

TO: 12/Contracting Officer, Science and Flight Projects Contracting Branch,
Office of Procurement

FROM: 603/SAGE III on ISS Project Manager

SUBJECT: Justification for Other Than Full and Open Competition (JOFOC) for
“Stratospheric Aerosol and Gas Experiment on the International Space
Station (SAGE III on ISS) Engineering Support Services”

This document is a justification for other than full and open competition prepared by the NASA Langley Research Center.

1. The nature and/or description of the action being approved:

NASA Langley Research Center (LaRC) proposes to award a sole source contract to the Ball Aerospace and Technologies Corporation (BATC) to provide highly specialized technical assessment, refurbishment, and on-orbit operations support of the Stratospheric Aerosol and Gas Experiment on the International Space Station (SAGE III on ISS) spaceflight instrument which is being prepared for launch and integration on the ISS in 2016. BATC has provided technical assessment and refurbishment engineering support since the initiation of the SAGE III on ISS mission. The expiration of the current support contract will create a void in vital integration, launch readiness, and post-launch engineering services required for the readiness of the SAGE III on ISS science mission. This justification provides the rationale for contracting by other than full and open competition for the acquisition of continuing engineering support for SAGE III on ISS.

2. Description of the supplies or services required, including an estimated value:

The proposed Indefinite Delivery, Indefinite Quantity (IDIQ) contract with Ball Aerospace and Technologies Corporation will provide highly specialized pre-launch services, including SAGE III instrument integration support, payload environmental testing support, and support for refurbishment of an engineering unit/potential flight spare. The contract will also provide specialized post-launch engineering including technical analyses, expert consultation, and support for on-orbit operations of the instrument once delivered to the ISS.

The Government estimate for the IDIQ maximum value is \$8,000,000 over a five-year period of performance.

3. Statutory authority permitting other than full and open competition:

Authority for the Justification for Other Than Full and Open Competition is permitted by 10 U.S.C. 2304(c)(1) as implemented by Federal Acquisition Regulation (FAR) FAR 6.302-1, “Only One Responsible Source and No Other Supplies or Services will Satisfy Agency Requirements.” Pursuant to FAR 6.302-

1(a)(2)(iii), the sustaining engineering services to be provided from BATC are deemed to be available only from the original source because this is a follow-on contract for the continued provision of highly specialized services. Award of this contract to any other source would result in substantial duplication of cost to the Government that could not be recovered through competition as well as unacceptable delays in fulfilling the agency's requirements.

4. A demonstration that the proposed contractor's unique qualifications or the nature of the acquisition requires use of the authority cited:

BATC designed, developed, fabricated, qualified and calibrated all of the SAGE series of instruments. NASA awarded a contract to BATC to build the SAGE I experiment instrument which was launched February 18, 1979, aboard the Applications Explorer Mission-B (AEM-B) satellite. The SAGE I instrument had four spectral channels and made nearly global measurement of aerosol extinction profiles and ozone and nitrogen dioxide concentration profiles.

Following the success of SAGE I, NASA awarded BATC a contract to build the SAGE II sensor which was launched aboard the Earth Radiation Budget Satellite (ERBS) in October 1984 and operated nearly flawlessly for twenty-one years until the ERBS satellite was decommissioned in 2005. SAGE II provided the scientific community with a global depiction of the changes in the distribution of aerosol, ozone, water vapor and nitrogen dioxide. Using these measurements, SAGE II contributed unique and crucial input to the understanding of global, seasonal and inter-annual variability in climate and, in particular, trends in stratospheric ozone.

NASA awarded another contract to BATC to build three (3) SAGE III instruments. SAGE III built on the heritage of the very successful SAGE II experiment with the incorporation of an advanced charge coupled device (CCD)-detector spectrometer. The new enhancements allowed the addition of lunar occultation and limb scattering measurements to complement the solar occultation measurements. The first SAGE III instrument was launched on December 10, 2001 on-board a Russian Meteor 3M spacecraft and operated until April 2006 when the spacecraft power system failed. The second SAGE III instrument, designed as a flight spare, was used for the Meteor 3M mission when a problem with the azimuth drive unit on the primary flight unit was found. The third SAGE III flight instrument was originally manifested to operate as an attached payload on the International Space Station. This unit was in storage at NASA LaRC when the ISS flight was cancelled due to the Columbia space shuttle accident and realignment of the ISS program.

In 2009, NASA Headquarters approved the formation of the SAGE III on ISS Project to prepare the stored SAGE III instrument for delivery to the ISS. This effort has included the refurbishment of the instrument and development of other components critical to the complete payload. Under Contract NNL09AA07B, BATC plays a significant role in SAGE on ISS through the provision of technical expertise on the design and capabilities of the instrument hardware and software. BATC updated the flight software to meet new ISS requirements and loaded and performed flight qualification testing of the new

software. BATC also integrated, environmentally tested, delivered, and installed a new solar attenuator into the flight instrument.

BATC's unique capabilities are required to complete the test campaign for the SAGE III on ISS instrument, to support integration of the instrument with the rest of the payload, completion of all technical analyses required for requirement verification and flight certification for the ISS, to perform additional refurbishment if required, and to support on-orbit operations and on-orbit anomaly resolution.

Through BATC's work on all of the SAGE missions, BATC has developed unique and world-class expertise in space-based solar/lunar occultation instruments. As the original SAGE III instrument prime contractor, BATC possesses intimate and unique familiarity with the SAGE III instrument including the design, assembly, subsystem interaction, overall function, and calibration. BATC also provides unique engineering, manufacturing, and proprietary engineering and instrument development processes, necessary to perform the proposed work. BATC's legacy knowledge and unique insight of the SAGE III design and operating characteristics, gained through its long history of producing SAGE instruments, cannot be provided by another source without incurring significant cost and schedule impacts and significant technical risk to the instrument and risk of loss of critical science data. Therefore, BATC is uniquely qualified to provide comprehensive engineering support required to meet the SAGE III instrument payload requirements.

5. Description of the efforts made to ensure that offers are solicited from as many potential sources as practicable:

Following approval of this JOFOC, a synopsis of our requirements will be published on the NASA Acquisition Internet Service (NAIS) and also publicized as required by FAR 5.201(b) on the Federal Business Opportunities (FedBizOpps) announcing NASA LaRC's intention to negotiate with BATC on a sole source basis.

6. Description of the market survey conducted, and the results, or a statement of the reasons a market survey was not conducted:

Market research to locate another qualified vendor would not be productive because of BATC's unique history of producing the SAGE III instrument and providing highly specialized refurbishment support for the SAGE III on ISS instrument as well as development and post-launch engineering services supporting the SAGE III Meteor instrument. This SAGE III technical support, refurbishment and post-launch engineering services contract will rely extensively upon the knowledge and expertise BATC has gained over many years and could not reasonably be performed by another source.

7. Other facts supporting the use of other than full and open competition:

None

8. Sources, if any, that expressed an interest in writing in the acquisition:

If a source expresses an interest in response to the synopsis (see item 6), NASA will review the capabilities of each source and will document its findings.

9. The actions the agency may take to remove or overcome any barriers to competition before any subsequent acquisition for the supplies or services required:

This contract will provide pre and post-launch engineering services for the SAGE III on ISS mission. At this time, a subsequent acquisition is not anticipated based on the current scheduled launch date and expected mission life. If the instrument remains operational past its mission life and the period of performance on this contract, continued services may be required by BATC based on its legacy knowledge and unique insight of the SAGE III design and operating characteristics, gained through its long history of producing SAGE instruments. These services cannot be provided by another source without incurring significant cost and schedule impacts and significant technical risk to the instrument and risk of loss of critical science data.

Technical Officer Certification:

I certify that the supporting data presented in this justification are accurate and complete.

Stephen R. Hall
SAGE III on ISS Deputy Project Manager

Date

Contracting Officer Certification:

I will ensure that the cost to the Government is determined fair and reasonable prior to award and certify that this justification is accurate and complete to the best of my knowledge and belief.

Timothy P. Cannella
Contracting Officer

Date

Concurrence:

Rosemary C. Froehlich
Head, Science and Flight Projects Contracting Branch

Date

Office of Chief Counsel

Date

David H. Jones
Acting Procurement Officer

Date

Approval:

David E. Bowles
Competition Advocate

Date