, which includes the use of eyeglasses or corrective lenses as specified on the PIC's medical certificate.

g. The sUAS shall remain clear and yield the right of way to manned operations and activities at all times (including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, hang gliders, etc.).

h. Dow will require the PIC and Safety Observer (SO) to have successfully completed a qualification process, as outlined in the Dow sUAS Operator's Manual.

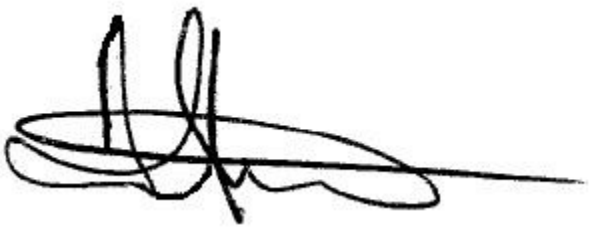
i. The PIC's primary responsibility while in flight is the safe operation of the sUAS.

The Dow Chemical Company
Midland, MI 48674
U.S.A.

6. Flight Time

a. Each sUAS operation shall be completed within 30 minutes flight time or with 25% battery power remaining, whichever occurs first.

Sincerely,



Thomas L. Mounger
Director of Operations/Chief Pilot
The Dow Chemical Company

References available upon request:
Aeryon SkyRanger Manufacturers User Guide

Included:
Exhibit A – Regulation for which exemptions are requested
Exhibit B – Dow Chemical Operations Manual (UAS)/Inspection Program

The Dow Chemical Company
Midland, MI 48674
U.S.A.

Exhibit A

Regulations for Which Exemptions are Requested

1. Unless otherwise requesting an exemption, Dow, the PIC, the SO, and the sUAS shall comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

2. Dow is requesting exemptions from the following Federal Aviation Regulations to the extent necessary to enable the requested sUAS operations for the reasons detailed below.

Relief sought by Dow (14 CFR)	Dow Reasoning
Part 21	Stated Below
61.113(a) and (b)	Stated Below
91.103	Stated Below
91.119(c)	Stated Below
91.121	Stated Below
91.151(a)(1)	Stated Below
91.405(a)	Stated Below
91.407(a)(1)	Stated Below
91.409(a)(1) and (2)	Stated Below
91.417(a) and (b)	Stated Below

14 CFR Part 21 – Requirements to Secure Airworthiness Certificates

1. Certificate exemptions should be given because size, weight, and operation areas of the sUAS meet the level of safety necessary for exemption under Section 333 of the Reform Act.

2. FAA has the authority to exempt aircraft from airworthiness certificate requirements under the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act.

14 CFR § 61.113 (a) and (b) – Private Pilot Privileges and Limitations; Pilot in Command

1. Due to the fact that there are no standards for private or commercial sUAS operations, Dow requests to utilize at least private pilots with third class medicals in support of its own operations on its own property.

2. Knowledge of flight characteristics and the Federal Aviation Regulations (FARs), along with the ability to physically manipulate the controls of the sUAS are the critical aspects of the requested operation. Dow feels this can be accomplished with a private pilot that has specific training on the sUAS operated in accordance with the Dow sUAS Operations Manual, and has satisfactorily completed the required training.

3. The risks associated with the operation of the sUAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the sUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b).

4. Equivalent or better safety levels can be achieved as there will be no human beings on board the sUAS and the sUAS will be operated to mitigate risks on the air and on the ground.

5. FAA has authority to waive pilot requirements for commercial operations under 49 U.S.C §44701(f).

14 CFR § 91.103 – Preflight Action

1. The PIC shall perform a preflight inspection in accordance with the manufacturers recommendations and the Dow sUAS Operations Manual of the sUAS, the controller, and ground control station prior to each flight to ensure it is free of all discrepancies.

2. Equivalent safety levels will be met through preparation and compliance according to Dow's sUAS Operations Manual; including but not limited to, weather reports and forecasts, battery requirements, alternatives available if the planned flight cannot be completed, and other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

14 CFR 91.119(c) – Requirements for Minimum Safe Altitudes for Civil Aircraft Operation

1. The sUAS will be operated only within Dow owned and operated facilities below 400 feet AGL.

2. Dow shall obtain the consent of all persons involved in the operation and ensure that only consenting persons be allowed within 200 feet of the "Safe Zone."

3. The sUAS will only operate within the lateral boundaries of Dow's owned and operated property. Confined "Safe Zones" within those boundaries will be established for each flight. These zones will be free of unnecessary hazards or risks and non-participating personnel.

4. Given the size, weight, speed, material, and operation of the sUAS, equivalent levels of safety will be achieved.

14 CFR 91.121 – Altimeter Settings

1. SUAS may not have a barometric altimeter, and may use a GPS altitude read out indication instead, so an exemption may be needed.

2. An equivalent level of safety will be achieved by the operator as the sUAS uses AGL height from its initialization (launch) point, cross-referenced with Mean Sea Level (MSL) altitude of the launch point.

CFR 91.151 (a)(1) – Fuel Requirements for Flights in VFR Conditions

1. As the sUAS is capable of approximately 50 minutes of flight time, an exemption will be necessary.

2. As the sUAS is flown within Dow owned and operated facilities below 400 feet AGL under controlled conditions as defined by the Dow sUAS Operations Manual, we feel an equivalent level of safety can be obtained by terminating the flight prior to 30 minutes or 25% battery power, whichever occurs first.

3. Dow feels an adequate reserve is provided at 25% battery power which will allow for approximately 12 minutes of flight which is more than sufficient to land the aircraft safely within the "Safe Zone."

4. The Aeryon SkyRanger has a second level of safety that is achieved through the use of an aircraft battery monitoring system. The aircraft system will alert the operator of low battery voltage and return the aircraft to its take off location before battery capacity is depleted.

5. Dow will not operate sUAS at night.

6. Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808. Given the small size and operational purposes of the sUAS, it does not bear the same risks associated with this section's requirements.

7. FAA has previously issued exemptions for fuel requirements in VFR conditions; exemption numbers 10808, 2689F, 5745, & 10673.

14 CFR 91.405 (a) Maintenance Required

1. This section and Part 43 apply only to aircraft with an airworthiness certificate, therefore these sections will not apply.

2. Maintenance will be accomplished by Dow pursuant to the manufacturer's recommendations and Dow's sUAS Operations Manual.

3. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel under a Licensed Airframe and Powerplant technician's direction.

4. The sUAS shall be discrepancy free prior to initiating flight. This is more stringent than the standards for manned aircraft. FAA's regulations for manned aircraft allow possible flight despite certain minor discrepancies that do not impair safety.

5. If a mechanical issue arises the sUAS can land safely within the "Safe Zone."

6. Dow shall be the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

7. The Dow sUAS Operations Manual details how to log scheduled and unscheduled maintenance or test flights that are performed.

8. An equivalent level of safety will be achieved because these sUAS are limited in size and will and shall fly only above Dow owned and operated facilities below 400 feet AGL.

14 CFR 407 (a) (1) – Operation After Maintenance, Preventive Maintenance, Rebuilding, or Alteration

1. This section and Part 43 apply only to aircraft with an airworthiness certificate, therefore these sections will not apply. In the absence of regulatory provisions dealing with sUAS operation after maintenance, preventive maintenance rebuilding or alteration, Dow has developed requirements to address this topic. Those requirements are stated in Dow's sUAS Operations Manual.

2. Maintenance will be accomplished by Dow pursuant to the manufacturer's recommendations and Dow's sUAS Operations Manual.

3. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel under a Licensed Airframe and Powerplant technician's direction.

4. The sUAS shall be discrepancy free prior to initiating flight.

5. If a mechanical issue arises the sUAS can land safely within the "Safe Zone."

6. Dow shall be the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

7. The Dow sUAS Operations Manual details how to log scheduled and unscheduled maintenance or test flights that are performed.

8. An equivalent level of safety will be achieved because these sUAS are limited in size and will and shall fly only above Dow owned and operated facilities below 400 feet AGL.

14 CFR 409 (a) (1) and (2) - Inspections.

1. This section and Part 43 apply only to aircraft with an airworthiness certificate, therefore these sections will not apply. In the absence of regulatory provisions

dealing with sUAS inspections, Dow has developed requirements to address this topic. Those requirements are stated in Dow's sUAS Operations Manual.

2. Maintenance will be accomplished by Dow pursuant to the manufacturer's recommendations and Dow's sUAS Operations Manual.

3. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel under a Licensed Airframe and Powerplant technician's direction.

4. The sUAS shall be discrepancy free prior to initiating flight.

5. If a mechanical issue arises the sUAS can land safely within the "Safe Zone."

6. Dow shall be the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

7. The Dow sUAS Operations Manual details how to log scheduled and unscheduled maintenance or test flights that are performed.

8. An equivalent level of safety will be achieved because these sUAS are limited in size and will and shall fly only above Dow owned and operated facilities below 400 feet AGL.

14 CFR 417(a) and (b) – Maintenance Records.

1. This section and Part 43 apply only to aircraft with an airworthiness certificate, therefore these sections will not apply. In the absence of regulatory provisions dealing with sUAS maintenance records, Dow has developed requirements to address this topic. Those requirements are stated in Dow's sUAS Operations Manual.

2. Maintenance will be accomplished by Dow pursuant to the manufacturer's recommendations and Dow's sUAS Operations Manual.

3. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel under a Licensed Airframe and Powerplant technician's direction.

4. The sUAS shall be discrepancy free prior to initiating flight.

5. If a mechanical issue arises the sUAS can land safely within the "Safe Zone."

6. Dow shall be the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

7. The Dow sUAS Operations Manual details how to log scheduled and unscheduled maintenance or test flights that are performed.

8. An equivalent level of safety will be achieved because these sUAS are limited in size and will and shall fly only above Dow owned and operated facilities below 400 feet AGL.

§91.417 Maintenance Records.

1. This section and Part 43 apply only to aircraft with an airworthiness certificate, therefore these sections will not apply. In the absence of regulatory provisions dealing with sUAS maintenance records, Dow has developed requirements to address this topic. Those requirements are stated in Dow's sUAS Operations Manual.

2. Maintenance will be accomplished by Dow pursuant to the manufacturer's recommendations and Dow's sUAS Operations Manual.

3. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel under a Licensed Airframe and Powerplant technician's direction.

4. The sUAS shall be discrepancy free prior to initiating flight.

5. If a mechanical issue arises the sUAS can land safely within the "Safe Zone."

6. Dow shall be the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

7. The Dow sUAS Operations Manual details how to log scheduled and unscheduled maintenance or test flights that are performed.

8. An equivalent level of safety will be achieved because these sUAS are limited in size and will and shall fly only above Dow owned and operated facilities below 400 feet AGL.

Other Regulatory Provisions.

Dow has noticed that other petitions have requested exemption from a wide variety of additional regulations, as to which the FAA has concluded that the request was not needed. In light of this, Dow has refrained from requesting exemption from provisions that we believe the Agency will say simply do not apply. Examples include:

- Requirements for lights. (Dow's sUAS flights will occur only in daylight.)
- Requirements for safety belts, shoulder harnesses and child restraint systems.
- Requirements relating to emergency exits.
- Requirements relating to safety instructions for passengers.
- Requirements for dual controls.
- Requirements to place markings in several locations on the aircraft.
- Requirements for the flight manual to be on board the aircraft.
- Requirements for the aircraft to physically "carry" and "display" documents showing certification and registration.

If Dow has judged incorrectly and the FAA believes that exemption from additional regulations is necessary for Dow's proposed sUAS operations, Dow would be happy to modify this application in response to feedback from the Agency.

Additionally, there are a number of regulatory provisions that will not apply to Dow's proposed sUAS operations, but Dow is not requesting exemption. This is because, if the regulations ever did apply (which Dow believes will never happen), Dow would comply with these provisions. Examples include:

- Requirements relating to flights over the Atlantic Ocean.
- Requirements relating to flights over Cuba.
- Requirements relating to flights in restricted airspace, such as that associated with military facilities.

If the FAA feels that Dow should mention such regulations more specifically in this application, we would be happy to do so.