

National Aeronautics and Space Administration

Office of Inspector General
Washington, DC 20546-0001



July 29, 2008

TO: Associate Administrator for Exploration Systems
Program Manager, Constellation Program
Project Manager, Extravehicular Activities Systems Project Office

FROM: Assistant Inspector General for Auditing

SUBJECT: Audit of NASA's Pre-Acquisition Planning for the Constellation Space Suit System (Assignment No. A-07-019-00)

The NASA Office of Inspector General is closing the subject assignment. Overall, we found that the pre-acquisition planning process for the Constellation Space Suit System (CSSS) was conducted in accordance with NASA procedural requirements. However, we did identify two issues that warrant management attention and one issue we plan to address. We noted that weight requirements imposed by Constellation program management could affect the design, development, cost, and schedule of the CSSS. However CSSS management is tracking the issue and has given it prioritized attention; thus, no additional management action is warranted at this time. We also identified a noncompliance issue that does warrant additional management action. Specifically, management should ensure that the contract for the CSSS includes the Earned Value Management clause.

We also identified a potential conflict of interest concerning at least one member of the CSSS standing review board.¹ We are addressing this issue under our Assignment S-08-021-00, Review of the Constellation Program's Standing Review Boards.

We began the audit of CSSS pre-acquisition planning in September 2007 and focused our review on key elements of the process, specifically, the acquisition approach, design architecture, cost and schedule plans, contract strategy, and oversight structure. We evaluated pertinent guidance to gain an understanding of the pre-acquisition planning process and the Agency's life-cycle phases and requirements. We conducted work at Johnson Space Center to interview key personnel within the Extravehicular Activities (EVA) Systems Project Office (CSSS is one project managed by the EVA Systems Project Office) and observed the ongoing CSSS development work. We also reviewed

¹ NASA requires space flight projects to establish a standing review board (SRB) to conduct independent reviews throughout a project's life cycle. SRBs assess and report on the project's technical and management approach, schedule, resources, cost, and risk; compliance with Agency guidance; and readiness to proceed to the next life-cycle phase.

the Constellation Program Plan,² EVA Systems Project Plan, and the CSSS request for proposal to ensure compliance with applicable guidance.

We found that pre-acquisition planning for the CSSS acquisition approach, design architecture, cost and schedule plans, contract strategy, and oversight structure was conducted in accordance with NASA Procedural Requirements 7120.5D, “NASA Space Flight Program and Project Management Requirements,” March 06, 2007. Specifically, the EVA Systems Project Office ensured that

- the appropriate acquisition planning meetings were conducted prior to the release of the CSSS solicitation;
- Constellation Program mission requirements were incorporated into preliminary CSSS design;
- initial life-cycle cost estimates were completed and risks were adequately identified in the development of project schedules;
- the contract strategy for CSSS design and development was documented in the preliminary Acquisition Plan; and
- management established an internal oversight structure in accordance with requirements for Category 1 projects.³

We noted that Constellation program management imposed smaller mass margin allocations on Constellation projects, systems, and subsystems, including the CSSS. The smaller mass margin allocations resulted in reduced weight requirements for EVA system components. Since EVA system components are interdependent, any change in weight of one EVA system component, may affect other components of the EVA system. The EVA Systems Project Office is aware of the CSSS weight requirements issue and that changes could result in increased cost, schedule delays, and slippage in performance baseline or requirements. Because the EVA Systems Project Office is tracking the potential CSSS weight requirements issue, has given the issue prioritized attention, and has a potential action plan in place for the mitigation of associated risks, we are not making a recommendation on this issue.

We did identify one noncompliance issue during our review of the CSSS request for proposal. Specifically, the request for proposal did not include or reference the Earned Value Management⁴ clause, NASA Federal Acquisition Regulation Supplement 1852.234-2, which is required by NASA Federal Acquisition Regulation Supplement 1834.203-70. The clause is important because it mandates a monitoring

² The EVA Systems Project is one of six projects under the Constellation Program. The others are the Orion crew exploration vehicle, Ares crew and cargo launch vehicles, mission operations, ground operations, and the lunar lander.

³ Projects are classified as Category 1 if the project life-cycle costs are greater than \$1 billion, a nuclear power source will be used, or the project concerns human space flight.

⁴ Earned Value Management is a project management tool effectively integrating the investment scope of work with schedule and cost elements for optimum investment planning and control.

system for Earned Value Management that meets Federal standards and establishes a system that generates timely, accurate, reliable, and traceable information of contractor performance. We immediately notified the EVA Systems Project Office of the omission and that office agreed to include the clause in the awarded contract. On July 16, 2008, we followed up with the contracting officer to verify that the clause was included in the contract awarded on June 12, 2008. The contracting officer stated that the clause was not included but that he would add it when time permitted. As of the date of this memorandum, the CSSS contract was under a stop-work order resulting from a protest of the contract award. We recommend that management track this issue and ensure that the Earned Value Management clause be added as soon as permissible.

We appreciate the courtesies and cooperation provided to the staff during this review. If you have questions or would like to discuss this matter further, please contact Mr. Keith Maddox, Project Manager, Financial and Institutional Management Directorate, at (256) 544-3914.

(signed) A. Dahnelle Payson for
Evelyn R. Klemstine

cc:
Director, Johnson Space Center