

National Aeronautics and Space Administration

Office of Inspector General
Washington, DC 20546-0001



January 13, 2011

The Honorable Ralph Hall
Chairman
Committee on Science and Technology
U.S. House of Representatives
Washington, DC 20515

The Honorable Eddie Bernice Johnson
Ranking Member
Committee on Science and Technology
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman and Congresswoman Johnson:

The Inspector General Act of 1978 directs Federal Inspectors General to, among other things, “review existing and proposed legislation and regulations relating to programs and operations” of their agencies and to make recommendations “concerning the impact of such legislation or regulations on the economy and efficiency in the administration of programs and operations administered or financed by such establishment.” In addition, Inspectors General are required to keep their agency head and Congress informed about “serious problems, abuses, and deficiencies relating to the administration of programs and operations administered or financed by such establishment, [and] to recommend corrective action concerning such problems.”¹

We write this letter to highlight a situation at the National Aeronautics and Space Administration (NASA) that we believe requires immediate action by Congress. Due to restrictive language in NASA’s fiscal year (FY) 2010 appropriation,² coupled with the fact that NASA and the rest of the Federal Government are currently being funded by a continuing resolution (CR) that carries

¹ The Inspector General Act of 1978, as amended, 5 U.S.C. app. 3 § 4(a) (2) & (5).

² Public Law No. 111-117, which funded NASA in FY 2010, designated approximately \$3.7 billion for Exploration activities available until September 30, 2011, with the following limitation:

“Provided, that notwithstanding section 505 of this Act, none of the funds provided herein and from prior years that remain available for obligation during fiscal year 2010 shall be available for the termination or elimination of any program, project or activity of the architecture for the Constellation program nor shall such funds be available to create or initiate a new program, project or activity, unless such program termination, elimination, creation, or initiation is provided in subsequent appropriations Acts.” NASA’s budget had called for it to spend \$2.402 billion of the \$3.7 billion Exploration appropriation on Constellation in FY 2011.

In July of 2010, Congress placed an additional restriction on NASA providing that “notwithstanding any other provision of law or regulation, funds made available for Constellation in fiscal year 2010 for ‘National Aeronautics and Space Administration Exploration’ and from previous appropriations for ‘National Aeronautics and Space Administration Exploration’ shall be available to fund continued performance of Constellation contracts, and performance of such Constellation contracts may not be terminated for convenience by the National Aeronautics and Space Administration in fiscal year 2010.” Pub. L. No. 111-212. Both provisions are carried over in the current continuing resolution funding NASA and the rest of the Federal Government.

over these restrictions and prohibits initiation of new projects, NASA is continuing to spend approximately \$200 million each month on the Constellation Program, aspects of which both NASA and Congress have agreed not to build. Without congressional intervention, by the end of February 2011 NASA anticipates spending up to \$215 million on Constellation projects that, absent the restrictive appropriations language, it would have considered canceling or significantly scaling back. Moreover, by the end of FY 2011 that figure could grow to more than \$575 million if NASA is required to continue operating under the current constraints and is unable to move beyond the planning stages for its new Space Exploration program.

The limitation on NASA's ability to end Constellation-related contracts was discussed at a December 1, 2010, hearing of the Senate Committee on Commerce, Science, and Transportation chaired by Subcommittee Chairman Nelson and attended by Ranking Member Hutchison and other Committee members. Senators at the hearing discussed developing options to address the restriction, but the CR enacted at the end of the last congressional session retained the limiting language.

Background

In October 2010, the President signed into law a 3-year Authorization Act for NASA (Pub. L. No. 111-267) that provided specific guidance for the Agency's manned space program when the Space Shuttle era comes to a close later this year. The Authorization Act calls for the development of a new heavy-lift rocket and multi-purpose crew vehicle to replace the existing rockets and capsules being built as part of the Constellation Program. The Act directs NASA "to the extent practicable to utilize existing contracts, investments, workforce, industrial base and capabilities" from the Constellation Program in meeting these directives.³

However, to date Congress has not enacted corresponding appropriation legislation to fund these directives. Instead, like all other Federal agencies, NASA has been operating under a CR that continues the Agency's budget at the FY 2010 level and perpetuates the restriction in NASA's 2010 appropriations law prohibiting the Agency from canceling the Constellation Program or terminating related contracts. As a result, NASA is in the difficult position of having to fund elements of a program that have been canceled. At the same time, restrictions in the CR and the FY 2010 appropriations legislation prohibit NASA from establishing any new programs to implement the directives set forth in the 2010 Authorization Act.

Under the Authorization Act, NASA was directed to develop the architecture for a Multi-Purpose Crew Vehicle and a Space Launch System that would enable a rocket to lift 130 tons of cargo and crew to low Earth orbit and to prepare for future deep Space missions.⁴ NASA officials told us that although they will not make a final decision until spring on the architecture they will

³ The major components of the Constellation Program are the Ares I rocket that was being built to lift the Orion crew capsule into low Earth orbit and a much larger Ares V rocket that could lift heavy cargo into low Earth orbit and also carry a crew to the Moon. In February 2010, the President announced his intention to cancel the Program and instead develop commercial efforts to send cargo and astronauts to the International Space Station and fund research by NASA to develop new technologies to travel beyond low-earth orbit.

⁴ On January 10, 2011, NASA submitted to Congress a report required by Section 309 of the Authorization Act that describes the Agency's preliminary plans for developing this Space Launch System and Multi-Purpose Crew Vehicle.

adopt to meet these goals, the information they have gathered to date suggests they likely will use many of the major components currently under development in the Constellation Program.⁵

The Problem

Recent media accounts have reported that the interaction of the 2010 Authorization Act and the CR will result in NASA wasting nearly \$500 million on the Constellation Program through March 4, 2011.⁶ Given the mission of the Office of Inspector General (OIG) to prevent waste in NASA programs, we asked Agency officials to quantify their spending on the various aspects of the Constellation Program and characterize any effect the appropriations restriction has had on the way they have allocated these funds. In sum, we found that by March 4 NASA expects to have spent up to \$215 million on Constellation projects they otherwise would have considered canceling or scaling back absent the restrictive language in the CR. That figure could rise to more than \$575 million if the CR remains unchanged through the end of the fiscal year.

NASA has budgeted \$2.4 billion for the Constellation Program through September 30, 2011. Senior NASA officials told us they have directed the majority of this funding to contracts for products, engineering, and testing that they believe will most likely benefit the heavy-lift vehicle and crew capsule that will be developed pursuant to the 2010 Authorization Act. Specifically, of the \$2.4 billion budgeted for Constellation, NASA plans to spend \$1.029 billion on Ares rockets and \$983 million on the Orion crew capsule.

For example, NASA officials said that of the four major elements of the current Ares program, two could be used in the new heavy-lift system: the first stage solid-fuel rocket engines and the upper stage liquid-fuel engine.⁷ Accordingly, NASA said it is focusing its spending on the two existing contracts related to these elements and plans to pay Alliant Techsystems Inc. (ATK) \$303 million in FY 2011 to build a five-segment solid rocket booster engine and Pratt & Whitney Rocketdyne (PWR) \$213 million for development of the J-2X upper stage engine. Conversely, NASA officials said they have dramatically scaled back funding for the third and fourth elements of the Ares program – the upper stage and related avionics, both currently being designed by Boeing – because those elements are less likely to be applicable to the new heavy-lift system. In fact, NASA officials told us that absent the CR language preventing them from doing so, they likely would have considered canceling these contracts with Boeing rather than spending \$26 million on these projects in October and November 2010.

With respect to the new crew capsule, NASA officials told us they are considering using a capsule very similar to the Orion capsule that Lockheed Martin has been building for the Constellation Program. As a result, NASA officials believe very little of the \$147 million spent

⁵ In November 2010, NASA funded 13 private research studies as part of a Broad Agency Announcement to solicit alternative approaches for the next generation Space Launch System. Officials said they may reconsider their initial intention to use architecture similar to the Constellation Program for the new heavy-lift system depending on the results of these studies.

⁶ See, e.g., Mark K. Matthews, *NASA has to keep defunct Ares rocket program going*, The Orlando Sentinel, December 30, 2010.

⁷ NASA officials gave two reasons for planning to hew closely to the Ares rocket design: the time and cost that would be associated with designing and building an entirely new rocket and the directive in the Authorization Act that NASA should “to the extent practicable” utilize existing contracts and capabilities.

on Orion during the first 2 months of FY 2011 would not have been spent even if the Agency were not bound by the Appropriations Act language.

NASA managers also told us that in addition to the Boeing contracts cited above, they likely would have considered canceling or significantly scaling back three other aspects of the Constellation Program and the associated contracts at the beginning of FY 2011 but for the restrictions in the Appropriations Act:

- \$27 million spent in October and November 2010 for “ground operations,” including rebuilding Launch Pad 39B at the Kennedy Space Center and other fuel, equipment, and transportation costs. Although some of these funds eventually would have been spent to rebuild the launch pad to accommodate the new heavy-lift launch system, NASA likely would have postponed funding this project until a later date.⁸
- \$7 million during these same 2 months for “mission operations,” including funding for control operations, facilities, software development, tools, and training.⁹
- \$11 million in October and November for “program integration,” to ensure that contractors working on each part of the program were communicating with each other so that the capsule, rocket, avionics, and space suits all work in tandem.¹⁰

In response to our questions, NASA officials were only able to produce concrete figures on the amount the Agency spent on Constellation projects they would have considered canceling or scaling back but for the restrictive appropriations language for the first 2 months of the fiscal year (October 1–November 30, 2010). However, they indicated that it was very likely that spending in December would have been at roughly the same rate as the previous 2 months. As the table on the next page shows, by the end of February 2011 NASA anticipates spending \$215 million on such Constellation projects. Moreover, according to Agency figures, NASA will spend more than \$575 million on such projects if the CR is continued through the end of the fiscal year and the appropriations directive remains unchanged.

⁸ Before the President announced his intention to cancel Constellation in February 2010, NASA had originally planned to spend \$790 million on ground operations for the program in FY 2011. The Agency reduced that figure to \$197 million for FY 2011 after the current CR was passed in December 2010.

⁹ In September 2009, NASA had planned to spend \$232 million in FY 2011 on mission operations for the Constellation Program. The Agency reduced the mission operations budget to \$76 million upon passage of the CR in December 2010.

¹⁰ In September 2009, NASA had planned to spend \$223 million in FY 2011 on program integration, but reduced that budget to \$94 million after the CR was passed in December 2010.

CONSTELLATION FUNDING UNDER THE CONTINUING RESOLUTION (red text highlights potential inefficient use of funding)				
Project/Contract	FY 2011 Budget as of Sept. 2009 – Original	FY 2011 Budget as of Dec. 2010 – Revised	FY 2011 – first 2 Months (actual)	FY 2011 – End of Feb. 2011 (estimated)
Constellation	\$5.309 billion	\$2.402 billion	\$369 million	\$972 million
Ares – Overall	\$1.988 billion	\$1.029 billion	\$172 million	\$441 million
ATK: 1st Stage Engines		\$ 303 million	\$ 57 million	\$132 million
PWR: J-2X Engine		\$ 213 million	\$ 43 million	\$103 million
Boeing: Upper Stage & Avionics		\$ 210 million	\$ 26 million	\$ 83 million
Orion – Overall	\$1.767 billion	\$ 983 million	\$147 million	\$386 million
Lockheed Martin: Orion		\$ 805 million	\$123 million	\$316 million
Ground Operations*	\$ 790 million	\$ 197 million	\$ 27 million	\$ 75 million
Mission Operations*	\$ 232 million	\$ 76 million	\$ 7 million	\$ 23 million
Program Integration*	\$ 223 million	\$ 94 million	\$ 11 million	\$ 34 million
Potential Inefficient Use of Funds		\$ 577 million	\$ 71 million	\$215 million

Source: Constellation Program Managers

* NASA officials noted that even if they had complete freedom to stop spending on these aspects of the Constellation Program, they still would need to expend some amount of money for infrastructure and personnel costs to maintain program readiness. The officials did not provide a breakdown of these costs.

In sum, it appears that NASA has taken steps to concentrate its spending on those aspects of the Constellation Program it believes may have future applicability, and that these efforts have helped reduce the potential inefficient use of taxpayer dollars. However, based on what we have learned from Agency officials, as NASA moves closer to making final decisions regarding how best to move forward in designing and building the next generation space system, it will become increasingly more difficult for the Agency to continue to juggle the inconsistent mandates of the Authorization Act and the appropriations legislation so as to avoid wasting taxpayer funds. As

one senior NASA official described it, “There’s a point coming up soon where we would just be spending money to spend money.”

Constraining NASA’s ability to stop spending money on aspects of a rocket program that the Administration and Congress both have agreed to cancel while at the same time prohibiting the Agency from beginning the follow-on program called for in the 2010 Authorization Act strikes us a problem ripe for correction. Accordingly, we urge Congress to take immediate action that will enable NASA to reduce or cease funding aspects of the Constellation Program in order to more efficiently redirect these funds to the priorities outlined in the Authorization Act.¹¹

Please contact us if you have any questions about this letter.

Sincerely,

A handwritten signature in black ink that reads "PKMA". The letters are stylized and connected.

Paul K. Martin
Inspector General

cc: Charles F. Bolden, Jr.
Administrator

¹¹ The Inspector General Act contains a concept called a “Recommendation that Funds Be Put to Better Use” that strikes us as appropriate in this situation. The term refers to money that could be used more efficiently if management took actions to implement certain recommendations. In this case, we believe NASA could more efficiently use its funds designated for space flight if it were freed from the constraints in the 2010 Appropriations Act.

Identical letter to:

The Honorable John Boehner
U.S. House of Representatives

The Honorable Nancy Pelosi
U.S. House of Representatives

The Honorable Harold Rogers
U.S. House of Representatives

The Honorable Norman Dicks
U.S. House of Representatives

The Honorable Frank Wolf
U.S. House of Representatives

The Honorable Darrell Issa
U.S. House of Representatives

The Honorable Elijah Cummings
U.S. House of Representatives

The Honorable Diane E. Watson
U.S. House of Representatives

The Honorable Brian Bilbray
U.S. House of Representatives

The Honorable Paul Broun
U.S. House of Representatives

The Honorable Brad Miller
U.S. House of Representatives

The Honorable Gabrielle Giffords
U.S. House of Representatives

The Honorable Pete Olson
U.S. House of Representatives

The Honorable Dan Inouye
United States Senate

The Honorable Thad Cochran
United States Senate

The Honorable Barbara A. Mikulski
United States Senate

The Honorable Richard C. Shelby
United States Senate

The Honorable John D. Rockefeller, IV
United States Senate

The Honorable Kay Bailey Hutchison
United States Senate

The Honorable Bill Nelson
United States Senate

The Honorable David Vitter
United States Senate

The Honorable Joseph I. Lieberman
United States Senate

The Honorable Susan M. Collins
United States Senate