



Office of Inspector General
Washington, DC 20546-0001

MAY 10 2007

TO: Chief Engineer

FROM: Assistant Inspector General for Auditing

SUBJECT: Addendum to Final Report on NASA's Plan for Space Shuttle Transition Could Be Improved by Following Project Management Guidelines (Report No. IG-07-005, January 29, 2007)

We requested additional management comments on the subject final report because we did not consider the comments on Recommendation 1 to be responsive. We received additional management comments on March 12, 2007 (see the Enclosure). Although the comments provided a more comprehensive explanation of the Chief Engineer's position, we did not consider the comments to have satisfied the overall intent of our recommendation. However, we subsequently worked with a representative from the Office of the Chief Engineer, who agreed to take corrective action adequate to resolve the recommendation. Therefore, the recommendation is resolved but will remain open pending completion of the corrective action plan. Following is a summary of management's comments on Recommendation 1 and our evaluation of those comments.

Recommendation 1

In our draft report, we recommended that the Chief Engineer develop guidance within the NASA Procedural Requirements (NPR) 7120 series that clearly defines and establishes requirements for managing closeout and transition for programs of the Space Shuttle Program's (SSP's) magnitude.

Draft Report Comments. In NASA's December 14, 2006, response to the draft report, the Chief Engineer concurred with the recommendation, stating that NPR 7120.5D, "NASA Space Flight Program and Project Management Requirements,"¹ requires that decommissioning and disposal plans be formulated and implemented throughout Program/Project Phases C (Final Design and Fabrication), E (Operations and Sustainment), and F (Closeout). The Chief Engineer also stated that the NPR requires that a decommissioning review be conducted in Phase F to confirm the decision to terminate or decommission the system. He added that the entry and success criteria for each of the phases is located in Table G.18 of NPR 7123.1A, "NASA Systems

¹ NPR 7120.5D was effective on March 6, 2007, and superseded NPR 7120.5C, "NASA Program and Project Management Processes and Requirements," March 2005, for space flight programs and projects. NPR 7120.5C was in effect during the time of our audit.

Engineering Processes and Requirements,” and included the text of that table in his comments.

We did not consider management comments responsive. We noted in our evaluation that the guidance contained in the NPR 7120 and 7123 series sufficiently addresses decommissioning and disposal for most programs and projects. However, we maintained that additional guidance was necessary to address the unique efforts involved when closing out a program of the SSP’s magnitude. The SSP not only will decommission and dispose of hardware and ground systems, it will also transition the responsibility for certain personnel, hardware, and ground systems to another Mission Directorate (the Exploration Systems Mission Directorate) and requirements for managing that process are not clearly addressed in existing NASA guidance. Therefore, in our final report, we requested additional Agency comments on developing the additional guidance for unique efforts involved when closing out a program of the SSP’s magnitude.

Final Report Comments. NASA’s Chief Engineer submitted additional comments on March 12, 2007, stating that NPR 7120.5D has a program category labeled “tightly coupled,”² recognizing that a program such as the SSP needs to be managed in a very integrated manner. Tightly coupled programs are required to follow not only the program requirements stipulated in NPR 7120.5D, but also the following project-level requirements from the NPR:

- Section 4.2.2.c(2) states that during a tightly coupled program’s Key Decision Point (KDP) III, the program should implement the project Phase C requirements. One of the tasks required in Phase C is to generate a preliminary systems decommissioning disposal plan.
- Section 4.2.2.c(4) states that during a tightly coupled program’s KDP V, the program should implement the project Phase E requirements. One of the tasks required in Phase E is to baseline the decommissioning/disposal plan.

The Chief Engineer stated that it was the intent of those requirements to address decommissioning a program of the SSP’s magnitude.

Although the additional comments provided a more comprehensive explanation of the Chief Engineer’s position, we did not consider the comments to have satisfied the overall intent of our recommendation. NPR 7120.5D does not require a decommissioning review³ at the program level, although section 2.2.2.2 requires that “tightly coupled programs during implementation have program reviews tied to the project reviews to ensure the proper integration of projects into the larger system.” We believe that a tightly coupled program should be required to conduct an integrated decommissioning review to address the unique decommissioning efforts required for tightly coupled programs, such

² Tightly coupled programs (the Constellation Program) have multiple projects that execute portions of a mission or missions. Typically, multiple NASA Centers contribute to such a program. The program may also include other agency or international partner contributions.

³ The purpose of the decommissioning review is to confirm the decision to terminate or decommission the system and assess the readiness for the safe decommissioning and disposal of system assets.

as integration and transition of a large number of assets, to include personnel. In addition, although NPR 7123.1A, Table G.18, "Decommissioning Review," addresses the need to have plans for the disposition of mission assets such as hardware, software, and facilities, it does not address the transition of human capital.

Subsequent Management Action. We met with a representative from the Office of the Chief Engineer on April 19, 2007, to discuss Recommendation 1 and our view that the intent of the recommendation was not met by the Chief Engineer's comments. During that meeting, an agreement was reached to revise NPR 7120.5D, Figure 2-3, "The NASA Program Life Cycle," to require a program-level decommissioning review and to revise NPR 7123.1A, Table G.18, "Decommissioning Review Entrance and Success Criteria," to address the need to plan for the transition of human capital. We consider those revisions adequate to meet the intent of our recommendation.

On the basis of our April 19 meeting, the recommendation is resolved but remains open for reporting purposes until we receive and review the revisions to NPR 7120.5D and NPR 7123.1A.

We appreciate the courtesies extended the audit staff during the review. If you have any questions, or need additional information, please contact Ms. Carol Gorman, Director, Space Operations and Exploration, at 202-358-2562 or me at 202-358-2572.



Evelyn R. Klemstine

Enclosure

cc:

Associate Administrator for Exploration Systems

Associate Administrator for Space Operations

Associate Administrator for Institutions and Management

Chief, Safety and Mission Assurance Office

Acting Assistant Administrator for Internal Controls and Management Systems

Management's Additional Comments

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



March 12, 2007

Response to Audit of: Office of the Chief Engineer

TO: Assistant Inspector General for Auditing
FROM: Chief Engineer
SUBJECT: Response to Final Audit Report, NASA's Plan for Space Shuttle Transition
Could be Improved by Following Project Management Guidelines. (IG-07-005;
Assignment No. A-06-007-00)

In response to your memorandum of January 29, 2007, regarding Final Audit Report A-06-007-00, entitled NASA's Plan for Space Shuttle Transition Could be Improved by Following Project Management Guidelines, the Office of the Chief Engineer (OCE) has reviewed the evaluation of management's comments. We appreciate your efforts to help NASA improve its program management activities.

NPR 7120.5D, NASA Space Flight Program and Project Management Requirements, was written to reflect the broad range of programs and projects developed within the Agency. This was done to facilitate commonality of requirements for all of NASA's flight programs and projects. However, recognizing the diversity of our flight activities, provision was made in 7120.5D to require different levels of detail for and review of different types of programs and projects. As the largest programs, the Space Shuttle and Constellation Programs, are required by 7120.5D to meet stringent documentation and review requirements. The OCE is convinced that if the Shuttle Program complies with the applicable portions of the existing 7120.5D the OIG guidance with regard to improving shuttle transition to ESMD will be met. With these considerations in mind, we are pleased to provide this response.

OIG Recommendation

1. The Chief Engineer should develop guidance within the NASA Procedural Requirements 7120 series that clearly defines and establishes requirements for managing closeout and transition for programs of the SSP's magnitude.

Management's Response

1. The Chief Engineer concurred, stating that NPR 7120.5D, NASA Space Flight Program and Project Management Requirements, requires that decommissioning and disposal plans be formulated and implemented throughout Program Project Phases C (Final

Design and Fabrication), E (Operations and Sustainment), and F (Closeout). The Chief Engineer also stated that the NPR requires that a decommissioning review be conducted in Phase F to confirm the decision to terminate or decommission the system. He added that the entry and success criteria for each of the Program/Project phases is located in Table G.18 of NPR 7123.1A, NASA Systems Engineering Processes and Requirements, the text of which is included in the comments.

Evaluation of Management's Response

- 1 Management's comments do not satisfy the intent of our recommendation. We recognize that the guidance contained in the NASA Procedural Requirements 7120 and 7123 series sufficiently addresses decommissioning and disposal for most programs and projects. However, the intent of our recommendation was that additional guidance on transitioning the responsibility for certain SSP personnel, hardware, and ground systems to another Mission Directorate (ESMD) would be helpful in ensuring comprehensive and well-coordinated activities when closing out a program of the SSP's magnitude. Currently, requirements for managing such a process are not clearly addressed in NASA guidance. We request that the Chief Engineer reconsider his position and provide additional comments on the final report with regard to developing the additional guidance.

Chief Engineer Response

I understand and agree with your concern about programs of SSP's magnitude. NPR 7120.5D was written to reflect the broad range of programs and projects developed within the Agency. Your comments reinforce why we *specifically* have a program category labeled "tightly coupled," recognizing that a program like SSP needs to be managed in a very integrated manner and, therefore, needs to follow not only the program requirements in NPR 7120.5D, but also the project requirements. Section 4.2.2.c in NPR 7120.5D states

For *tightly coupled programs* —

- (1) For KDP II, implement the requirements in paragraph 4.5.2 (Phase B) in the manner documented in the Program Plan (except those requirements allocated to specific projects and documented in their Project Plans).
- (2) For KDP III, implement the requirements in paragraph 4.6.2 (Phase C) in the manner documented in the Program Plan (except those requirements allocated to specific projects and documented in their Project Plans).
- (3) For KDP IV, implement the requirements of paragraph 4.7.2 (Phase D) in the manner documented in the Program Plan (except those requirements allocated to specific projects and documented in their Project Plans).
- (4) For KDP V, implement the requirements of paragraph 4.8.2 (Phase E) in the manner documented in the Program Plan (except those requirements allocated to specific projects and documented in their Project Plans).

Section 4.2.2.c is requiring the "tightly coupled" program to follow the requirements levied on projects for phases B-E. Specifically, 4.2.2.c (2) above says for KDP III, perform the same requirements as for phase C of a project. One of the tasks for phase C is to generate a

preliminary *systems* decommissioning/disposal plan. Similarly, in 4.2.2.c (4), it says to perform the same requirements as for phase E of a project where one of the tasks is to baseline the *systems* decommissioning/disposal plan. It is the intent of these plans to address the topics you mentioned.

Thank you again for your assistance and this opportunity to respond to the findings and conclusions of the final audit report. If you have any questions or require additional information, please contact Mike Blythe at (202) 358-3910.


Christopher J. Scolese