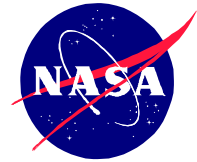


National Aeronautics and  
Space Administration

**Office of Inspector General**  
Washington, D.C. 20546-0001



Reply to Attn of: W

March 23, 2004

TO: M/Associate Administrator for Space Flight

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Audit of Incentive/Award Fee Structure Under the Space Flight Operations Contract, Assignment Number A-04-02-00  
Report No. IG-04-014

We conducted an audit of the incentive/award fee structure under NASA's Space Flight Operations Contract (SFOC). The purpose of this audit was to determine whether the incentive/award fee structure of the SFOC was conducive to safe Shuttle operations. Enclosure 1 provides background for this audit activity, and Enclosure 2 provides details on the objectives, scope, and methodology of the audit.

We are unable to reach a conclusion on whether the fee structure of the SFOC was conducive to safe Shuttle operations. However, we make two observations (without recommendations) relating to management of the SFOC award fee process that may be relevant to future management of the SFOC award fee process. The observations concern: (1) shifts in the Agency's weighting of the "operational safety" and "quality" award fee evaluation factors, and (2) changes in the communication of award fee evaluation criteria to United Space Alliance (USA).

***Shifts in the Award Fee Weighting for Operational Safety and Quality Evaluation Factors***

We identified notable downward shifts in the award fee evaluation weightings for the operational safety and quality evaluation factors during the periods prior to the Columbia accident. Specifically, the combined weights for those criteria shifted from a high of 40 percent in period 1 through period 4, to 35 percent in period 5 through period 7, and then to a low of 15 percent in period 8 through period 11, before increasing again to 35 percent in period 12 (last award fee period prior to the Columbia Shuttle accident) through period 14. Enclosure 3 illustrates the trends in the weighting of award fee evaluation criteria.

These weighting shifts appear to contradict the SFOC Fee Plan (Contract Attachment J-8), which specifically emphasizes that operational safety is of supreme importance to NASA. The weighting shifts also give the appearance that NASA de-emphasized the importance of operational safety and quality in favor of other schedule and performance criteria. No

indication exists that the downward shift in operational safety and quality weights either adversely impacted Shuttle safety or contributed to the Columbia accident.

*Changes in the Communication of Award Fee Evaluation Criteria to USA*

In the award fee process, areas of emphasis are intended to provide the contractor with an understanding of specific performance areas upon which the contractor should focus during a specific period. For award fee period 1 through period 7, NASA communicated to USA specific areas of emphasis that corresponded to each evaluation factor (including operational safety and quality). However, beginning with award fee period 8, the Agency did not communicate the award fee factors as specifically as during the previous periods (i.e., the Agency did not specify to which evaluation factor the cited areas of emphasis corresponded). In addition, for period 8 through period 12, the Agency did not relate any areas of emphasis directly to the operational safety and quality evaluation factors. Rather, the areas of emphasis cited for those periods related primarily to management effectiveness.

We found no evidence that either not communicating the areas of emphasis by evaluation factor or an absence of specific areas of emphasis relating to operational safety and quality criteria had an adverse impact on Shuttle safety. However, the Agency's change in the communication of award fee criteria and the lack of operational safety and quality-related areas of emphasis could be misinterpreted to mean that the criteria are no longer as important.

To provide timely feedback to the Agency, we previously briefed the Johnson Chief Counsel and the cognizant Johnson Procurement Manager about these observations. If you have questions, or would like to discuss these issues further, please contact me at (202) 358-2572.

[original signed by]

David M. Cushing

3 Enclosures:

1. Background
2. Award Fee Evaluation Factors

## **Background**

We conducted this audit because Volume V, Appendix G.9 of the Columbia Accident Investigation Board (CAIB) Report, entitled, “Report to CAIB: Contracts, Incentives and Safety/Technical Excellence,” presents an analysis of the Space Flight Operations Contract (SFOC) and its fee structure and notes that, “NASA relies very extensively on contract financial incentives to motivate major shuttle program contractors.” United Space Alliance’s (USA) work affects the safety of NASA astronauts and the Space Shuttle orbiters, as well as space hardware, personnel, and equipment. Also, the Board expresses in the report that technical, organizational, and cultural changes within NASA are necessary before the Agency can safely return to flight.

The SFOC is a cost-plus-incentive-fee/award-fee contract that supports the primary goals of the NASA Space Flight Program. The goals of the contract are (in priority): (1) operational safety, (2) mission success and safety, and (3) cost reduction. The fee plan includes a combination of award fees, performance incentives, and cost incentives that are designed to emphasize excellence in managerial performance, technical performance, schedule performance, subcontract management, and cost performance while providing the contractor appropriate motivation to achieve program goals. The award fee process occurs every 6 months with interim assessments at midpoint. In the first 12 award fee periods, 43 percent of the total fees USA earned was attributable to award fee.

Federal Acquisition Regulation 16.401(a)(1) states “incentive contracts are designed to obtain specific acquisition objectives by establishing reasonable and attainable targets that are clearly communicated to the contractor.” In addition, NASA FAR Supplement 1816.405-274(a) states “explicit evaluation factors shall be established for each award fee period.” Finally, the NASA Award Fee Contracting Guide 2.3 states “criteria for contract performance are included in the contract, and the contractor is then judged on how well it performs in relation to those criteria.”

## **Objectives, Scope, and Methodology**

We performed audit fieldwork at Johnson and Headquarters from October 2003 through February 2004. Our objective was to determine whether the incentive/award fee structure under the orbiter prime contract (Space Flight Operations Contract) was conducive to safe operations and administered in accordance with Federal and Agency regulations. Also, we attempted to identify best and promising practices based on benchmarking with other comparable contracts in support of other safety critical U.S. Government programs. To accomplish our objective, we performed the following work:

- Obtained and reviewed the established criteria and determined that the operational safety is factored into the fee structure.
- Reviewed the award fee process and determined that NASA had followed the established process in the fee plan.
- Performed trend analysis for each fee category for period 1 through period 14.
- Interviewed Performance Evaluation Board members to gain insight on their perspective award fee process.
- Interviewed Contractor representatives to obtain their input to award and incentive fee processes.
- Performed correlation analysis between evaluation criteria, areas of emphasis, weights, and the Contractor's self-assessments.

We reviewed how the fee structure of the SFOC was established and determined that the contract was established in accordance with Federal and Agency regulations. For benchmarking, we were unable to identify other Federal programs that used incentive/award fee contracts to emphasize safety.

We conducted the audit in accordance with generally accepted government auditing standards.

**Award Fee Evaluation Factors  
Trend of Assigned Weights (in Percent)**

Evaluation Factors	Period 1	Period 2	Period 3	Evaluation Factors Added or Consolidated	Period 4	Period 5	Period 6	Period 7	Evaluation Factors Added or Consolidated	Period 8	Period 9	Period 10	Period 11	Evaluation Factors Added or Consolidated	Period 12	Period 13	Period 14
	Oct 96 - Mar 97	Apr 97 - Sep 97	Oct 97 - Mar 98		Apr 98 - Sep 98	Oct 98 - Mar 99	Apr 99 - Sep 99	Oct 99 - Mar 00		Apr 00 - Sep 00	Oct 00 - Mar 01	Apr 01 - Sep 01	Oct 01 - Mar 02		Apr 02 - Sep 02	Oct 02 - Mar 03	Apr 03 - Sep 03
Management Effectiveness	25	25	25		25	25	25	25	Management Effectiveness and Cost	5	25	25	25	Management Effectiveness and Subcontract Management and Cost	35	35	35
Cost	5	5	5		5	5	5	5									
									Subcontract Management and Performance	30	20	20	20				

Operational Safety	20	20	20		20	20	20	20	Operational Safety and Quality	15	15	15	15	Operational Safety	20	20	20
Quality	20	20	20		20	15	15	15									

Schedule	5	5	5	Schedule and Manifest Effectiveness	10	10	10	10	Schedule and Manifest Effectiveness and Support	5	5	5	5		15	15	15
Manifest Effectiveness	5	5	5														
Supportability	5	5	5														

									Kennedy Ground Operations	30	20	20	20				
--	--	--	--	--	--	--	--	--	---------------------------	----	----	----	----	--	--	--	--

SB/SDB/WOSB*	15	15	15		15	15	15	15		15	15	15	15		15	15	15
--------------	----	----	----	--	----	----	----	----	--	----	----	----	----	--	----	----	----

<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>		<b>100</b>	<b>100</b>	<b>100</b>
--------------	------------	------------	------------	--	------------	------------	------------	------------	--	------------	------------	------------	------------	--	------------	------------	------------

Fee Determination Official	<i>George W.S. Abbey</i>						<i>Roy S. Estess</i>		<i>Brock R. Stone</i>	<i>Michael C. Kostelnik</i>							
Contracting Officer	<i>Jeff Cullen</i>					<i>Herb Baker</i>											

\*Small/Small Disadvantaged/Woman Owned Small Business (SB/SDB/WOSB)