



G A O

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United States General Accounting Office
Washington, DC 20548

August 31, 2001

The Honorable Ernest Hollings
Chairman
The Honorable John McCain
Ranking Minority Member
Committee on Commerce, Science,
and Transportation
United States Senate

The Honorable Sherwood L. Boehlert
Chairman
The Honorable Ralph Hall
Ranking Minority Member
Committee on Science
House of Representatives

Subject: NASA: International Space Station and Shuttle Support Cost Limits

Section 202 of the National Aeronautics and Space Administration (NASA) Authorization Act for Fiscal Year 2000 (P.L. 106-391) establishes general cost limitations on the international space station and space shuttle programs. Under the act, through substantial completion of the space station, NASA may not obligate more than \$25 billion for space station development or more than \$17.7 billion for shuttle launches in connection with space station assembly. The act further stipulates that for the purpose of calculating launch costs not more than \$380 million per launch shall be used. Finally, the act requires that NASA, as part of its annual budget request, update the Congress on its progress by (1) accounting for and reporting amounts obligated against the limitations to date, (2) identifying the amount of budget authority requested for the future development and completion of the space station, and (3) arranging for GAO to verify the accounting submitted to the Congress within 60 days after the submission of the budget request.

In responding to the legislative requirement for verifying NASA's accounting, we planned to (1) assess NASA's methodology for accumulating and allocating amounts obligated against the space station and shuttle limits and (2) audit the underlying obligation data supporting these amounts. Based on discussions with your staffs, we also agreed to (1) evaluate whether NASA's costs, relative to the status of space station completion, were reasonable and (2) assess the significance of amounts not reported against the limits due to exclusions set forth under the act.

In performing our work, we spoke with officials responsible for preparing NASA's accounting for the space station and shuttle limits and identified and reviewed the methodology they used. To test the completeness and accuracy of NASA's accounting, we requested transaction-level support for amounts obligated for fiscal years 1998 through 2000. We further requested that the transactions be identified as either space station and shuttle launch support or all other programs so that we could use statistical sampling techniques to test the propriety of transactions included in each group.

Also, as part of our review, we requested support for the actual cost of space station components that were completed through September 30, 2000, so that we could compare the percentage of resources expended with the percentage of the space station completed. Except for the limits imposed by NASA's inability to provide us with timely data, we conducted our work from March through June 2001 in accordance with generally accepted government auditing standards.

On June 8, 2001, we briefed your staffs on the results of our work. As agreed, this letter documents our findings and results. On August 23, 2001, we received written comments on a draft of this letter from the NASA Associate Deputy Administrator. These comments are reprinted in the enclosure.

Results in Brief

We found that NASA did not comply with the act's requirement to use obligations as its basis for reporting against the space station limit but instead used budget authority. In addition, NASA was not able to provide detailed transaction-based support for amounts obligated against the space station and shuttle limits for us to evaluate and meet the 60-day reporting requirement. Consequently, we were unable to verify the information NASA reported to the Congress. Further, NASA did not have support for the actual cost of completed space station elements and subsystems. Therefore, we could not determine whether NASA's costs, relative to the status of space station completion, were reasonable. NASA's inability to provide timely data on obligations or support for actual costs related to the space station and shuttle raises concerns about NASA achieving the discipline and accountability called for by the act.

Also, the act does not require NASA to charge all relevant obligations against the space station and shuttle limits. As a result, NASA's accounting for the limits in its fiscal year 2002 budget request did not include \$2.5 billion of related obligations through fiscal year 2000. Through fiscal year 2004, when NASA estimates the space station will be substantially complete, an estimated \$5.8 billion of related space station and shuttle obligations may be excluded from the limits.

In commenting on a draft of this letter, NASA stated that it would work with us and the Congress to address some of the problems we identified. However, NASA also expressed concern about how we characterized its financial reporting and costing practices for the space station.

NASA Accounting for the Space Station Limit Not Based on Amounts Obligated

Although the act specifically requires NASA to report amounts obligated against the limits, NASA instead reported in its fiscal year 2002 budget request that it had received about \$15.8 billion of budget authority related to the space station limit through fiscal year 2000. NASA claims that the budget authority received is, in essence, equivalent to its total obligations because all but a negligible portion of the budget authority for 1994 through 2000 has been obligated. However, NASA officials have yet to provide support for the amounts obligated against the space station limit in order for us to verify their assertion.

NASA's fiscal year 2002 budget request also included projected space station spending through substantial completion in fiscal year 2004 and full completion in fiscal year 2006. NASA again calculated these amounts using projected budget authority for the space station. Using this methodology, NASA projects it will spend a total \$23.3 billion through substantial completion in fiscal year 2004. The projection falls within the act's limit, but also assumes significant reductions in space station content. Specifically, NASA plans to save about \$3 billion by not funding remaining high-cost hardware that is in development, such as the crew return vehicle and habitation module. In addition, according to NASA officials, another \$1 billion could be saved through planned program efficiencies. Absent these changes and including spending through fiscal year 2006, NASA's fiscal year 2002 budget projected that spending would exceed the space station budget by over \$4 billion at full completion. However, NASA was unable to provide us with the details to support the savings resulting from planned space station content reductions or other program efficiencies. In fact, when NASA attempted to identify the specifics of the projected savings, instead of \$1 billion in savings from planned program efficiencies, NASA's analysts identified new areas of cost growth—resulting in a net increase in total projected space station spending. As of the date of this letter, NASA continues to reassess its program budget and has not yet finalized its cost overrun projection. We have ongoing work related to NASA's projected space station spending.

NASA Not Able to Provide Detailed Support Required for Audit

It was our intention to test the propriety of charges to various NASA programs by ensuring that all charges to the space station and shuttle programs were appropriate and that no space station or shuttle obligations were charged to other programs. However, NASA could not provide the requested data in time for us to perform our audit procedures. As a result, we were unable to independently validate obligations related to the space station and shuttle launches or to determine how closely the budget authority information reported to the Congress mirrored the actual obligations for the space station and shuttle programs.

According to NASA officials, transaction-level obligation data are available at NASA's 10 space centers on separate and different financial systems. However, NASA was

not able to provide the data in time for us to review it and meet the 60-day reporting requirement. NASA officials also told us that NASA has long-term plans for implementing an integrated financial management system that will make access to detailed obligation data more readily available.

NASA Does Not Have Needed Cost Data

NASA was also not able to provide detailed support for the actual costs of completed space station components—either in total or by subsystems or elements. Although NASA capitalized the cost of these items in its audited fiscal year 2000 financial statements at about \$8 billion, according to NASA officials, these amounts are based primarily on cost estimates not actual costs.¹ Further, NASA officials were not able to reconcile or adequately explain the difference between the \$15.8 billion in budget authority reported against the space station limit and the \$8 billion reported in NASA's financial statements.

NASA officials stated that its accounting systems were designed prior to the implementation of current federal cost accounting standards and financial systems standards that require agencies to track and maintain cost data needed for management activities such as estimating and controlling costs, performance measurement, and making economic trade-off decisions. As a result, NASA's systems do not track the cost of individual space station subsystems or elements. According to NASA officials, the agency manages and tracks space station costs by contract and does not need to know the cost of individual subsystems or elements to effectively manage the program. To the contrary, we found that NASA identifies potential and probable future program costs to estimate the impact of canceling, deferring, or adding space station content. These cost estimates often identify the cost of specific space station subsystems. However, because NASA does not attempt to track costs by element or subsystems, the agency does not know the actual cost of completed space station components and is not able to re-examine its cost estimates for validity once costs have been realized.

The Act Does Not Require NASA to Report All Relevant Amounts

NASA's fiscal year 2002 budget request reported that \$1.5 billion had been charged against the shuttle limit through fiscal year 2000. This amount was calculated using \$380 million per launch, the maximum amount per launch that can be applied against the limit under the act. However, it does not reflect the actual amount obligated or even NASA's best estimate of the amount obligated for shuttle support in connection with space station assembly. According to NASA officials, NASA does not manage

¹Expenditures that are expected to benefit more than one accounting period are considered capital expenditures and are to be reported on the statement of financial position as capital assets. NASA capitalized \$2.5 billion for completed space station assets orbiting the earth and \$5.4 billion for completed contractor-held assets that are at the launch site for a total of \$8 billion. Completed assets at the launch site are reported in NASA's financial statements as contractor-held work in process. However, NASA was not able to categorize the \$5.4 billion by space station versus other programs. Therefore, \$8 billion represents the maximum amount attributable to the space station.

the shuttle program on a cost per flight basis and therefore is not able to determine the actual amount obligated for shuttle launches in connection with space station assembly. Instead, for the purpose of allocating shuttle costs to programs such as space station, NASA periodically calculates an average cost per launch by dividing program costs for the fiscal year by the number of launches. For fiscal year 2000, NASA calculated an average cost per launch of \$759 million based on four shuttle launches. Thus, for the four space station assembly flights charged against the limit, approximately half of NASA's calculated costs (\$379 million per launch or \$1.5 billion in total) are not reflected in NASA's fiscal year 2000 accounting. Although NASA capitalized shuttle-related costs for the space station at \$441 million per flight in its audited fiscal year 2000 financial statements, NASA officials stated that its more recent calculation of \$759 million per launch more closely reflects actual cost. NASA officials were not sure what basis they used to calculate the amount reported in NASA's fiscal year 2000 financial statements but speculated that the calculation was likely based on data from a previous year.

NASA's fiscal year 2002 budget request also included projected shuttle spending of \$11.4 billion through substantial space station completion in fiscal year 2004. NASA again calculated this amount using \$380 million per launch, the maximum amount allowed by the act. While NASA's projection falls within the shuttle limit, due to planned space station content reductions, the calculation assumes that only 30 assembly flights will be required instead of 40 flights, as originally planned. In addition, reporting a maximum amount per launch in accordance with the act will probably result in a significant understatement of total launch costs. Specifically, NASA has estimated that the average costs per launch for each of the 30 assembly missions planned through fiscal year 2004 will exceed \$380 million, ranging between \$437 and \$759 million per launch. Based on NASA's estimates, total launch costs for the 30 planned flights would be understated by about \$3.8 billion. If included, total launch costs through 2004 would be \$15.2 billion.

In addition, the act does not require NASA to charge total costs such as in-house labor costs related to the space station against the space station limit. NASA currently accounts for all in-house labor costs under a separate mission support appropriation, and the act does not require NASA to charge these costs to the space station limit. As a result, NASA's accounting for the space station limit does not include \$1 billion for civil service compensation from fiscal years 1994 through 2000. NASA has estimated that in-house labor costs for the space station from fiscal years 1994 through 2004 would total \$2 billion. While in-house labor costs are not applied to the limit, NASA does disclose these amounts as part of its budget submission.

Agency Comments and Our Evaluation

In commenting on a draft of this report, the NASA Associate Deputy Administrator stated that NASA would work with us and the Congress to address some of the problems we identified but also expressed concern about how we characterized NASA's financial reporting and costing practices for the space station. NASA believes that reporting budget authority fully complies with the requirements of the act and that reporting amounts obligated is not specifically required. This is based on NASA's

interpretation of the act and because they assert that obligations closely approximate budget authority at this stage of space station development. We disagree. Subsection 202 (a) of the act states that “. . . the total amount obligated by the National Aeronautics and Space Administration for (A) costs of the International Space Station may not exceed \$25,000,000,000 . . .” and subsection 202 (e) requires NASA to account for those cost limitations. This language specifically identifies cost limitations and requires an accounting of those limitations based on obligations. In order to resolve this issue, NASA plans to discuss the reporting requirements with your committees.

NASA’s comments also discussed our findings on the difficulty of obtaining support for specific obligations and component costs. NASA stated that it will continue to work with us to compile detailed support for its space station and other obligations. NASA also stated that it requires the identification of costs supporting individual subsystems and hardware, but that these support costs remain separate and are not included in the costs of the subsystems and hardware elements. We continue to believe that NASA needs to collect, maintain, and report the full cost of individual subsystems and hardware so that NASA can make comparisons between estimates and final costs and the Congress can hold NASA accountable for differences between budgeted and actual costs.

We are sending copies of this letter to other interested congressional committees as well as to NASA’s Administrator and Chief Financial Officer. The letter will also be available on GAO’s home page at <http://www.gao.gov>.

If you or your staffs have any questions concerning this report, please contact me at (202) 512-9505 or by e-mail at kutzg@gao.gov or Molly Boyle, Assistant Director at (202) 512-9524 or by e-mail at boylem@gao.gov. Major contributors to this effort were Diane Handley, Fannie Bivins, and Maria Storts.

A handwritten signature in black ink that reads "Gregory D. Kutz". The signature is written in a cursive style with a large, stylized initial 'G'.

Gregory D. Kutz
Director, Financial Management and Assurance

Enclosure

Comments From the National Aeronautics and Space Administration

National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001



AUG 23 2001

Mr. Gregory D. Kutz
Director, Financial Management
and Assurance
U.S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Kutz:

We appreciate the opportunity to comment on the draft report on international space station and shuttle support cost limits. The draft report raises three basic issues, each of which are addressed in the sections that follow.

Accounting for the Space Station Limit

The draft report states that, "Although the Act specifically requires NASA to report amounts obligated against the limits, NASA instead reported in its fiscal year 2002 budget request that it had received about \$15.8 billion of budget authority related to the space station limit though fiscal year 2000." NASA believes that reporting of budget authority fully complies with the Act and that reporting of obligations is not specifically required.

The National Aeronautics and Space Administration Authorization Act for Fiscal Year 2000 (the Act) requires that, as part of the overall budget request, NASA identify the amount to be used for development of the International Space Station (ISS). The Act also requires that NASA account for the cost limitations on ISS development and assembly imposed by the Act. To satisfy these requirements, the information on ISS development that NASA provides to the Congress is structured to identify past and current appropriations and the proposed budget and runout funding by year. Based on our interpretation of the Act and because obligations closely approximate budget authority at this stage of ISS development, we believe that this approach fully satisfies the reporting requirements of the Act.

Nevertheless, in the interest of achieving resolution of this issue, NASA will specifically request clarification of the reporting requirements from the Senate Committee on Commerce, Science, and Transportation and the House Committee on Science.

Detailed Support for Space Station and Other Obligations

The draft report stated that NASA was unable to provide supporting data for ISS and other obligations in time for GAO to perform its audit procedures. It is important to note that NASA retains supporting data for all obligations. In this instance, NASA and GAO, despite their best efforts, were unable to develop a sample of obligations that GAO could use to review support for transactions within the timeframe required. NASA maintains a separate accounting system at each of its nine field Centers and Headquarters. There are approximately 0.5 million obligation transactions annually, spread among the 10 individual systems. In view of the complexities associated with multiple systems and such a large volume of transactions, NASA will continue to work diligently with GAO to ensure that this problem is satisfactorily resolved before GAO's planned follow-up audit.

Cost Data for Space Station Components

The draft report correctly notes that NASA's accounting system does not track the cost of individual ISS subsystems or elements. The draft report further states that, "According to NASA officials, the Agency manages and tracks space station costs by contract and does not need to know the cost of individual subsystems or elements to effectively manage the program." This statement is misleading. Contract cost reports provided routinely to NASA accrue costs in a work breakdown structure that facilitates NASA's and the contractor's understanding of cost accruals and future projected costs. Within these work breakdown structures are identified subsystems and hardware elements, among others. While NASA requires the identification of all supporting costs, such as systems engineering and safety and mission assurance, these costs remain separate and are not included in the costs of individual subsystems and hardware elements.

If you have any questions, or require additional information, please contact Stephen J. Varholy, Acting Chief Financial Officer on 202-358-2262.

Sincerely,



Daniel R. Mulville
Associate Deputy Administrator