



LAUNCH AND MISSION ASSURANCE

Delivering Proven Mission Success to Space and Missile Launch Customers

The complexity, expense and critical nature of space and target missions make reducing launch risk an imperative. At Engility our Rocket Systems Launch Program (RSLP) mission assurance experts provide independent and disciplined mission-assurance solutions that blend scientific, engineering, quality and program management expertise.

Our robust mission assurance process, which we apply throughout a program or launch vehicle's lifecycle, allows all of the stakeholders involved in the program, development and launch process to work within a common framework

to achieve mission success. Our team defines mission requirements, evaluates launch vehicle configurations, conducts mission feasibility assessments and vehicle conceptual designs and performance evaluations, and analyzes facility utilization, site selection and launch processing flows.

The team also supports booster and payload integration activities to ensure compatibility between the payload and launch vehicle, including electrical interfaces, electromagnetic interference effects, mechanical/envelope interfaces, support equipment requirements, thermal effects, dynamic loads and structural margins, and booster-induced payload environments. In addition, our experts

Certified at CMMI Level 3, we have provided mission assurance for the U.S. Air Force (USAF) Space and Missile Systems Center and the Missile Defense Agency for more than 230 successful launches, including 20 space launches, over the past 40 years. For each mission, we maintain a comprehensive set of lessons learned, flight/test data, procedures and tools that cover every aspect of the mission assurance process.

help determine causes of component malfunctions through post-flight analyses and mishap/anomaly investigations.

Making the Tough Calls

Our customers trust us to make correct “go/no go” recommendations based on our rigorous and timely independent engineering analysis, and testing and verification knowledge. When the Engility RSLP team identified a range safety display problem, for example, it called to abort the launch of a USAF three-stage Extended Long Range Air Launch Target just a little more than a minute before an irreversible launch “go” call. Team members worked alongside the customer to resolve the issue within 24 hours, leading to a successful mission on the very next launch attempt, and saving the customer further costly delays and lost flight hardware.

Key to that informed decision was a low-cost RSLP portable telemetry processing system (RTPS) the Engility team designed and developed. The RTPS provides an independent, real-time analysis of launch vehicle health and status. Using the RTPS averted a real possibility that range safety would not have issued an ignition-enable command due to conflicting telemetry status after launch vehicle extraction from the C-17 carrier aircraft during parachute descent. The decision prevented the loss of the \$49 million launch vehicle, among other participant costs.

Ensuring Space Mission Success

When the USAF collaborated with NASA on launching the Lunar Atmosphere and Dust Environment Explorer (LADEE) spacecraft into lunar orbit, Engility’s mission assurance and launch site support of the Minotaur V launch vehicle helped ensure mission success.

The Engility team reviewed the design and qualifications of a new, five-stage avionics system, expeditiously created a new software test bed, and performed independent verification and validation of the new flight software.

The LADEE launch was the first moon mission for the USAF RSLP, first payload to launch on a USAF Minotaur V rocket, and the first deep-space mission to launch from the NASA Goddard Space Flight Center’s Wallops Flight Facility in Virginia.

Recently, Engility’s mission assurance efforts for numerous government stakeholders on the first USAF SpaceX Falcon 9 launch vehicle also assured the successful launch of the NASA/NOAA Deep Space Climate Observatory (DSCOVR) into orbit a million miles from Earth. The Engility team tracked and assessed many configuration changes and component pedigree status to the 220-foot launch vehicle up to launch day, providing the customer with credible risk assessments.

For more information, please contact:

Engility Corporation

4803 Stonecroft Blvd.

Chantilly, VA 20151

engilitycorp.com

Tel: 703.633.8300

Email: info@engilitycorp.com

Engility Capabilities

- Aerofluids and CFD analysis
- Aerothermal modeling
- Structures/aerodynamics analysis
- Electrical engineering
- Guidance, navigation and control analysis
- Flight software independent validation/verification
- Propulsion (solid, liquid, hybrid) and ordnance analysis and testing
- Avionics/electronics/RF analysis and test anomaly resolution
- Transportation, storage and handling planning/execution
- Range safety support and UDS documentation generation
- Launch operations support at locations worldwide
- Systems engineering and integration