

NIAS UAS PMO QUARTERLY REPORT

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2nd Quarter, CY14

**NIAS UAS PMO Quarterly Report
Other Deliverables
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The Program Management Office
Nevada Institute for Autonomous Systems
Unmanned Aircraft Systems



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NIAS PMO QUARTERLY REPORT

2nd Quarter 2014

Introduction

The Nevada Institute for Autonomous Systems (NIAS), in coordination with the Governor's Office of Economic Development (GOED), focuses the collective assets of the State of Nevada, to establish a business climate promoting integration of autonomous systems development within the State of Nevada. NIAS continues to work to establish Nevada as a premier location in the world for practitioners in the autonomous systems community. NIAS plans to maximize the utility of Nevada's assets to establish an unquestioned center of entrepreneurship and business excellence, resulting in recognition of Nevada as a world leader in the autonomous systems business.

The NIAS Unmanned Aircraft Systems (UAS) Program Management Office (PMO) is NIAS's contractor and trusted agent acting on behalf of NIAS throughout the State of Nevada. NIAS is contracted with Bowhead, a wholly owned subsidiary of the Ukpeagvik Inupiat Corporation, to establish, operate and manage the PMO and Nevada UAS Test Site and to provide core program management, FAA-required deliverables and technical support services. Bowhead is a member of the Ukpeagvik Inupiat Corporation Technical Services, LLC (UICTS) family of companies. Bowhead is a Small Business Administration-certified 8(a) and an Alaska Native Corporation (ANC). In accordance with the NIAS/Bowhead contract agreement, the NIAS UAS PMO submits the following as the Quarterly Report for the second quarter of 2014.

Progress Report

During the second quarter of 2014, the NIAS UAS PMO continued efforts associated with standup and beginning flight operations on the Nevada UAS Test Site. The Federal Aviation Administration (FAA) modified the Other Transaction Agreement (OTA) between the FAA and the State of Nevada on May 19, 2014 with the revised DTFAC-14-A-00003, Modification 0001 agreement concerning the State of Nevada FAA UAS Test Site.

The Nevada UAS Test Site's objectives and focus has shifted to enabling robust flight operations by identifying potential test projects that can proceed under a Certificate of Waiver or Authorization (COA) or Special Airworthiness Certificate (SAC) and working with customers to enable those operations. As funding is identified and captured, project Research and Development (R&D) objectives will concentrate on UAS standards and operations as well as operator standards and certification requirements. Our research will also include a concentrated look at how air traffic control procedures will evolve with the introduction of UAS into the civil environment and how these aircraft will be integrated with NextGen Air Traffic Management System evolution.



The following sections describe work efforts within major focus areas over the past quarter.

FAA Meetings/Interface

The PMO is continuing interface with FAA POCs on a routine basis as we worked this quarter on submission of COAs and SAC applications.

- On May 8, a Test Site teleconference was convened by the FAA UAS Integration Program Office to discuss Modification #1 to the OTA and other Test Site issues/topics.
- On May 20, another Test Site teleconference was called by the FAA UAS Integration Program Office. Major discussion topics were the OTA Modification 1, UAS research, quarterly reports (possible transition to a web-based system), Test Site funding reimbursement questions submitted after the first TIM, and an update on the prototype DAR process. To ensure collaborative information exchange, the FAA Program Manager requested that the Test Site teleconferences occur on a biweekly basis beginning 1 June.
- From June 2-5, a Test Site Safety Readiness Survey team of 7 FAA personnel performed an on-site survey of the Nevada UAS Test Site with the purpose of reviewing organizational structure, administration, policies and procedures employed to safely execute the functions as provided for in the FAA's Other Transaction Agreement (OTA). The result of this survey is summarized in this extract from the report: "Generally, the survey team unanimously agrees that the NIAS, as managed by the PMO, is very well prepared to execute the functions of a test site as described in the OTA and they are fully prepared to begin flight test operations to support the FAA's UAS NAS integration efforts. The survey team encouraged the PMO to share their program organization and structure with the other test sites. The PMO has given their approval for the FAA to share lessons learned from this survey with the other sites." "The major challenges that exist revolve around revenue stream development that is directly related to the issuance of FAA program procedures and revisions to certain orders that permit a complete functionality that will yield a predictable revenue path forward."
- June 3, UAS Test Site Operator Bi-weekly with primary topic of prototype DAR/Test Site Special Airworthiness Certification program discussion
- June 23, development contact for Statement of Work on future flight test project with Arcturus (OEM provider who has flown previously with us)
- June 24, UAS Test Site Operator Bi-weekly telecon. Topics included FAA UAS Research and Requirements, Quarterly Report Discussion, 365 Day Activity Plan Update Discussion, Funding/Reimbursement Questions Generated by the Six Test Sites Status, open discussion with Legal Department – Dean Griffith and Karen Petronis, Publicity and Press Releases, and next Technical Interchange Meeting in Virginia.



Task Order Deliverables

The PMO actively worked on drafts of the revised and restated contract and Task Order 2 Deliverables throughout this quarter. Challenges included insurance requirements and changes to the FAA OTA requirements. As of this publication, the revised and restated contract is in the final review prior to acceptance and signature.

In April, the PMO supported the NIAS Board of Directors meeting with a briefing on first FAA UAS Test Site Technical Interchange Meetings in Atlantic City, PMO business development, an update on Test Site Flight Operations, an overview of NIAS/State of Nevada participation at Association for Unmanned Vehicles Systems International (AUVSI) 2014 and the FAA Unmanned Aircraft System Integration Office, AFS-84, request for visit to the PMO to review and collaborate on Safety Management System and Airworthiness processes. The PMO also produced the NIAS UAS PMO Quarterly Report for the 1st Quarter 2014.

In May, the PMO supported the NIAS Board of Directors meeting with a PMO update briefing to include the UAS PMO business pipeline report, an overview of the FAA 1st Quarter 2014 Operating Report, and a verbal update on PMO successful flight operations conducted in Nellis Test and Training Range R-63B (outside the FAA UAS Test Site operational construct but allowable as the NTTR is considered a Major Range Test Facility Base), status of COAs, status of PMO work to enable the FAA prototype Designated Airworthiness Representative program to allow the Test Sites to issue a SAC in the Experimental category, business development efforts and the status of the revised and restated contract negotiations.

In June, the PMO supported the NIAS Board of Directors meeting with PMO update briefings regarding the Bowhead and NIAS Budgets, status of PMO efforts to enable flight operations under COAs, SACs, and in the allowable Special Use Airspace of the NTTR as an MRTFB, and the business pipeline report. The PMO also presented the Nevada UAS Test Site Operator Privacy Policy which was approved for posting on the NIAS-UAS website to enable public comments.

FAA OTA Procedures

The purpose of the FAA OTA document is to outline the agreement between the FAA and Nevada to conduct research and testing to safely integrate UAS into the NAS. The FAA modified the Other Transaction Agreement (OTA) between the Federal Aviation Administration (FAA) and the State of Nevada on May 19, 2014 (DTFACT-14-A-00003, Modification 0001, May 19, 2014).

The modification contained minor changes to the OTA with the most significant change being the deletion of all content on data reporting requirements in Appendix B. The data reporting requirements will be replaced by specific agreements with the Sites as projects are defined.



2nd Quarter Accomplishments Summary

The Nevada UAS Test Site has made significant progress in the standup and operation of the Nevada UAS Test Site this quarter, highlighted by the following activities/accomplishments:

- Third site to be declared operational based on approval of a new Certificate of Authorization (COA) for the Insitu ScanEagle at Desert Rock Airport
- Two additional COAs submitted and in the review/approval process
- Leading the prototype DAR process to allow Test Sites to issue SACs in the Experimental category-- 2 DARs on staff and 3 SACs submitted
- First Test Site visited for FAA Safety Readiness Review of processes and Master Document Library-- validated readiness to begin Test Site Operations
- Privacy Policy completed and posted for public comment
- Non-FAA UAS Test Site flight operations of two different UAS in Special Use Airspace in the Nellis Test and Training Range (NTTR) R-63B (Major Range Test Facility Base which enables non-FAA Test Site operations for testing of less mature systems or more complex, confidential, or higher risk testing while working COAs and SACs to enable operations in the NAS)
- Non-FAA UAS testing of a major Original Equipment Manufacturer (OEM) developmental system utilizing the Department of Energy (DOE) controlled airspace in R-4808.

AUVSI 2014 Conference Participation



Figure 1 AUVSI 2014 NIAS Booth

Location/Date:

Orlando, Florida
Orange County Convention Center
May 13-15 Tradeshow/Exhibit Floor (Booth 1917)



Attendees:

Nevada GOED: Tom Wilczek, Bob Potts

NIAS PMO: Chris Tunley, Don Cunningham, Will Williams, Bruce Tarbert, Warren Rapp

Bowhead: Cari Cayton

NSTec: Mike Mohar, “JD” Daniels, Tony Kaumans

DRI: – Jeff Tilley

Reno Tahoe Airport Authority/Stead Airport: Mike Dikun, Tina Iftiger, Dean Schultz

Reno Air Racing Association: Mary Beth Sewald

Drone America: Mike Richards, Kyle Pruet

Sensurion: – Joe Burns, Dave Strohm, Dan Johnson, Brian Haynes

AUVSI Goal and Objectives

The goal of our participation in this conference was to enhance our reputation as the leading FAA UAS Test Site while developing business opportunities through interaction with other exhibitors and attendees.

The PMO had three main objectives at the AUVSI 2014 Conference.

- 1. To showcase the NIAS UAS PMO and the Nevada UAS Test Site as the premier FAA UAS Test Site and our capabilities.**
 - This objective was successful in that the Nevada/NIAS booth (# 1917) was well received and was a central hub for contacts and meetings to discuss our capabilities to support a large volume of UAS operations. The booth location was excellent with traffic that was moving toward the general session area funneled past our location. The Drone America Phoebus UAS suspended over the booth and the Sensurion Magpie UAS static display at the front of the booth provided a highly professional and appealing look that drew customers.
- 2. To showcase our Nevada UAS Teammate sponsors. We presented NIAS UAS PMO as the one stop shop for all UAS services in Nevada through the collaborative efforts of our teammates and a robust team of vendors and education institutions.**
 - Success of this objective was accomplished by sharing booth space with our sponsors. Each sponsor had a dedicated location in the booth with presentation and meeting capabilities. Cooperation among the NIAS UAS PMO and the sponsors was excellent. We worked well as a team to direct visitors and potential clients to each other.



3. To develop potential customers through the Conference/Booth and other marketing efforts associated with the conference.

- As a result of our efforts, the PMO developed a list of over 150 contacts made during the AUVSI 2014 show based on business cards collected from visits to our booth and visits by our staff to other exhibitor booths during the show. Additionally, 135 leads from the booth using the lead trackers/scanners that were rented are being analyzed and should provide additional contacts and potential leads. Finally, the NIAS UAS PMO team scheduled and participated in multiple high-level meetings with major UAS Original Equipment Manufacturers (OEMs) to showcase our capabilities and present the State of Nevada as the location of choice for UAS testing and UAS businesses.

AUVSI Summary

The NIAS UAS PMO in conjunction with the Governor’s Office for Economic Development (GOED) and Nevada UAS Test Site teammates worked to represent the Nevada One-Team image at all levels. Our participation at the conference was very successful, yet we look for commitment to continue participation and improvement in future events. Business development efforts were very promising at AUVSI 2014. Of the 285+ contacts that we sorted and analyzed, we identified over 30 possible UAS flight or testing opportunities with 9 being worthy of immediate planning and follow-up efforts to bring them to a contract and flight operations. The NIAS UAS PMO staff worked well with the sponsors to “double team” meetings with major UAS OEMs to present our unique capabilities to satisfy their test and demonstration requirements. One major UAS OEM Director of Strategic Planning promised that he was recommending a publicly announced strategic partnership with the Nevada UAS Test Site based on information that we provided. One Department of Defense and one Federal agency both expressed interest in long-term RDT&E relationships with the Nevada UAS Test Site. The experience was very positive and the teamwork and camaraderie was effective. Some minor event and booth logistical items could be improved for next year. Using what we experienced this year, we will continue working to improve event participation and support to make AUVSI 2015 even more successful for Nevada.

AUVSI Local Chapter Implementation (in progress)

Following the approval of the charter by the AUVSI Board of Directors, interim officers have been appointed: Chapter President Barry MacNeill, URS; Chapter Vice President Deborah Downs, NIAS; Chapter Executive Assistant Bob Ziehm, NSTec; and Chapter Treasurer Crystal Neufeld, NIAS. The chapter affiliation agreement has been signed by the Chapter President and returned to AUVSI. AUVSI created a logo for the chapter.



Figure 2 Nevada AUVSI Chapter Logo

Tasks to be completed in order to complete the Chapter setup include filing Articles of Incorporation with the State, filing for an EIN, and setting up a chapter bank account and collecting pledged funding from corporate sponsors. The Interim Officers plan to meet the first week of August to finalize the administrative tasks for setting up the chapter. The Interim Officers estimate a Meet and Greet to take place in September. The Chapter website is operational, although not complete. The website can be found at www.AUVSI.org/nevadachapter.

Teammate/Vendor/Partner/Potential Customer Meetings

Business development and operations activities to identify and capture UAS operations opportunities continued to be a top priority in the second quarter. The following vendor meetings were conducted during this reporting period:

April

- 2 April, CAVOK and Romotive (consulting firm paired with startup UAS OEM with a major proposed flight project)
- Introduction to private development firm in Mesquite, NV, leading to a 22 May briefing to the Mesquite City Council, leading to a vote to join the Test Site effort as a potential rural airport operating location
- 4 April, meeting with officials from White Pine County/Ely Airport concerning potential rural airport operating location
- 4 April, introductory meeting with RT Logic (IT solutions/ hardware-in-the-loop test system)
- Telephone meetings with Creative Development Solutions (UAS provider) concerning testing possibilities on the Nevada UAS Test Site
- Early April, JS UAS Management (consulting firm paired with two UAS OEMs) looking for testing of multiple concepts for UAS use
- Absolute Aerospace (SIR teammate with signed Letter of Intent) concerning testing possibilities
- 8—10 April, support to DRI for a briefing given at a NASA-Ames concerning collaboration with the universities and update on Nevada UAS Test Site capabilities
- 9 April, meetings with UAS Commercial (services provider for insurance and mishap



cleanup/legal issues/investigation)

- Meetings with Boeing (major OEM) during preparation and flight operations concerning additional projects for flight operations support in the future
- 9 April, CCLD Technologies (out of state UAS OEM supporting Department of Transportation) UAS use to inspect bridges
- 10 April, initial contact with 7Q10, Inc for discussions related to Walker River Paiute Tribal lands as potential UAS operating location for multiple testing missions and possible use of UAS by Tribal Police for search and rescue and surveillance of tribal lands
- 10 April, initial contact with Analytical Graphics, Inc (Southern California service provider/IT related products and services)
- 10 April, meeting with CPI Malibu (service/solutions provider) concerning capabilities to support Test Site work
- April 14, MCRI (solutions provider concerning capabilities to support testing)
- April 14, contact with URS (major UAS OEM and service provider)
- April 15, contact with Black Tech Inc (service provider/simulations and training)
- April 17, meeting with GC2IT (SIR teammate) concerning potential projects that GC2IT has in planning stages
- April 17, Villarreal Strategic Solutions LLC (service provider/consulting on disaster preparation and training scenarios)
- April 18, attended meeting at DRI with speaker from Yuma Proving Grounds
- April 18, introductory telecon with Focused Support (UAS solution provider for UAS situational awareness/common operational picture solution)
- April 21, Northern Nevada UAS Collaboration Meeting
- April 22, Northern Nevada UAS Economic Development Collaboration Meeting
- April 25, meeting with GC2IT (teammate) for update on proposed projects
- April 29, Lewis Roca Rothgerber, LLP (legal) on possible inclusion as vendor for the Test Site work
- April 30, Consolidated Security Resources LLC (UAS OEM) concerning questions on NIAS PMO to assist integration of subsystems on a developmental platform

May

- May 2, Insitu (major UAS OEM), NSTec, and PMO mid/final planning conference on scheduled June flight project at Desert Rock Airport and R-4808N. (project was delayed post meeting)
- May 6, introductory meeting with MultiLingual Solutions, Inc. (translation services)
- May 7, introductory meeting with CEMSOL (solutions provider interested in requirements for a Special Airworthiness Certificate in the Experimental category)
- May 9, ISSIS (European company with partnerships with UAS OEMs and a fire suppressant product) to discuss concept for bringing business to Nevada
- May 12--15, multiple meetings with UAS OEMs, service providers, and solution providers during AUVSI 2014 in Orlando, FL. Focus was on major OEMs. These are summarized in a full AUVSI After Action Report deliverable.
- May 20, contact with XplorIt (interactive multimedia technology company located in Incline Village NV)
- May 21, contact with Big Top Manufacturing (provider of shelters/temporary hangars)



that we met at AUVSI

- May 21, contact with enerGies (IT/communications provider) post-AUVSI
- May 21, discussion with XplorIt (multimedia web technology company based in Nevada for info on certification track for both a DJI quadcopter and their own internal asset)
- May 22, information briefing given to Mesquite, NV, City Council meeting concerning signing up as a rural expansion operating location. Led to a positive vote to sign the NDA and consider the TA
- May 22, follow-on meeting with Ideal Aerospace (services/solutions provider)
- May 22, contact with CCLD Tech (company wanting to fast track a certification of a small copter UAS)
- May 25, PMO North follow-up with Flirtey (Australian UAS OEM) who wants to commit to developmental testing and flight operations at Reno Stead
- May 27-29, PMO travel and participation at FAA UAS Center of Excellence solicitation conference
- May 27-29, meetings with FAA AFS-80 (Jim Williams) and other FAA/FTC upper management in Washington, DC, concerning status of Nevada UAS Test Site and R&D white papers for efforts that require funding
- May 28, AUVSI follow-up from Luciad (software solutions for building state-of-the-art Situational Awareness systems)
- May 30, Northern Nevada UAS Economic Development Regional Collaboration
- May 30, contact and discussion with Futron Corporation (decision management solutions company)

June

- June 3, meeting with Locata Corporation (IT/communications provider) concerning GPS-like system to validate GPS data or replace in a GPS denied environment
- June 5, meeting with Tom Threinen/El Dorado Land Corporation (local land management company) who Owns land and buildings about 2 miles north of the lake bed OL south of Boulder City
- June 5, Corpnet (management consulting provider) introductory meeting
- June 6, continuing discussions with Amazon/Primeair (major UAS OEM) on developmental testing needs
- June 10, telecon with GOED and BlackTech Inc (consulting firm and private UAS test facility) on interest of a foreign company to relocate and operate in Nevada
- June 17, lunch meeting with GC2IT (teammate) to update on future efforts and possible collaboration on some FAA work
- June 19, Nevada UAS Stakeholders update telecon
- June 19, Simulyze (IT solutions provider for UAS Test Sites) Demo/Briefing
- June 19, FAA UAS COE update telecon with GOED
- June 20, introduction with POC from Douglas County/Minden-Tahoe Airport
- June 25, Northern Nevada UAS Stakeholders meeting/social
- June 26, Advanced Composite Technologies (advanced materials provider/UAS introduction
- June 26, Embry Riddle Aeronautical University, Dr. Ken Witcher and Dr. Brent Bowen who is the Dean of the College of Aviation at Prescott, AZ



- June 26, introduction to Latitude Engineering (UAS OEM from Tucson, AZ)
- June 22--28, attended UAS Spectrum Working Group
- June 30, introduction to POC from 7Q10, Incorporated (Consulting Hydrologists and Regulatory Scientists) who introduced PMO North to Trimble who is looking to work on COA for flight operations

Range/Site Visits/AARs

From June 24—26, a Northern Range visit by Will Williams (PMO Flight Operations Manager) and Bruce Tarbert (PMO Airspace and Integration Manager) focused on multiple locations for future planned UAS operations including Silver Springs Airport, site-specific procedures for Reno Stead Airport and OL, interface with University of Nevada-Reno, National Air Races, Northern PMO coordination, and GOED coordination. They also attended the Northern Nevada UAS Stakeholders meeting on 25 June. This trip had a lot of activity squeezed into three days, but was very successful in all aspects. A separate trip report deliverable was filed on this travel.

Flight/project planning

Numerous projects were planned and three concluded with successful flight operations in Special Use Airspace (NTTR and R-4808). Initial planning was conducted for an additional five separate customer projects. In addition, safety briefings for all active flight projects took place on the days that flights were conducted.

Additionally, the PMO has entered into discussions with several hotel/casinos in Las Vegas on possible use of several very large indoor venues which could be used for flying small UAS Groups I and II. Such indoor venues would give us an ability to fly virtually any time that major events are not scheduled without the requirements for National Airspace System access from the FAA. This flying would be outside the FAA UAS Test Site construct but can be used as an initial step on the pathway to approvals to fly in the NAS. GPS signal strength is one obvious issue, but for initial developmental testing of sUAS, this may not be a factor. The PMO is also researching ways to enable GPS in these enclosed arenas.

Establishment of UAS Test Procedures

Following the FAA Test Site Safety Readiness Review by the FAA Test Site Safety Readiness Survey team, the PMO is working revisions to our original Master Document Library to remove pre-designation references and change inaccurate information caused by changes to the program allowances by the Department of Defense (DoD) and FAA. DoD training range airspace was not allowed to remain a part of the Test Sites' airspace constructs, so we lost the ability to work with Navy Fallon for access to the Fallon Range Training Complex. However, the Nellis Test and Training Range is allowable as an MRTFB, and as such, the PMO is developing entries to the Master Document Library to detail processes and procedures for that use. The FAA



team also made some constructive comments on organization of the information in the library which the PMO is working to integrate.

Summary

The PMO has been highly focused this quarter on progressing to flight operations on the Nevada FAA UAS Test Site. We were the third Test Site with an approved COA and the first Test Site to complete the FAA Safety Readiness Review process. We have made excellent progress in leading the way on the Test Site prototype DAR program to authorize resident DARs to issue Special Airworthiness Certificates in the Experimental category. We have completed three flight projects in Special Use Airspace (NTTR and Range 4808B) which do not count for the FAA UAS Test Site flights but provide us a more rapid means of conducting flight operations for customers while we work the FAA approvals of a COA or SAC. Projects are being sought, identified, qualified, and detailed planning is underway for a number of new projects. The pace is picking up and the Nevada UAS Test Site is enjoying accolades from the FAA on our progress and professionalism of our program.