

# Public Quarterly Report

**Date of Report:** 5th Quarterly Report- January 1, 2021

**Contract Number:** #693JK31910016POTA

**Prepared for:** DOT

**Project Title:** Develop Remote Sensing and Leak Detection Platform that can Deploy Multiple Sensor Types

**Prepared by:** American Aerospace Technologies, Inc.

**Contact Information:** David W. Yoel, [david@americanaerospace.com](mailto:david@americanaerospace.com), 610-225-2604

**For quarterly period ending:** December 31, 2020

## 1: Items Completed During this Quarterly Period:

Team Project Activities completed during this quarter.

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>
18	3	Test Range and Protocol Update	Test Range & Staging Protocols
19	5	2 <sup>nd</sup> Flight Test Campaign #2	Flight Test Program
20	6	Report – for 2 <sup>nd</sup> Campaign	Data Analysis and Benchmarking
21	7	5 <sup>th</sup> Quarterly Status Report	

## 2: Items Not Completed During this Quarterly Period:

Team Project Activities not completed this quarter

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>
13	6	Report on Campaign #1	Data Analysis and Benchmarking

## 3: Project Financial Tracking During this Quarterly Period:

Confidential

## 4: Project Technical Status –

### Item #18 / Task 3 / Test Range and Protocol Update / Test Range & Staging Protocols

**Description:** Multiple PRCI members have offered to make their ROW corridors available for this program. Multiple factors have been considered in the selecting the location(s) for conducting these tests including, for example, population density, proximity to transportation corridors, towered airports, traffic patterns of ongoing aviation operations (helicopters, crop dusters, parachutists, balloonists and gliders, commercial & military aircraft, etc.). Site selection recommendations were made using a risk-based approach to identify the optimum location for the flight test program.

**Status:** The primary location for the conduct of the final tranche of flights is in Pendleton Oregon and the San Joaquin Valley in California, with launch/landing operations at Buttonwillow, California. AATI's primary focus has been to plan a safe and secure mission while verifying commitments in light of the Novel Coronavirus (2019-nCoV / Covid-19) outbreak and the wildfires in California and Oregon.

AATI has been approved for flight under several Certificate of Waiver or Authorization (COA) and locations:

**Table Removed: Confidential**

AATI previously reported it conducted the 1<sup>st</sup> tranche of flight tests at the Woodbine Municipal Airport in New Jersey in 3Q20. In addition, we flew the second tranche of flight in Pendleton, OR in October 2020, monitoring the [named removed] Pipeline. In addition, AATI completed flights in Buttonwillow, CA in November 2020 over [named removed] Pipeline ROW near [named removed].

The Test Range and Protocols have been established and tested in November. Environmental survey requirements are met at this location in concert with Kern Country Airport Director oversight. The location is large and relatively vacant, allowing for adequate set up of ground support equipment and visitor staging areas. There is a hobbyist group that operates at this location, but the leadership is reasonable to work with to deconflict operating schedules. Good weather conditions for flights (>250 days a year). AATI continues to explore expansion of services at this location, as currently it does not have power, water, or storage facilities adequate to maintain sustaining operations. AATI continues to explore additional launch and landing zones in the general area.

**Item #19 / Task 5 / 2nd Flight Test Campaign complete / Flight Test Program**

**Description:** Conduct Test Program with automated multi-threat detection system on long endurance UAS flying hundreds of miles of pipeline corridor.

**Status:** Phase 1 Test flights continued in August 2020 (Pendleton, OR), September 2020 (Woodbine, NJ), and October 2020 (Pendleton, OR) where machinery, thermal, and fire threat detection testing was completed. These locations were selected to mitigate Novel Coronavirus (2019-nCoV / Covid-19) costs, in addition to avoid heavy smoke from California and Oregon fires during August-September 2020. Imagery was simultaneously acquired over thermal targets at 1200' AGL. Flights were conducted at 7am, 10am, and 2pm.

The Williams pipeline is buried near farming lands in northern Oregon. We identified numerous machinery staged on farms and driving on rural roads as illustrated below.

[Omitted]

**Item #20 / Task 6 / Report for 2<sup>nd</sup> Campaign / Data Analysis & Benchmarking**

**Description:** The program calls for automatic threat detects to be compared to independently collected ground truth data and reports from aerial patrol pilots. Recommended Practices for Threat Taxonomy, Targets, Staging and Scoring were approved June 10, 2020. AATI completed a Threat and Threat Level Taxonomy Poll initiated with voting PRCI members.

**Status:** The InstiMaps Gen-3 payload for the 1<sup>st</sup> campaign successfully flew on the RS-20 UAS last spring during a check flight at our Woodbine Municipal Airport facility in New Jersey. AATI also flew a new Color Infrared sensor on the RS-20 for the 1<sup>st</sup> time. InstiMaps was installed into the AiRanger (formerly known as Resolute Eagle) the week of September 21, 2020.

In the Final Report of ROW-3-1, AATI is tasked with providing a preliminary assessment of the potential for an automated airborne threat detection system to contribute to an operator's Leak Detection Program. KPIs for imminent threats are being evaluated by threat type and geography in alignment with [omitted]. LDS selection criteria will be reviewed based on features adapted from [omitted]. During 4Q20 a preliminary assessment was developed and submitted for review, and feedback was received from the assigned Member. AATI is currently working through the feedback and plans to release the

preliminary assessment during the 1st half of 1Q21. This 2<sup>nd</sup> Campaign report will be utilizing this preliminary assessment in 1Q21.

**Item #21 / Task 7 / 5th Quarterly Report / Submit 5th Quarterly Report**

**Status:** this document presents the 5th Quarterly Report

**5: Project Schedule –**

Flight Schedules for 2020 are complete. 1Q21 flights planned *[omitted]*. We continue to monitor the increasing cases of COVID-19 across the Nation, specifically, Oregon, and California. Current Flight programs contain COVID-19 plan to maintain a safe site of operations.

***Schedule Removed: Confidential***