

SOURCE SELECTION MEMORANDUM

FOR THE SPACE-BASED GRAVITATIONAL-WAVE OBSERVATORY (SGO) TELESCOPE CONCEPT STUDY UNDER RFP NNG12441405R

The memorandum provides for the selection of the offeror to provide the SGO Telescope Study.

PROCUREMENT DESCRIPTION

This procurement is intended to study the feasibility of a telescope concept for the preliminary science requirements and assess the critical thermal, optical, mechanical and dynamic environments that drive the SGO telescope design. The study will also assess the critical cost, schedule, and technical performance and risk drivers and develop cost and schedule estimates for the design, build and test of a prototype telescope, as well as cost and schedule estimates for the production of ten (10) interchangeable flight telescopes. The proposed SGO study will have a period of performance of six (6) months after contract award.

On September 26, 2012 the voting members and advisors of the SGO Telescope Study procurement evaluation team conferred with the Source Selection Official for this procurement to selections from the proposals submitted in response to the Request for Proposal (RFP) NNG12441405R for the SGO Telescope Study procurement. The following companies submitted proposals:

L3

Ball Aerospace

Lightworks, Inc.

Each proposal was evaluated in accordance with FAR 15.305, NFS 1815.305, and the evaluation factors contained in the RFP. The Evaluation Panel findings were presented in a report format.

EVALUATION PROCEDURES

This procurement was conducted in accordance with Federal Acquisition Regulation (FAR) Subpart 15.3, "Source Selection" and NASA FAR Supplement (NFS) 1815.3.

The Request for Proposal established three evaluation factors: Mission Suitability, Past Performance and Price.

The relative order of importance of the evaluation factors was stated in the solicitation as follows:

"The Price Factor is significantly less important than the combined importance of the Mission Suitability Factor and the Past Performance Factor. As individual Factors, the Past Performance Factor is less important than the Mission Suitability Factor but more important than the Price Factor."

The Mission Suitability Subfactors was comprised of the following weighted subfactors.

	<u>Points</u>
Subfactor A: Technical Approach	700
Subfactor B: Management Approach	<u>300</u>
Total Points	1,000

Each Mission Suitability Subfactor and the overall mission suitability factor were evaluated using the adjectival rating definitions and percentile ranges at NFS 15.305(a)(3)(A). The proposed past performance and price information was provided to the Source Selection Authority. In addition, the Evaluation Panel members evaluated, but did not point score, the Price and Past Performance Factors.

MISSION SUITABILITY FACTOR EVALUATION

The Evaluation Panel reported findings in support of their final evaluation scores for the Mission Suitability Subfactors.

L3

For Mission Suitability, the L3 proposal received an overall rating of "Excellent."

Under the Technical Approach Subfactor, L3's proposal received a rating "Excellent" based on three (3) significant strengths, and one (1) strength. L3's significant strengths are that they have experience with both SiC and single crystal silicon, the two leading candidate materials and cite examples. L3 also provides a convincing demonstration that they understand the optical requirements by identifying a telescope design currently in production as a "likely point of departure for the RFP design". In addition, the vendor has provided a preliminary system error budget, which indicates that they have thought about the system in a quantitative manner and are comfortable making and using budgets, which is essential to making this design work. Lastly, L3 manufactures the material and are responsible for all aspects of the manufacturing process.

The vendor also demonstrated strength in Innovation by designing 65 space systems with 40 of them having actually flown or flying with no on-orbit failures. Seven of these systems were identified as relevant to the FRP design.

Under the Management Approach Subfactor, L3's proposal received an overall rating of "Excellent."

L3's displayed significant strength for the Personnel and Risk Management Subfactor. The vendor's personnel management plan includes an Integrated Product Team (IPT) approach which will involve collaboration with NASA at more than just the project management level.

Ball Aerospace

For Mission Suitability, Ball Aerospace's proposal received an overall rating of "Excellent".

Under the Technical Approach Subfactor, Ball's proposal received a rating of "Excellent" based on one (1) significant strength, and three (3) strengths. Ball's significant strength was the company's stray light analysis of an earlier version of the baseline telescope that establishes important familiarity and experience with the design, and increases confidence that performance can be achieved to meet the stated requirements.

Ball also displayed strengths by demonstrating their knowledge of the optical pathlength stability requirement and how to measure it. The vendor cites the experience of the JWST mirror as evidence of their manufacturing capability and experience. They constructed and tested 18 mirror segments that have to all be nominally identical and fit into the JWST instrument. Lastly, Ball mentions an integrated modeling approach and an existing laser metrology system developed under internal funds as evidence of the ability to innovate.

Under the Management Approach Subfactor, Ball's proposal received a rating of "Excellent" based on one (1) significant strength. The vendor stated the project would be managed (in part) by the office of Chief Engineer, and therefore, would have access to some of the more forward thinking and experienced technical staff at Ball. In addition the project would have additional visibility to Senior Ball management who would communicate the status and progress to GSFC leadership.

Lightworks, Inc.

For Mission Suitability, Lightworks' proposal received an overall rating of "Poor".

Under the Technical Approach Subfactor, Lightworks' proposal received a rating of "Poor" based on one (1) strength and four (4) significant weaknesses. Lightworks' strength was their level of innovation.

The vendor did not fully demonstrate their knowledge of the requirement and therefore received four (4) significant weaknesses. Lightworks had difficulty understanding and describing their recommendations for the optical pathlength stability specification; and there was no plan for how to test the design against this requirement (and no test facility identified). Lightworks confuses the idea of "best design practice" with an "optimal solution" and no justification is provided nor did they detail a strategy or approach to meet the requirements. Lightworks' proposal does not demonstrate how they would

address the challenging stray light requirement, beyond stating that they would work with GSFC engineers to solve the problem and the “[test redacted]”\$20k budget allocated for this effort is significantly underestimated and would likely result in a failure to meet the requirement in the opinion of the reviewers. Lastly, the vendor’s proposal does not demonstrate an expertise with Silicon Carbide or Single Crystal Silicon.

Under the Management Approach Subfactor, Lightworks’ proposal received a rating of “Good” based on one (1) strength. Under personnel management, Lightworks employees tend to have five (5) years of experience working at LightWorks Optics, but 30 years of experience in the industry.

PAST PERFORMANCE

This factor included evaluation of technical, schedule and cost performance. This factor is not point scored. The evaluation of past performance was based on, but not limited to the responses received to the questionnaires provided to each Offeror's references and the review of these responses by the Evaluation Panel members.

L3 received an overall rating of “Very High”. This rating is based on the two Past Performance Questionnaires received, and both rated overall contract performance “very high”.

Ball received an overall rating of “High”. This rating is based on eight (8) Past Performance Questionnaires received, which included four (4) very high and four (4) high ratings.

Lightworks received an overall rating of “Moderate”. This rating is based on two (2) Past Performance Questionnaires received, which included one (1) very high and one (1) high rating and no example offered that was a good match for either of the two most challenging optical specifications: the optical pathlength stability or the stray light requirement.

PRICE FACTOR EVALUATION

The evaluation panel members evaluated the proposed prices for this effort. Overall, L3 had the lowest proposed price, Lightworks had the second lowest proposed price, and Ball Aerospace had the highest proposed price. L-3 proposed cost was consistent with the budget range.

DECISION

On September 27, 2012, I reviewed the evaluation team’s final report and I agree with the findings made by the team. L3’s proposal is technically superior to the proposals submitted by the two other offerors. L3 is technically superior to Ball Aerospace by a slight margin. Ball’s proposal is technically superior to Lightworks proposal. The

selection was based on a comparative assessment of each proposal against each of the source selection factors.

Ball had the highest proposed price. L3 had the lowest price, followed by Lightworks who had the second lowest price.

I reviewed the past performance findings and in my judgment, none of the findings represent discriminators among the offerors.

With L3's significantly lower price and technical advantage, the evaluation team report indicates that L3 has the understanding and capability to perform the SGO Telescope Study requirement. After reviewing all of the findings, I find that L3 represents the best value to the Government, by offering the highest Mission Suitability score; and therefore, I select L3 to be awarded the contract.

Lakeshia Robinson
Contracting Officer/Source Selection Official

Date