

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099



June 1, 2012

Reply to Attn of: 820

Ms. Alisha Giron
Assistant Director
New Mexico State University-Anderson Hall
Office of Grants and Contracts
Las Cruces, NM 88003-8002

Subject: Results of Performance Evaluation for Contract NAS5-03003, Operations and Maintenance of the Columbia Scientific Balloon Facility (CSBF) and Engineering Support for NASA's Balloon Program – Awarded to New Mexico State University/Physical Science Laboratory (NMSU/PSL), Rating Period 18 – October 1, 2011, through March 31, 2012

The performance evaluation for the above referenced contract, Performance Period 18, was conducted in accordance with the criteria set forth in the Performance Evaluation Plan. I am very pleased to inform you that PSL's rating for this evaluation period was in the "excellent" range, which is described as "Of exceptional merit; exemplary performance in a timely, efficient and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance." PSL has earned an overall rating of 94.87%. A maximum award fee of \$965,826 was possible and your organization has earned \$916,298.

Performance Factor 1

Technical Performance of Operations/30% Factor Weight - Rating - 94.2%

PSL/CSBF's activity relating to performance of operations was given an excellent rating in support of flight missions. Four missions were conducted from Fort Sumner, New Mexico, and McMurdo, Antarctica. All operationally qualified balloons launched during this period of performance were classified as operational and mission successes.

PSL/CSBF is commended for its continued proactive implementation of new procedures and integration of personnel and roles that were implemented in the return to flight corrective actions subsequent to Abort 23. Working with NASA, PSL/CSBF has continued, to the utmost extent possible, with the implementation and execution of standards of excellence required by these new launch and operations procedures. Newly implemented security protocols at each launch site continue to be conducted in a most effective manner. No compromise to safety or security protocols was ever observed, and

each campaign was accomplished in the most professional and successful manner possible.

PSL/CSBF is commended for fully undertaking the responsibilities with providing of Operations Safety Supervisor (OSS) from within the ranks of PSL/CSBF Operations Staff, as first carried out during the preceding Antarctica campaign, in accordance with the Abort 23 Corrective Action Plan. Both the NASA Range Safety Office (RSO) and NASA Mission Manager (MM) were onsite during this campaign and have commented that PSL/CSBF carried out the OSS responsibilities in an excellent manner. PSL/CSBF OSS were well trained, fully understood the roles of their tasks, and took self initiative to be in the proper places to observe hazardous operations at the right time, so as to insure continuity of launch operations.

PSL/CSBF demonstrated excellence in execution of safety protocols for calling two aborts prior to payload release, thus, mitigating risks to personnel and damage to the payloads. Both aborts were weather related and handled in accordance with established plans and procedures. Again, the NASA RSO and MM commented upon the excellent manner, which CSBF handled these events in a timely and professional manner. The first abort occurred during the last fall Fort Sumner campaign for launch of the SF 490 test balloon flight. The second abort occurred during the Antarctica campaign for the Sub-millimeter Terahertz Observatory (STO). In both cases, surface and low-level winds that were not forecasted changed direction and speed to the extent that the launch operations could not be safely continued, and PSL/CSBF quickly executed aborts in accordance with established procedures. Immediately following, PSL/CSBF successfully turned around preparations for a second launch opportunity for both the Solar Disk Sextant (SDS) instrument that was configured as a piggyback mission of opportunity on the SF 490 test flight and for the STO payload, all within one day each. Subsequently, both instruments were successfully flown, meeting or exceeding operation flight requirements.

PSL/CSBF employees continue to demonstrate a positive and supportive attitude towards NASA's goals and requirements. PSL/CSBF continues to provide transparent and seamless support with integration of the NASA Mission Manager and NASA Safety personnel with launch and flight operations. NASA anticipates we will continue the current trend of lower numbers of flights having longer durations, which places additional premium on reliability and mission assurance.

Performance Factor 2

Technical Performance of Engineering Support/21% Factor Weight – Rating – 92%

PSL/CSBF overall has done an excellent job supporting NASA's technology development and engineering support requirements. PSL/CSBF Engineering assisted in every area of Super Pressure Balloon (SPB) design, reviews, and monitoring. With the stoppage of construction of the 18.8 million cubic foot (MCF) SPB last fall, PSL/CSBF was instrumental with providing analysis and corrective actions to address the problem, then encountered with seal integrity. PSL/CSBF examined samples from previously constructed SPB to determine if similar seal integrity issues were present at the time of

those fabrications, but had been missed or overlooked. This work led to immeasurable understanding as to the candidate causes of this anomaly. PSL wrote the peel test specification for use in the Balloon Research Development Lab at Wallops. PSL's analysis of ozone levels coincidental during seal runs following long exposure provided much needed corroboration with marginal seal test results that were experienced during last fall's fabrication. PSL/CSBF defined and tested a "fix" to implement at the balloon manufacturer, so as to mitigate further risk of marginal seal integrity. These actions were instrumental for NASA being able to produce the next 18.8 MCF SPB that is now being shipped to Sweden for the next test flight. PSL/CSBF also designed, built, and tested a SPB base fitting cradle system for use on launch operations, that is much enhanced compared to the previous configuration.

PSL supported NASA Wallops with Sub-Orbital Center of Excellence interns who have not only achieved tremendous educational experience, but have also made significant contributions in their own right. PSL is commended for this work and the level of preparation and knowledge that interns have brought to the program. Each intern presents an out-briefing to NASA and PSL Wallops personnel at the end of their tenure, and they have done an excellent job preparing their presentations, in style and format, as well as demonstration of a thorough knowledge of their work experiences.

PSL/CSBF continues to perform impressive work with development and flight certification of new systems including the Tracking Data Relay Satellite System (TDRSS) High Gain Antenna (HGA), Open-Port IRIDIUM flight system to achieve higher bandwidth return telemetry data, balloon instrumentation in support of SPB, Support Instrument Package (SIP) system updates, and balloon flight power systems, to name a few. Peripheral enhancements such as the Transportable Mechanical Shop and Equipment facility will greatly enhance support at remote launch sites.

PSL/CSBF work on the Jet Propulsion Laboratory (JPL) Low Density Supersonic Decelerator (LDSD) Alternate Static Launch System (ASLS) has provided promise of a safer approach to launch operations, which may also provide enhanced flexibility for staffing and more launch opportunities. The ASLS will address both the immediate JPL LDSD needs, as well as future NASA Science Mission Directorate (SMD) requirements.

PSL/CSBF maintained 100% surveillance at the balloon manufacturing facility this past rating period. PSL/CSBF exhibited excellence in utilization of personnel by conducting surveillance at the film extrusion facility, as well. The abort of the SF 490 test flight last fall was done in accordance with established procedures. NASA will put an additional SF 490 build into the test qualification queue, which are minimally three successful consecutive flights in order to be considered as qualified. PSL/CSBF identified a less-than-desired performance on hand-launched pathfinder class balloons, which did not have negative impact on NASA balloon operations. While PSL/CSBF informed BPO management of this situation, PSL is encouraged to also work these issues at the CSBF Quality Manager-NASA Quality Manager levels. Working with the balloon manufacturer, PSL/CSBF insistence to more fully investigate possible causes thus led to the discovery of improper amounts of Poly-Powder being applied during the

manufacturing process. No similar shortcomings with the larger zero pressure balloons or SPB were noted. However, if not already having done so, I encourage PSL/CSBF to consider in-plant quality assurance monitoring that might help to mitigate such shortcomings in the future.

Performance Factor 3

Management/24% Factor Weight – Rating – 95.8%

Once again, the excellence in performance of management by PSL/CSBF during this last performance period was instrumental in achieving the highly successful fall Fort Sumner and Antarctic campaigns, preparations for the upcoming Sweden campaign in support of the 18.8 MCF SPB test flight, planning and preparations for the upcoming 2012-2013 Antarctic campaign, and responsiveness to challenging requests by JPL in support of the LDSD project.

PSL/CSBF demonstrated excellence in planning and problem solving that may no better be illustrated than by the quick turnaround in supporting the past Antarctica STO mission. PSL/CSBF responded quickly to insure liquid helium procurement and shipment to Antarctica during the Christmas holidays were accomplished, so as to avoid delays to STO flight-readiness preparations. This situation occurred as a result of National Science Foundations (NSF) prime contractor having failed to properly follow established lines of communication with the CSBF on identifying usage forecasts. NSF then failed to provide any remediation for this error, thus putting the STO payload readiness further at risk. PSL/CSBF then quickly worked to locate adequate liquid helium supplies and arrange for shipment to Antarctica, in time to meet STO's needs. In addition, the STO instrument team failed to inform NASA and CSBF as to their instrument pointing plans, which were made known only after launch and thus incurred TDRSS telemetry drop-outs, due to obscuration of the balloon TDRSS antenna by elements of the instrument. PSL/CSBF was proactive in quickly devising a strategy of coordinating with the instrument team to get their instrument-pointing schedule, which was then used to schedule TDRSS events. CSBF scheduled onto co-visible satellites that were not blocked or scheduled for high data-rate playbacks once visibility was reestablished, so as to insure recovery of the STO data being stored onboard.

PSL/CSBF management maintained a proactive approach with integration of new procedures and personnel that was started during the previous performance period as part of the return to flight corrective actions subsequent to Abort 23 in April 2010. Of particular note was the integration of OSS functions within the cadre of CSBF Operations personnel. CSBF management was instrumental insuring this transition was done in the most effective and timely manner possible.

PSL/CSBF management is particularly congratulated for the tremendous work in support of the JPL/LDSD project. This has been an extremely aggressive and technically challenging project that has brought to bear PSL/CSBF's best in stepping up to the design, planning, coordination, budgeting, and problem solving challenges, which PSL/CSBF has more than aptly met these past few months.

PSL/CSBF further stepped forth to assess, devise solutions, and develop plans for support of three large science payloads being planned for the upcoming 2012-2013 Antarctic summer season. Limited by two payload preparation buildings that were originally designed based on a single payload concept; PSL/CSBF recognized the opportunity to accomplish support for launch of three payloads in order to alleviate the backlog of science payloads requiring flight support in Antarctica.

Overall, PSL/CSBF provided excellent support with planning and reporting. PSL/CSBF continues to provide both formal and informal weekly tagups to NASA that have been instrumental with identifying issues and concerns before they become problems. Milestones were accomplished on or ahead of time. Subcontracting goals continue to be worked but require attention for the remainder of the contract. PSL/CSBF is highly commended for its mentoring/student outreach activities both at Las Cruces and at CSBF in Palestine, Texas. PSL/CSBF's planning and meeting milestones have been performed with an excellent degree of professionalism and accuracy.

Performance Factor 4

Cost Control/25% Factor Weight -- Rating -- 97.2%

PSL/CSBF has again performed in an excellent manner with maintaining costs and leveraging the economy of operations through effective utilization of resources. PSL/CSBF formal and informal tagups between NASA's Program and Business Management team, and the CSBF Site Management and Financial and Accounting Management team, have been instrumental for maintaining timely and accurate financial status. Timely and accurate submittals of 533s allow NASA to effectively manage resources and project requirements.

PSL/CSBF is commended for retention of a highly skilled workforce that is needed to support NASA's Balloon Program. PSL/CSBF has insured maintenance of an ongoing cross training program and personnel assignment in order to achieve the most effective utilization of resources. PSL/CSBF's prudent approach to assessment of new requirements that have an impact upon personnel resources allows for a better understanding of impacts upon the program imposed by new requirements or new operation procedures. PSL/CSBF Administrative Support staff continues to be of the highest caliber in knowledge and professionalism with timely delivery and accuracy of reports and requests for authorizations, along with the usual excellence in support of CSBF operations and engineering elements.



William A. Wrobel
Fee Determination Officer

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099



December 18, 2012

Reply to Attn of: 820

Ms. Alisha Giron
Assistant Director
New Mexico State University-Anderson Hall
Office of Grants and Contracts
Las Cruces, NM 88003-8002

Subject: Results of Performance Evaluation for Contract NAS5-03003, Operations and Maintenance of the Columbia Scientific Balloon Facility (CSBF) and Engineering Support for NASA's Balloon Program – Awarded to New Mexico State University/Physical Science Laboratory (NMSU/PSL), Rating Period 19 – April 1, 2012 through September 30, 2012.

The performance evaluation for the above referenced contract, Performance Period 19, was conducted in accordance with the criteria set forth in the Performance Evaluation Plan, Revision. I am very pleased to inform you that PSL's rating for this evaluation period was in the "excellent" range, which is described as "Of exceptional merit; exemplary performance in a timely, efficient and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance." PSL has earned an overall rating of 94.875%. A maximum award fee of \$934,385 was possible and your organization has earned \$886,498.

Performance Factor 1

Technical Performance of Operations/30% Factor Weight - Rating – 96%

PSL/CSBF's activity relating to performance of operations was given an excellent rating in support of flight missions. Five missions were conducted from Esrange, Sweden and Fort Sumner. All operationally qualified balloons launched during this period of performance were classified as operational and mission successes.

CSBF's mission support throughout this period was an unqualified success and exceeded all program requirements. Of considerable note is CSBF's handling of the Super Pressure Balloon (SPB) mission in Esrange, Sweden. CSBF participated in leading the effort to adapt quickly to an extended campaign duration, while maintaining support of other NASA requirements that were incurred as a result of diminished weather related launch opportunities. CSBF's quick and decisive input and direction, allowed the NASA Balloon

Program Office to accomplish a most successful SPB test flight that required a drastic change in scope of the mission to that originally planned.

In Fort Sumner, CSBF provided outstanding support with launch and operation of four missions, which exceeded science requirements. CSBF's excellent planning resulted in the Wallops Arc Second Pointer (WASP) test flight being able to exceed nighttime flight duration requirements, which was critical for achieving performance verification goals. CSBF's campaign preparations consistently resulted in mission readiness deadlines being achieved on or ahead of schedule.

CSBF continues to successfully implement revised launch operation processes and procedures required by NASA. These additional processes have been well woven into the operational fabric thus resulting in efficient streamlining. The manner in which CSBF has embraced NASA safety and oversight requirements is highly commended.

CSBF is also commended for insuring flight support systems which were well tested, flight qualified, and working throughout the duration of each balloon flight mission. The implementation of the Balloon Instrumentation Gadget (BIG) for the SPB Sweden test flight performed admirably. The BIG Super Pressure Balloon flight support system was developed at CSBF where it underwent extensive testing and was ready in time for the Sweden test flight.

CSBF experienced no incursions or incidents with regard to safety and health of its personnel or facilities; thus demonstrating a near perfect safety record for this rating period. CSBF is applauded for actively promoting the health and wellness of its personnel through extra-curricular activities and onsite wellness facilities. CSBF continues to successfully implement NASA's requirement for the roles of Operations Safety Supervisor (OSS) and with the training and licensing of personnel involved with hazardous operations.

CSBF's attention to managing and tracking their documentation has been outstanding. PSL/CSBF's initiative to achieve AS9100 certification is highly commended. CSBF was proactive in soliciting this and have embraced the benefits that AS9100 certification provides. Overall, each of the CSBF personnel understands the criticality of their operations. They have demonstrated keen awareness as to their roles and their individual contributions towards sustaining the vitality necessary for the success of NASA's Balloon Program.

Performance Factor 2

Technical Performance of Engineering Support/21% Factor Weight – Rating – 95%

PSL/CSBF has once again stepped forth to insure NASA's Balloon Program technology requirements have been fully met. PSL/CSBF's participation in the SPB project continued during this performance period with exceptional technical and management contributions, which in no small part allowed for a highly successful SPB Sweden test flight. With PSL's participation, the SPB development effort was significantly advanced

with the test flight of the 18.8 Million Cubic Foot (MCF) SPB. PSL staff provided integral support that was needed by NASA throughout the entire production of the 18.8 MCF balloon. This required numerous weeks in the balloon plant with monitoring of balloon fabrication activities, verifying that correct balloon gore widths were maintained, and with verification of proper finishing and packing of the SPB.

In addition, PSL/CSBF prepared for and participated in the Mission Readiness Review for the SPB Sweden test flight. PSL/CSBF coordinated investigation efforts with an outside consultant, Dr. Mount, who was brought in to investigate a peeled seal anomaly discovered during the previous balloon fabrication. PSL/CSBF prepared a majority of the required flight documentation and led the integration of the SPB for the SPB Sweden test flight. PSL/CSBF did an outstanding job by providing thirteen different video systems, which allowed for more extensive video documentation than was previously realized. Following the test flight, PSL/CSBF performed a compilation of "Lessons Learned" from the first production and flight of NASA's 18.8 MCF SPB. This "Lessons Learned" is critical to NASA's continued success in development of new balloon technologies.

PSL is highly commended for its Sub-Orbital Center of Excellence (SCE) that has provided college students the opportunity to serve as interns at NASA Wallops. SCE Interns have opportunity to gain real-world engineering experiences and to provide valuable contributions to NASA's technology initiatives. SCE Interns have conducted research on the peeled seal anomaly, testing and analysis on balloon tendon strength retention, and other work that is accomplished at NASA's Balloon Research and Development Laboratory.

CSBF made outstanding progress towards ongoing system enhancements, integrating new systems into existing hardware, and implementation of new projects this past performance period. A major focus has been the development of a static launch system in support of NASA's Low Density Supersonic Decelerator (LDSD) project, which recently garnered commendations from reviewers for the progress PSL/CSBF has made over the course of this performance period. PSL/CSBF is commended for their excellent work with development of the High Current Science Power System, the Support Instrument Package Computer Replacement project, the Iridium Open Port development project, the Tracking Data Relay Satellite High Gain Antenna replacement project, Backup Command Decoder/Power Deck upgrade, Aquila Data Access/Archive project, Global Positioning System enhancements to the Consolidated Instrument Package, and numerous other flight subsystem upgrades.

PSL is commended for its excellence in Thermal Analysis for balloon payloads and environments. PSL has rightfully earned worldwide recognition for thermal analysis expertise for high altitude balloon systems. PSL's ability to provide thermal analysis support, not only for CSBF provided systems but also for intricate science instrument payloads, has earned PSL the reputation for being the "go to" provider for timely and accurate thermal analysis.

PSL/CSBF once again performed in exemplary manner with Quality Assurance (QA) and balloon manufacturing oversight. Approximately 99% QA surveillance was sustained at the balloon manufacturing facility during this performance period. PSL/CSBF demonstrated excellent utilization of resources and staffing by providing QA surveillance at the film extrusion facilities while supporting QA for balloon productions. During this period, there were four zero pressure balloon flights, two of which were made using the new SF-490 balloon film that is undergoing performance verifications. All four flights were successful. There were two extrusion runs of balloon film at the Charter film plant during this period. All material met the balloon film specifications. There was one film anomaly discovered in the SPB film, which required increased QA inspection prior to use in the balloon build. This additional step slowed down the production process only slightly. CSBF is commended for the hiring of a QA Technician in preparation for the retirement of an experienced QA Auditor.

Performance Factor 3

Management/24% Factor Weight – Rating – 93.75%

PSL/CSBF provided excellent performance in management, planning, and reporting during period 19. The NASA Low Density Supersonic Decelerators (LDSD) project continued to place heavy demands upon CSBF in support of weekly meetings and reviews. CSBF was noted as having one of the most thorough and well-prepared presentations during NASA's recent formulation review for work that was based heavily on work completed during this performance period. CSBF was consistent with delivery of plans and reports in support of LDSD, including requested design documentation for the alternate static launch system that is currently under development.

Management of the Sweden 2012 SPB test flight campaign conducted from Esrange was flawless. Incurred weather delays caused by unusual weather patterns off the coast of western Europe were closely monitored during the Sweden campaign, and regular reporting of the cause and effects incurred by launch delays allowed NASA to make timely decisions regarding overall program risks and impacts. The result of which was a highly successful test flight of the 18.8 MCF SPB that occurred much later than was originally planned due to weather delays, while at the same time still meeting all other NASA requirements.

Concurrent to the Sweden campaign was that of support for the upcoming Antarctica campaign. Both which were completed most successfully by CSBF Management's excellent planning, execution, oversight, as well as daily reporting and conferring with NASA Program Management. One of the Antarctica Science teams encountered instrument subsystem performance degradation issues during pre-integration testing. CSBF ably supported this Science team by providing timely support that was critical for achieving Science's remediation through corrective actions. By accommodating follow on testing, fabrication of specialized shipping containers, and arranging for expedited shipping of the instrument to Antarctica, CSBF did an excellent job helping this Science team meet its critical schedule milestones. Throughout this performance period, CSBF

has consistently met schedules and in many cases, has provided effective contingencies for unexpected delays that were beyond CSBF's control.

PSL/CSBF is commended for its efforts towards meeting subcontracting goals. From the inception of the contract, PSL/CSBF has greatly exceeded its subcontract goals for Small Business (25.5% goal, 77.1% actual). Small Disadvantaged Business awards are running only slightly under the targeted figure. Women-Owned Small Business (WOSB) goals continue to lag. But this is due to the fact that when the contract proposal was submitted, PSL/CSBF had a major woman owned business as a significant vendor, which was subsequently bought out by a non-WOSB concern. A major accomplishment during this evaluation period was the award of a costly multi-loader procurement to a Veteran-Owned Small Business. PSL has now quadrupled its' contract goal in this area.

CSBF continues to provide excellent support through an appropriate mix of highly skilled engineers and technologists. The many challenges imposed during this performance period with unexpected launch weather delays for the Sweden SPB test flight, and with concurrently maintaining the cadre of personnel needed to support the Antarctica pre-deployment integration, PSL is commended for its most effective management of the CSBF workforce. PSL/CSBF demonstrated most effectively their utilization of personnel and maintenance of a rigorous training program in order to meet NASA requirements for mission support. CSBF began training a new Operations Manager and a new mission Payload Engineer, and continued in the training of new Launch Crew Chiefs that was started prior to this performance period. PSL/CSBF's dedication and professionalism is a hallmark of their reputation as the recognized World Leader for launch of heavy-lift high altitude scientific balloons.

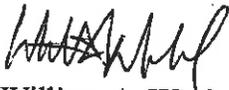
Performance Factor 4

Cost Control/25% Factor Weight – Rating – 94.5%

Overall, PSL/CSBF provided excellent support by maintaining costs and leveraging economy of operations through effective utilization of resources. PSL/CSBF formal and informal reporting to NASA's Program and Business Management has been instrumental for maintaining timely and accurate financial status. Timely submittals of 533s allow NASA to effectively manage resources and project requirements. PSL/CSBF Administrative Support continues to provide excellent support with a staff that is knowledgeable and professional in every respect.

With an eye toward cost reduction and meeting future NASA Balloon Program requirements, PSL/CSBF has sought to leverage all available resources to the greatest extent possible. CSBF has proactively worked towards future planning of missions by assessing global helium supplies and availability of large volume helium tanks. Working with the NASA Balloon Program Office, CSBF has identified use of available helium storage tanks that can be used for upcoming Sweden campaigns for long-term helium storage. Thus reducing costs for demurrage while maintaining availability of helium reserves as a contingency against worldwide spot shortages.

PSL/CSBF continued its record of excellence in utilization of personnel, many of whom serve dual roles that are atypical for most support organizations. Engineering and technology personnel working on new designs and enhancements often are called upon to provide field support and assistance with operations as needed. Likewise, operations personnel are often called upon to support CSBF and NASA mission planning and formulation when not immediately needed for campaign launch support. This is a capability long fostered by PSL/CSBF management that in turn offers cost savings to the government through an appropriate mix of diverse technical skills.



William A. Wrobel
Fee Determination Officer

cc:

100/Mr. Obenschain
210.1/Mr. Debelius
210.W/Mr. Merritt
210.W/Mr. Pagliaro
800/Mr. Pierce
820/Ms. Fairbrother
820/Mr. Gregory