Unmanned Aircraft Systems Wildfire Integration for Civil Support (UAS-WICS) Quick Reaction Test (QRT) Overview Brief

<u>Proposed Lead Sponsor</u>:
NORAD and USNORTHCOM

<u>Proposed Co-Sponsor</u>:
US Army Test & Evaluation Command

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UAS-WICS QRT Background

The Unmanned Aircraft Systems Airspace Integration (UAS-AI) Joint Test (JT) is developing standardized procedures to safely, predictably, and efficiently operate unmanned aircraft systems (UAS) in the National Airspace System (NAS).

Wildfire support is part of Commander USNORTHCOM's mission set under Defense Support of Civil Authorities (DSCA) with wildfires perennially erupting largely in the western United States.

In June 2013, the United States Department of Agriculture Forest Service (USFS) Deputy Director for Aviation approached the UAS-AI Joint Test Director to discuss an opportunity for USFS and DOD to partner the current USFS problem: procedural integration of UAS into wildfire monitoring and support to suppression operations.

Problem Set

The opportunity exists to both test the UAS-AI JT-developed UAS NAS Flight Operations Standardized Procedures (UNFO SP) in a real world contingency while advancing USFS efforts to integrate UAS into wildfire monitoring and suppression operations. This problem set includes two different, yet complementary, problems that can be addressed in the UAS-WICS QRT.

- **P1: Upon completion of the UAS-AI JT, the UNFO SP will not have been tested in a real-world contingency operation.**
- **P2: The USFS is unable to integrate UAS into fire monitoring and suppression operations without standardized procedures.**

UAS-WICS QRT Purpose

The QRT's purpose is to test the UAS-AI JT developed UNFO SP during the prosecution of a real world wildfire incident and deliver:

- **(a) Procedural improvements to the UAS-AI JT for inclusion in UNFO SP revisions**
- **(b) UAS firefighting integration procedures to the USFS**

Scope and Limitations

This QRT will be limited to a one-year effort including the CY2014 fire season. This QRT will test the UNFO SP in a wildfire incident with DOD UAS in a Defense Support of Civil Authorities role. It will support the fire monitoring and suppression efforts of the Incident Commander during a fire. Anticipated USFS Incident Commander support includes:

- **Damage assessment and firefighting effectiveness**
- **Command and Control/Search and Rescue**
- **Nighttime fire hotspot identification leading enhanced daily firefighting scheme of maneuver plans**
- **Prioritization of mission objectives**

Test Products

This QRT will provide empirical data to the UAS-AI JT team for the purpose of improving the UNFO SP for use in a USNORTHCOM DSCA event. It will also provide airspace integration procedures to USFS for incorporation into formalized organizational procedures.

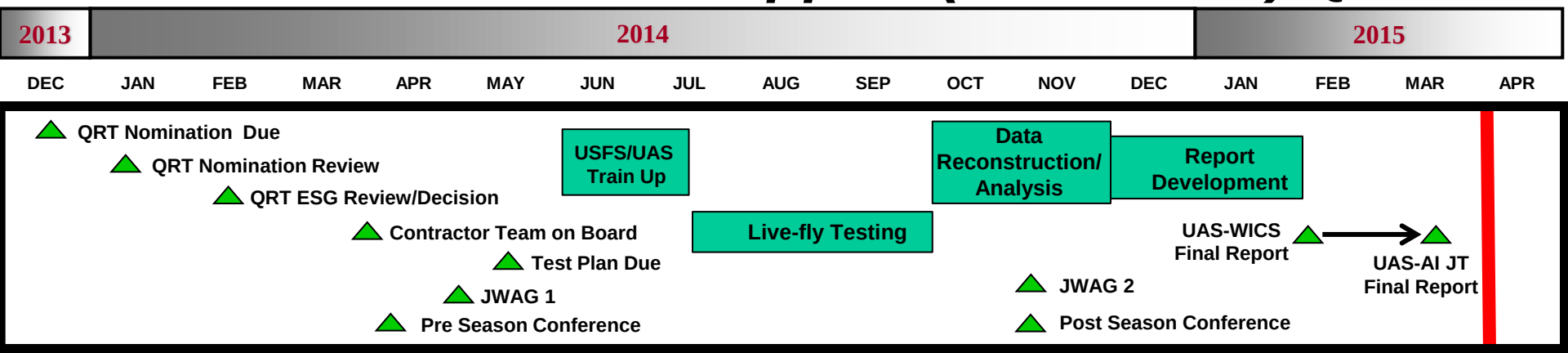
Related Efforts

- **The timing of this QRT is synchronized with the UAS-AI JT's second field test such that empirical UAS-WICS QRT results can inform the revisions of the UNFO SP prior to version 1.0 release in the spring of 2015.**
- **NASA Dryden Flight Research Center and NASA Ames Research Center are working on future airspace integration issues largely concerning human factors and controller workload.**
- **Congress has directed the Federal Aviation Administration (FAA) to integrate both public and private UAS into the NAS by the end of 2015.**

Sponsorship, Endorsement, and Operational Test Authority

- **The UAS-WICS QRT will be conducted in the same workspaces as the UAS-AI JT at Peterson Air Force Base (AFB), CO.**
- **Resource Sponsor will be USNORTHCOM**
- **Operational Test Authority will be Army Test and Evaluation Command (ATEC)**
- **Planned endorsers include:**
  - **DCDRUSNORTHCOM (endorsement received)**
  - **N-NC/J9 (endorsement in progress)**
  - **ATEC (endorsement in progress)**
  - **AFNORTH/1AF/CONR (endorsement in progress)**
  - **ARNORTH (initial discussions)**
  - **Department of the Interior (initial discussions)**
  - **USFS (endorsement in progress)**
  - **California TAG (endorsement in progress)**
  - **US Congressional and State leaders (endorsements in progress)**

UAS-Wildfire Integration for Civil Support (UAS-WICS) QRT



Background:

- Wildfire support is part of USNORTHCOM's mission set under Defense Support of Civil Authorities (DSCA)
- In June 2013, the United States Department of Agriculture Forest Service (USFS) Deputy Director for Aviation approached the UAS-AI JTD to partner the current USFS problem:

Procedural integration of UAS into wildfire monitoring and support to suppression operations

Problem:

- The opportunity exists to both test the UNFO SP in a real world contingency while advancing USFS efforts to integrate UAS into wildfire operations. This problem set includes two different, yet complementary:
- P1: Upon completion of the UAS-AI JT, the UNFO SP will not have been tested in a real-world contingency operation.
- P2: The USFS is unable to integrate UAS into fire monitoring and suppression operations without standardized procedures.

Scope:

This QRT will be limited to a one-year effort including the CY2014 fire season. This QRT will test the UNFO SP in a wildfire incident with DOD UAS in a Defense Support of Civil Authorities role. It will support the fire monitoring and suppression efforts of the Incident Commander during a fire.

Transition:

The UAS-WICS QRT Final Report will be released in early spring 2015 based on at least one life-fly Civil Support contingency operational mission. The QRT Final Report will inform the UAS-AI JT leading to revisions of the UNFO SP prior to version 1.0, to be published in early summer 2015.

Future Testing

- **Fire Support Operations**
  - **Communications Relay**
  - **Fire Monitoring**
  - **ATC Support**
- **Post-Fire Hot Spot Detection**
- **High Risk Area Detection and Assessment**
- **Forest Health and Timber Management**
- **Pre- and Post-Fire Season Survey Support**

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Questions