

# **STATEMENT ACCOMPANYING REQUEST TO MODIFY EXPERIMENTAL AUTHORIZATION WG2XVN OF AEROVIRONMENT, INC.**

## **1. Introduction**

By this application, AeroVironment, Inc. (AeroVironment), requests that the Commission grant a modification to call sign WG2XVN to operate facilities within the 1670-1675 MHz band on Alaska's North Slope, including in the waters located immediately to the north in the Beaufort Sea. This modification application proposes to locate a station approximately 100 km from the current described location. In this statement, we explain the purpose of the modification and why this application is within the Commission's experimental authorization rules. We also ask that this application be reviewed expeditiously to meet an emergent circumstance.

## **2. Request for Expedited Processing**

As the project moves to deployment on the North Slope, it has been expanded to include broader overland surveillance of oil and gas facilities. A review of the parameters of the authority granted under 1670-1675 MHz indicates that the area of operations is now slightly broader than currently licensed.

AeroVironment respectfully requests that the Office of Engineering and Technology expedite its review and processing of this application. Investment in equipment and personnel, as well as coordination with industry partners, is now ready to commence operations. The Commission's prompt review and consideration will contribute significantly to work commencing as scheduled and to the overall effectiveness of the trials envisioned.

## **3. Purpose**

As noted in the original Alaska modification, 0220-EX- ML 2013, the experiments' purpose is to provide analysis and information to further aerial surveillance in support of oil spill response in remote hazardous environments in arctic waters and surrounding land. The ability of real-time full motion video via small unmanned aircraft system (SUAS) technologies to assist in identifying locations of material in water, directing spill response vessels deploying boom, oil spill trend analysis, shore-line assessment and impact and identifying affected wildlife will be examined. Overland missions include aerial monitoring and inspections of critical national infrastructure. The objective is demonstrating that the technology can make a meaningful contribution to the important responsibility of monitoring infrastructure and ancillary equipment.

## **4. Technology Use**

The experiments embrace a model using a band segment that aligns with technology and equipment currently available. AeroVironment renews its commitment to operations respecting other users of the band and those in adjacent segments. The limited power levels proposed are part of this commitment. AeroVironment believes the compelling purpose of bringing these advanced services to the challenges serves the public interest. The 1670-1675 MHz channels

provide SUAS control and video and telemetry transmission from the SUAS to the ground. Slots are dedicated for uplink data and a downlink.

Alaska operations will be conducted over water with launches from both man-made drilling rig locations and spill response vessels at sea and in overland areas. There will be only one SUAS airborne at any given time. The operations will be limited to 400' and below and the SUAS will remain within 3 nautical miles of the exercise center point.

This modification application proposes locations off the North Slope of Alaska centered at 70 25 00 N/148 50 00 W within a 50 km radius into the Beaufort Sea and within the overland area depicted on the revised map provided in the Attachment A. Operations will be confined to the Federal Aviation Administration's (FAA) Certificate of Authorization (COA) area.

## **5. Nature of Operations**

### *Surface Based and Airborne Transmission*

As noted in our original application, AeroVironment's communications module, Digital Data Link (DDL), will use the 1670-1675 MHz band segment for purposes of sending ground based command and control data to and from the SUAS and to transmit video and telemetry to the ground control station. The technology, capable of operating within 1625-2390 MHz, requires 4 MHz for full motion video and a 1 MHz channel for video at 15 frames per second. Emission Designators are 4M68G7W and 1M56G7W, respectively, with a transmit power at 10W. Transmission control will be from the surface control station to the SUAS via a laptop or console. AeroVironment's DDL system has been adopted by the US Army as the standard communications architecture for all small unmanned systems, including ground robots.

## **6. Stop Buzzer**

Andy Thurling, Chief Test Pilot, will be available by telephone at 805.581.2198, extension 1892, Cell Phone 805.368.6351 and will act as a "stop buzzer" if any matters involving interference arise during the testing.

## **7. Transmitting Equipment**

The transmitting equipment is unchanged. It is AeroVironment Transreceiver Model 50280, with 2 units at each location. It is not experimental.

## 8. Antenna

The Antenna details have not changed from the current authorization and are as follows:

<b>Antenna</b>	<b>Gain (Nominal)</b>	<b>Polarization</b>	<b>Orientation in Vertical Plane</b>	<b>Oriental in Horizontal Plane</b>
GCU Antenna ASY AeroVironment Stack Patch	9dbi*	Vertical	30	85
1670-1675 MHz Tailboom ASSY AeroVironment Dipole	2dbi	Vertical	78	360

\*Major Side Lobe

- E-Plane
  - Gain: -2 dbi
  - 120 deg
- H- Plane
  - Gain: -2 dbi
- 179 deg

## 9. Restrictions on Operations and Interference Protection

AeroVironment understands that experimental operations must not cause harmful interference to authorized facilities. Should any interference occur, AeroVironment will take immediate steps to resolve the interference, including, if necessary, discontinuing operations.

## 10. Waiver of Station Identification Requirements

AeroVironment requests a waiver of the station identification requirements stated in Section 5.115 of the Commission's rules.

## 11. Diagram

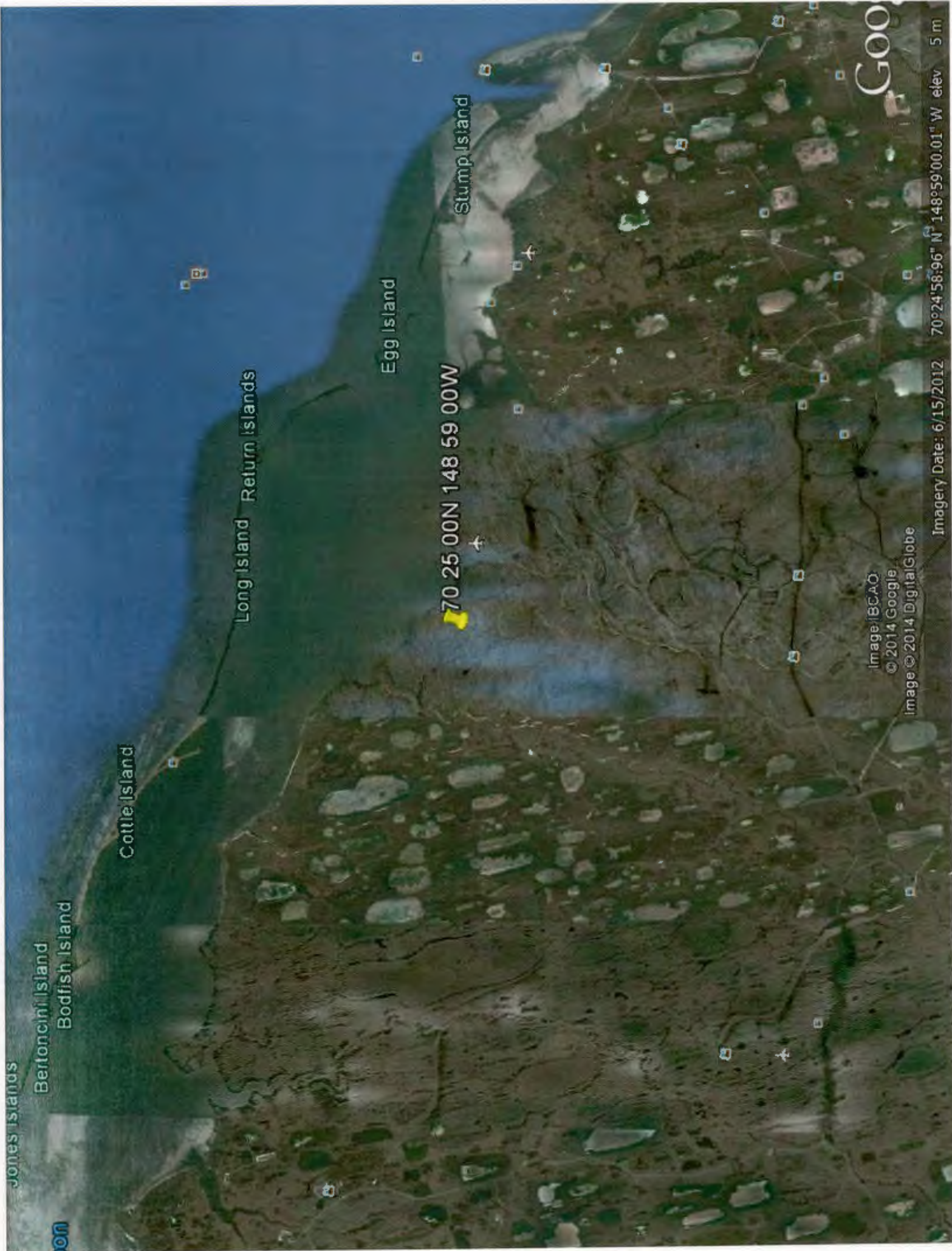
A revised map and diagram of the proposed Alaska operations is provided in Attachments A and B.

**Conclusion**

AeroVironment appreciates very much the Commission's consideration on an expeditious basis of this modification application for an Experimental Authorization. Please call upon us if we can respond to any questions.

Attachment A

Map of Alaska Operations



Jones Islands

Bertoucinini Island

Bodfish Island

Cottle Island

Long Island

Return Islands

Egg Island

Stump Island

70 25 00N 148 59 00W

Google

Image/BCAO

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Image © 2014 DigitalGlobe

Imagery Date: 6/15/2012

70°24'58.96" N 148°59'00.01" W elev 5 m

# Attachment B

## Operations Diagram

