

1. **Research Title:** Reliability and Maintenance Optimization for R&D Facilities
2. **Individual Sponsor:**
M. Eric Lyall, Ph.D., P.E.
AFRL/RA Bldg. 71B, G-bay
WPAFB, OH 45433
michael.lyall.3@us.af.mil
3. **Academic Area/Field and Education Level**
Systems Engineering, Operations Research, Engineering Management (MS or PhD level)
4. **Objectives:** Develop updated best practices for maintenance and reliability to be compatible with R&D test facilities. Provide a risk assessment framework accounting for cost, labor, service life of equipment, and projected demand when making maintenance and operating decisions.
5. **Description:** There is significant literature on maintenance and reliability of manufacturing and processing plants that have been written over several decades. These resources tend to be oriented towards facilities with continuous operations, such as refineries or manufacturing plants. R&D organizations such as AFRL and NASA operate facilities with capital-intensive assets that may have much more cyclical demand. Assets may also be unique, requiring specialized skills that take significant training and experience for personnel to become productive. This project will explore modifications to best practices that account for these shifts in operations tempo, ranging from test integration and build-up, active operations, to outage periods. Emphasis will be placed on maximizing labor utilization and equipment reliability while minimizing cost.
6. **Research Classification/Restrictions:** Open to U.S. citizens only. Some aspects of this research may include ITAR restrictions.
7. **Eligible Research Institutions:** DAGSI universities

Distribution Statement A. Approved for public release: distribution is unlimited. Approved AFRL-2026-1588 15-09-2026.