1. **Research Title:** Computational Fluid Dynamics (CFD) for Air-Launched Unmanned Aerial Systems (UAS)

2. **Individual Sponsor:** List the AFRL research topic sponsor's contact information

   Example:

   > Dr. Paul A. Fleitz
   > AFRL/RQQC
   > 2210 8th Street
   > WPAFB, OH 45433
   > paul.fleitz@us.af.mil

3. **Academic Area/Field and Education Level**

   Aerospace Engineering/Mechanical Engineering
   Aerodynamics/Fluid Dynamics/Fluid Mechanics
   BA/BS, MS or PhD level

4. **Objectives:** Perform Computational Fluid Dynamics (CFD) analysis to support air-launched Unmanned Aerial Systems (UAS) directly from host aircraft or from podded carriage/launch systems attached to the host aircraft. Specifically, the CFD analysis will provide guidance on safe separation, optimal launch orientations, and podded carriage/launch system designs.

5. **Description:** Air-launched UAS provide the warfighter with additional capability not available on the host aircraft or to ground personnel. Current air-launched UAS programs provide under-weather and stand-off imaging to host aircraft, but as these systems gain popularity there is increasing demand for new air-launched systems with new capabilities. As these systems evolve to address specific warfighter requirements there is a continuing need for CFD analysis. CFD, combined with wind tunnel measurements, provide the background needed to transition these new capabilities.

6. **Research Classification/Restrictions:** UNCLASSIFIED. Open to U.S. citizens only.

7. **Eligible Research Institutions:** All DAGSI Universities.

PA Approval #: AFRL-2020-0110