NASA Kennedy Space Center
Laboratory Support Services and Operations Contract (LASSO)

The Award
On August 1, 2017, NASA announced the award of the Laboratory Support Services and Operations (LASSO) contract at the agency’s Kennedy Space Center (KSC) in Florida to URS Federal Services Inc., an AECOM company, of Germantown, Maryland.¹ The total potential value of the contract is approximately $69.4 million. The LASSO contract also includes the option to add ‘flex’ hours to cover additional work. SURA is one of two major named subcontractors in the AECOM proposal.

Project Structure and Scope
LASSO is a new activity for NASA that combines the laboratory elements of ‘operational’ and ‘research’ laboratories previously operated under separate contracts to separate contractors. SURA’s role is with the research laboratories under the prime contract’s ‘Professional and Technical Support Services’ task under a subaward from AECOM that began on March 1, 2018.

SURA’s participation in the LASSO program is through employees working at KSC and the engagement of faculty, students, and postdocs from SURA universities. A ‘master agreement’ has been prepared to facilitate university engagement based on a ‘task order’ format. SURA currently employs four senior subject matter experts specializing in chemistry, physics, electrical engineering, and material science at KSC. We believe these employees will help to identify opportunities for SURA and its members and facilitate university engagements.

The LASSO program scope spans a wide variety of disciplines, many of which may not be traditional NASA technologies, including plant biology, geology, mechanical engineer, surface science, and material science. A summary of LASSO laboratories is attached.

Project Management
Charna Meth joined the LASSO program as SURA’s Program Manager for Space Science and Technology. She also has responsibility for managing SURA’s participation the CRESST II program at NASA’s Goddard Space Flight Center.

A geologist by training with experience in laboratory user facilities and federally-funded research programs (including outreach), she will lead stakeholder engagement and overall program management for these activities.

LABORATORY SUPPORT SERVICES AND OPERATIONS (LASSO) CONTRACT

APPENDIX 3

LASSO LABORATORY LIST
### Materials Analysis Laboratory (MAL)
- **Laboratory Type**: Contractor-Managed
- **Facility**: Neil Armstrong Operations & Checkout Building
- **Work Performed in the Laboratory By**: Government/Contractor

The Materials Analysis Laboratory (MAL) provides materials analysis of metallic and nonmetallic materials as well as electrical components. Analysis includes failure analysis, forensic and accident investigation, mishap board investigations, and expansion and evaluation services. This work encompasses: stereomicroscopic examination, metallography, confocal microscopy, hardness testing (including portable and handheld devices), and scanning electron microscopy (SEM/EDS). The laboratory performs thermal analysis (TMA, DSC, DMA), non-destructive evaluation via radiofrequency radiography (RF) and 3D volumetric imaging, and expands current capabilities. The MAL provides imaging and image analysis of space flight hardware during ground and in space.

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### Advanced Imaging and Analysis Laboratory (AIL)
- **Laboratory Type**: Contractor-Managed
- **Facility**: Component Refurbishment & Chemical Analysis Facility
- **Work Performed in the Laboratory By**: Contractor

The Advanced Imaging and Analysis Laboratory (AIL) develops technology for toxic wastes, in-situ resource utilization processes for the Moon and Mars, recovery of oxygen from spacecraft CO2, capture of CO2 from a simulated Mars atmosphere and processing the CO2 to produce oxygen and hydrogen. It also performs the conversion of spacecraft trash to gases, propellant and oxygen, hypergolic-fuel dosimetry, hydrogen detection, and environmental remediation. Additionally, the laboratory includes two shielded enclosures and RF test apparatus necessary to perform electromagnetic interference (EMI) testing in anechoic chambers. The EML includes a test console that is manned during major tests and is the focal point for coordinating field test and mobile RF surveillance activities. The Electromagnetics Laboratory (EML) provides electromagnetic compatibility testing and troubleshooting, electromagnetic interference resolution, payload telemetry re-radiating service, mobile and Center-wide fixed radio frequency (RF) surveillance, and general support in the field of electromagnetic physics including electromagnetic interference (EMI) testing in anechoic chambers. The EML includes a test console that is manned during major tests and is the focal point for coordinating field test and mobile RF surveillance activities. Additionally, the laboratory includes two shielded enclosures and RF test apparatus necessary to perform compliance testing.

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### Chemistry Sampling and Analysis Laboratory (CSAL)
- **Laboratory Type**: Contractor-Managed
- **Facility**: Component Refurbishment & Chemical Analysis Facility
- **Work Performed in the Laboratory By**: Contractor

The Chemistry Sampling and Analysis Laboratory (CSAL) provides sampling, chemical analysis for gas and chemical commodities, fuels, solvents, and other fluid systems at KSC. Gas sample matrices include high purity gases such as helium, breathing air, oxygen, and krypton. The laboratory handles and maintains a list of potential contaminants.

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### Component Cleaning and Refurbishment Laboratory (CRL)
- **Laboratory Type**: Contractor-Managed
- **Facility**: Component Refurbishment & Chemical Analysis Facility
- **Work Performed in the Laboratory By**: Contractor

The Component Cleaning and Refurbishment Laboratory (CRL) provides cleaning and refurbishment of aerosol canisters and the KSC institution. Aerosol hardware must meet exacting performance specifications. The laboratory supports hardware processing. Component Refurbishment laboratories can maintain capabilities include chemical cleaning and surface treatment (e.g., passivation, pickling, electroplating, etc.), cleaning levels ranging from visual to commercially clean to the extremely stringent 10A. The laboratory can also perform cryogenic cleaning of components to a “like new” condition, clean room operations, and functional testing of components, both hydraulically and pneumatically. The laboratory also performs cryogenic cleaning and refurbishment of equipment, and modification of system components. The Component Cleaning and Refurbishment Laboratory maintains AS9100 Quality Systems certifications. All component refurbishment work performed per approved procedures. Contractor engineering maintains an active file of over 4300 Intermediate and Depot Maintenance Manuals (IDMMs) for various components/hardware. New IDMMs are generated and updated as required. A Chemical Cleaning and Testing Manual of over 5000 pages is also maintained. The laboratory develops environmentally friendly cleaning processes that eliminate ozone depleting solvents. The laboratory maintains an ISO 14001 certified Environmental Management System and is certified by the National Aeronautics and Space Contractors Accreditation Program (NASCAP) and the National Aeronautics and Space Administration (NASA).
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<tr>
<th>Laboratory Type</th>
<th>Facility</th>
<th>Work Performed in the Laboratory By:</th>
<th>Laboratory Description</th>
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<tbody>
<tr>
<td>Mechanical and Environmental Testing Laboratory (METL)</td>
<td>Neil Armstrong Operations &amp; Checkout Building; Beach Corrosion Test Site; Launch Equipment Test Facility</td>
<td>Government/Contractor</td>
<td>The Mechanical and Environmental Testing Laboratory (METL) houses both the physical testing and failure analysis capabilities and the corrosion testing required for corrosion research and evaluations. METL provides physical testing and failure analysis of materials in the following areas: 1) Materials testing, including tensile, compression, and fatigue. 2) Materials compatibility, including flammability and electrostatic discharge. 3) Environmental testing including thermal vacuum and temperature and humidity. 4) Controlled Environment testing used for both ground and payload support activities that require environmental (temperature, humidity, lighting, and CO2) control for conducting testing. The corrosion testing capabilities for research and evaluations include electrochemical and general corrosion; accelerated corrosion; coating application; and atmospheric exposure testing of materials at the atmospheric Beach Corrosion Test Site; and seawater immersion and alternating sea spray facility.</td>
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<tr>
<td>Metrology Laboratory</td>
<td>Neil Armstrong Operations &amp; Checkout Building</td>
<td>Government</td>
<td>The Metrology Laboratory performs precision measurement and dimensional analysis, mold impressions of scratches, cracks, defects, etc. of flight hardware and ground support equipment.</td>
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<tr>
<td>Prototype Development Laboratory (PDL)</td>
<td>Prototype Building</td>
<td>Government</td>
<td>The Prototype Development Laboratory (PDL) performs quick-turnaround prototype development (often for solutions to one-of-a-kind problems), hardware fabrication and modifications, and component testing of ground support equipment (GSE) and flight hardware, and provides support to failure analyses performed by other NASA laboratories. The laboratory responds quickly to failures that occur during projects and launch/payload processing operations, with effective and timely design solutions and modifications. Laboratory personnel are highly skilled engineers and technicians trained in the latest computer-aided design (CAD) tools and machining processes, sheet metal fabrication, welding, additive manufacturing, composite material fabrication, cryogenics, high-pressure pneumatics testing and electrical/electronics development.</td>
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<td>Spaceport Processing Systems Development Laboratory (SPSDL)</td>
<td>Launch Control Center</td>
<td>Government</td>
<td>The Spaceport Processing Systems Development Laboratory (SPSDL) provides a research and development oriented, multifunctional laboratory test bed for designing, developing, prototyping, analyzing, testing, and implementing hardware, software and related technologies for computer control systems.</td>
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<tr>
<td>Vibration Test Laboratory(VTL)</td>
<td>Cryogenics Test Laboratory</td>
<td>Government</td>
<td>The Vibration Test Laboratory (VTL) provides testing such as random, shock, oceanic (half sine, saw tooth, etc.) shock response spectrum (SRS), imported pulse, superimposed - random on random and sine on random, gunfire and sine burst of aerospace hardware. The laboratory provides closed loop vibration test systems typically consisting of electrodynamic shakers, instrumentation, signal conditioning, a controller and amplifier. Video documentation, high speed data and synchronized multiplexed test records provided. Provides acceptance and qualification testing of ground support equipment, flight hardware, small satellites, experiments, cargo, and ISS spares and upgrades. Work is performed in support of multi-program launch vehicles, payloads and GSE. Testing also includes research and development experiments supporting analytical model correlation and engineering evaluation.</td>
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