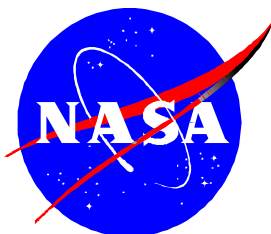


IG-99-011

**AUDIT
REPORT**

**EARTH OBSERVING SYSTEM (EOS)
COMMON SPACECRAFT
PLANNING AND MANAGEMENT**

March 17, 1999



National Aeronautics and
Space Administration

Office of Inspector General

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Acronyms

CO	Contracting Officer
DCMC	Defense Contract Management Command
EOS	Earth Observing System
PEP	Performance Evaluation Plan
SEG	Space and Electronics Group

W

March 17, 1999

TO: Y/Associate Administrator for Earth Science
100/Director, Goddard Space Flight Center

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on the Audit of Earth Observing System (EOS)
Common Spacecraft Planning and Management
Assignment Number A-HA-98-040
Report Number IG-99-011 Redacted Report*

1

The subject final report is provided for your use. Please refer to the Executive Summary for the overall audit results. Our evaluation of your response is incorporated into the body of the report. The corrective actions taken or planned, by management, for all three recommendations were responsive and sufficient to disposition the recommendations, which are considered closed for reporting purposes.

If you have questions concerning the report, please contact Mr. Daniel Samoviski, Program Director, Earth and Space Science Audits, at (301) 286-0497 or Mr. Tony Lawson, Auditor-in-Charge, at (301) 286-6524. We appreciate the courtesies extended to the audit staff. The report distribution is in Appendix F.

[Original signed by]
Russell A. Rau

Enclosure

cc:
B/Chief Financial Officer
G/General Counsel
JM/Director, Management Assessment Division

*We have redacted portions of this report due to references to deliberative process information. The redacted passages do not affect the validity of this report or management's response.

Contents

Executive Summary, *i*

Introduction, *1*

Findings and Recommendations, *2*

Finding A. Compliance With Delegation Requirements, *2*

Finding B. Communication of Award Fee Decisions, *5*

Appendix A - Objectives, Scope, and Methodology, *9*

Appendix B - DCMC Quality Assurance Delegation Requirements, *11*

Appendix C - Award Fee Administration Responsibilities, *13*

Appendix D - Award Fee Based on Monitors' Scores, *15*

Appendix E - Management's Response, *16*

Appendix F - Report Distribution, *33*

NASA Office of Inspector General

IG-99-011
A-HA-98-040

March 17, 1999

Earth Observing System (EOS) Common Spacecraft Planning and Management

Executive Summary

Background. In September 1995, NASA awarded a \$398.7 million cost-plus-award-fee contract (NAS5-32954) to TRW, Inc., for two Earth Observing System (EOS) spacecraft, PM-1 and CHEM-1. Separate options for two additional spacecraft will, if exercised, increase the contract value to \$668.5 million.

The PM-1 and CHEM-1 spacecraft will serve as the platforms for obtaining 24 measurements (for example, measurements of clouds, precipitation, sea ice, etc.) that comprise the core of the EOS mission. TRW will design, fabricate, integrate, test, deliver, and provide launch support and sustaining engineering support for each spacecraft. The PM-1 spacecraft is scheduled for launch in 2000 and for CHEM-1 in 2002.

Objectives. The overall objective of the audit was to evaluate contract administration. Specifically, we determined whether:

- planned schedule and costs are being achieved,
- quality control is adequate,
- award fee determinations are correct, and
- contractor performance is effectively monitored.

Details on the scope and methodology are in Appendix A.

Results of Audit. In general, the EOS contractor-planned schedule and cost performance is adequate, award fee determinations are correct, and program and project officials have effectively monitored performance. However, program management can be improved in the areas of quality control and communication of award fee determinations.

NASA does not have assurance that the Defense Contract Management Command (DCMC) is performing required quality assurance services. Further, DCMC did not finalize and submit its Agency Quality Assurance Plan for contract NAS5-32954 in a timely manner. Although the plan has now been submitted, it has not been formally approved by NASA. Finally, DCMC has

not submitted required status reports to the NASA Flight Assurance Manager at Goddard Space Flight Center (Goddard). The information is necessary to ensure that quality assurance issues are addressed in a timely manner.

Event coordinators² disagreed with event monitors' assessment and scores regarding contractor award fees and did not discuss the differences with the event monitors.³ Without the opportunity to discuss and reach agreement, award fee scores may not accurately reflect contractor performance.

Recommendations. We recommend that NASA:

- ensure that DCMC performs required quality assurance services.
- improve communication of award fee determinations to participants in the evaluation process.

Management's Response. Management concurred with the recommendations and has taken actions to correct the cited deficiencies. The complete text of the response is in Appendix E. Management also provided some comments on the finding discussion which were resolved in meetings between the auditors and Goddard officials.

Evaluation of Response. The actions taken are responsive, and we consider the recommendations closed with the issuance of this final report.

¹ Event coordinators review and consolidate findings in event reports, which include a section on the assessment of the contractor's performance and a corresponding score.

³ Event monitors conduct ongoing evaluations of the contractor's performance and write the assessments in the event reports.

Introduction

DCMC provides contract management services for Department of Defense and NASA contracts. DCMC's services span the acquisition life cycle, from pre-award to contract close-out. The NASA Flight Assurance Manager issued a Letter of Delegation to DCMC-TRW stating the specific quality assurance functions to be performed by DCMC in support of contract NAS5-32954.

The NASA Fee Determination Official determines the award fee earned by TRW for each 6-month period based upon input from event monitors, event coordinators, and the Performance Evaluation Board. Event monitors conduct ongoing evaluations of TRW's performance and submit to coordinators event reports that contain an assessment of the contractor's performance. The coordinators review and consolidate the findings in the event reports for review by the Performance Evaluation Board, which then issues its report to the Fee Determination Official.

TRW will design, fabricate, integrate, test, deliver, and provide launch support and 72 months of sustaining engineering support for each of the PM-1 and CHEM-1 spacecraft. NASA will acquire the instruments to be flown on each mission through other contractual vehicles and will provide them to TRW as Government-furnished property. The EOS Common Spacecraft is configured to be launched on a Delta II launch vehicle. The launch vehicle and associated services are being provided under Kennedy Space Center's Medium Expendable Launch Vehicle contract.

PM-1 and CHEM-1 are two in a series of orbiting EOS platforms that are central to NASA's Earth Science Enterprise, a long-term study of the planet and its processes. The EOS program comprises remote sensing spacecraft; a data distribution system; and international, multidisciplinary teams of researchers. The program's goal is to provide a scientific basis for understanding the scope, dynamics, and implications of global changes. Scheduled for launch in December 2000, PM-1 will collect climate-related data. Its on-board sensors will measure clouds, precipitation, atmospheric temperature/moisture content, terrestrial snow, sea ice, and sea surface temperature during its 6-year mission. Flying in low-earth orbit, PM-1 will cross over the equator at the same local time each orbit (1:30 p.m.), allowing the comprehensive measurements needed to assess long-term change. CHEM-1 will host a suite of scientific instruments designed to make comprehensive measurements of trace gases in the Earth's environment. Scheduled for launch in late 2002, the satellite's orbit will allow measurements to be taken at all latitudes; instruments will make continuous scans at altitudes ranging from the stratosphere down through the troposphere.

Data from the satellite's instruments will focus on such timely issues as the effects of increased industrialization in developing nations, large-scale biomass burning, ozone depletion, and El Niño conditions. CHEM-1 will also map trace gases resulting from organic decay, lightning, and volcanic eruptions and will study the chemical dynamics of the atmosphere over all geographic areas and seasonal climates.

Findings and Recommendations

Finding A. Compliance With Delegation Requirements

The DCMC did not submit a finalized Quality Assurance Plan and weekly and monthly status reports to the NASA Flight Assurance Manager as required by the Letter of Delegation. This occurred because (1) DCMC personnel responsible for preparation of the Quality Assurance Plan and for meeting reporting requirements have not made these responsibilities high priorities and (2) the Flight Assurance Manager did not enforce compliance with the Letter of Delegation reporting requirements. As a result, Goddard does not have assurance that the contractor is adequately performing the work described in the contract.

Quality Assurance Tasks Required of DCMC

Goddard issued the Letter of Delegation to TRW on November 6, 1996. The Letter of Delegation sets forth the quality assurance functions to be performed by DCMC in support of the Flight Assurance Manager for procurement of the EOS Common Spacecraft. Paragraph 2B403, "Agency Quality Plan," states that DCMC's Quality Assurance Plan "shall be submitted to the NASA FAM [Flight Assurance Manager] within 60 days" of the Letter of Delegation. Paragraph 2B405, "Agency Reports," states that DCMC shall provide monthly status reports to the Flight Assurance Manager 15 days after the end of each month. Paragraph 2 of the Letter of Delegation states that DCMC "shall provide an informal written status of issues and concerns to the NASA FAM on a weekly basis." Appendix B contains additional information about the Letter of Delegation and Quality Assurance Plan.

Finalized Quality Assurance Plan and Status Reports

Prior to the survey field work, DCMC had not submitted its finalized Quality Assurance Plan to Goddard, which was due by January 5, 1997. The plan sets forth the Quality Assurance functions DCMC is to perform in support of the contract. DCMC did submit the plan to the NASA Flight Assurance Manager for approval on August 8, 1998. However, at the completion of field work January 20, 1999, the plan had still not been formally approved. In addition, DCMC has not submitted the required weekly and monthly status reports to the Flight Assurance Manager.

DCMC Personnel Changes for EOS Contract

DCMC at TRW consists of two major teams, mirroring TRW Groups. The two teams are the Space and Electronics Group (SEG) under which the EOS contract is performed and the Systems and Information Technology Group. Several DCMC individuals performing key quality assurance services on EOS tasks are new to the contract. The SEG Team Leader has been in his current position for 1 year. The current Program Integrator, who reports to the SEG Team Leader, has been in his position for only 2 months.

The Program Integrator is responsible for DCMC's administration of the quality assurance functions for the contract including preparation and submission of periodic reports. The current Program Integrator is the third since inception of the contract. None of the Program Integrators have met the weekly and monthly status report requirements. Rather than submit the weekly reports, the current Program Integrator, at the request of the Flight Assurance Manager, agreed to have weekly teleconferences to discuss quality assurance functions performed by the DCMC. Additionally, the current SEG Team Leader did not emphasize submitting the monthly reports to the Flight Assurance Manager or finalizing the draft Quality Assurance Plan. Further, the Flight Assurance Manager did not formally follow up on DCMC's noncompliance with the requirements of the Letter of Delegation.

NASA Flight Assurance Manager Responsibilities

The Flight Assurance Manager is DCMC's point of contact concerning delegated quality assurance functions. The Flight Assurance Manager is responsible for quality assurance for the EOS spacecraft contract. Since NASA chose to delegate quality assurance functions to DCMC-TRW, the Flight Assurance Manager is responsible for monitoring DCMC's performance of those quality assurance functions. The Flight Assurance Manager provides technical guidance and assistance to DCMC to assure full implementation of the NASA contractual quality requirements. If DCMC does not perform a function required by the Letter of Delegation, the Flight Assurance Manager is responsible for ensuring that DCMC complies with the requirement.

Need for Assurance that DCMC is Performing Quality Assurance Services

Without a formally approved Quality Assurance Plan, Goddard has no assurance that DCMC is performing its quality assurance functions. Without the written monthly reports, Goddard lacks assurance that the contractor is adequately performing the work described in the contract and that closure is achieved on open items. Information received only by teleconferences could be misinterpreted or misstated to Goddard officials, which could lead to quality assurance issues and concerns not being adequately addressed in a timely manner.

Recommendations, Management's Response, and Evaluation of Response

- 1. The Director, Goddard Space Flight Center, direct the NASA Flight Assurance Manager to request DCMC to submit weekly and monthly status reports to the Flight Assurance Manager as required by the Letter of Delegation.**

Management's Response. Concur. Management concurred with the recommendation and has taken actions to correct the cited deficiencies. The EOS PM System Assurance Manager issued two letters to the cognizant DCMC office. The first letter, dated February 10, 1999, confirmed a June 18, 1998, oral agreement between the EOS System Assurance Manager and the Program Integrator, DCMC, to have weekly teleconferences on status discussions rather than formal weekly written reports. The second letter, dated February 18, 1999, was to

formally request DCMC compliance with the Letter of Delegation requirement for monthly written reports. The complete text of the comments is in Appendix E.

Evaluation of Response. Management's actions have fully satisfied the intent of the recommendation.

2. The Director, Goddard Space Flight Center, direct the NASA Flight Assurance Manager to formally approve the DCMC Agency Quality Assurance Plan, as appropriate.

Management's Response. Concur. The DCMC Agency Quality Assurance Plan was formally approved in a letter dated February 10, 1999, from the EOS PM System Assurance Manager to the cognizant DCMC office. The letter states, "The Agency Quality Assurance Plan dated August 8, 1998, submitted to the EOS PM [Post Meridian] Project in accordance with Article 2B403, paragraph 3 of the...LOD [Letter of Delegation] is acceptable."

Evaluation of Response. Management's actions, meet the intent of the recommendation. The complete text of the comments is in Appendix E.

Finding B. Communication of Award Fee Decisions

When NASA event coordinators disagreed with event monitor's assessments and scores regarding contractor award fees, the coordinators did not discuss those differences with the monitors who originated the scores and assessments in event reports. Essential communication was lacking because coordinators considered the event reports to be prepared in accordance with the Award Fee Contracting Guide and to be self-explanatory. Consequently, award fee scores and amounts awarded to the contractor may not accurately reflect performance and specific problem areas requiring corrective actions may not be adequately addressed.

Award Fee Guidance Emphasizes Communication

NASA Award Fee Contracting Guide, Section 3.7.1 "Communication" states:

frequent and honest communication is essential, both between the Government and contractor and within their respective organizational frameworks. To illustrate, it may be just as important for the FDO [Fee Determination Official] to communicate the rationale for the award fee determination to all those [monitors, coordinators and Performance Evaluation Board members] who participated in the Government evaluation process as it is for him to communicate that rationale to the contractor.

Section 3.2.1, "Basic Structure," states that monitors should "conduct assessments in an open, objective and cooperative spirit..." Section 3.2.3, "Steps in the Evaluation Process," states that the Performance Evaluation Board bases its award fee determination decisions on information in the monitors' event reports and any other pertinent information, including information provided by the contractor during the evaluation period.

Preparation of Event Reports

Event monitors track and assess contractor performance during each 6-month evaluation period. At the end of the period, the monitors prepare event reports, which include sections for both the monitors and coordinators to provide assessments of the contractor's performance and corresponding scores. The coordinators evaluate the monitor's assessment and the score, either concurring or disagreeing with the assessment, and may provide a separate coordinator's score on the lower portion of the event monitor's report that they consider more appropriate. Coordinators generally have not discussed with the monitors significant differences in scores since coordinators considered the event reports self-explanatory and prepared in accordance with guidance in the Award Fee Contracting Guide. Unless they are contacted for input, monitors generally do not provide additional input to the award fee determination process after the event reports are submitted to the coordinators.

Significant award fee differences need to be discussed between monitors and coordinators as prescribed by the guide. Monitors track the contractor's performance and have a good, general understanding of needed improvements. Coordinators could be overlooking needed contractor improvements based on their assessment of the overall program level. Frequent communication between coordinators and monitors is vital to effectively assess the

contractor's performance and to keep everyone participating in the Government evaluation process informed. Appendix C contains the responsibilities of NASA officials that participate in the award fee process.

****Deliberative process information omitted.****

****Deliberative process information omitted.****

****Deliberative process information omitted.****

Conclusion

Communication between the coordinators and the monitors could be improved to enhance contractor assessments and to keep everyone involved in the award fee process informed.

Recommendation, Management’s Response, and Evaluation of Response

- 3. The Director, Goddard Space Flight Center, direct the Fee Determination Official to require coordinators to discuss significant award fee score differences with the monitors as prescribed by the Award Fee Contracting Guide.**

Management’s Response. Concur. Management agreed that improved discussions between monitors and coordinators related to significant award fee score differences was a good practice. Goddard implemented the “improved communications” practices during Award Fee Period 5. The EOS Common Spacecraft event coordinator provided copies of the Cost Plus Award Fee Contractor Individual Event Report form to all event monitors to provide them the opportunity to discuss variances. The complete text of the comments is in Appendix E.

Evaluation of Response. Goddard’s actions will, in our opinion, result in accurate award fees to be determined and paid to the contractor.

Appendix A. Objectives, Scope, and Methodology

Objectives

The overall objective of the audit was to evaluate contract administration. Specifically, we determined whether:

- planned schedule and costs are being achieved,
- quality control is adequate,
- award fee determinations are correct, and
- contractor performance is effectively monitored.

Scope and Methodology

We performed detailed survey work at Goddard. In addition, we visited the contractor's site in Redondo Beach, California.

- To determine the current status of the contract with regard to cost and schedule, we reviewed monthly performance measurement reports submitted by the contractor for April through July 1998 and compared actual work completed with budgeted work. We then interviewed NASA project management and DCMC quality assurance personnel to determine how each group addressed performance issues.
- To identify quality assurance responsibilities delegated to DCMC, we obtained and reviewed Goddard's Letter of Delegation to DCMC and the DCMC Quality Assurance Agency Plan. We interviewed program management and DCMC personnel and reviewed documents, dating from November 1996 to August 1998, that support delegated activities.
- To evaluate award fee determinations, we obtained supporting documents for award fee periods from September 15, 1995, to April 1, 1998. In addition, we interviewed event monitors and obtained information from event coordinators via e-mailed questions and responses.
- To determine how monitoring activities are performed, we interviewed project management and quality assurance personnel. We also studied reports and interim results of various groups that had conducted periodic or ad hoc reviews of the EOS project from March 1997 through July 1998.

Appendix A

Management Controls Reviewed

We reviewed the process Goddard uses to manage the contract. We examined documentation of requirements, reporting mechanisms, and inspections conducted at the contractor's site. The controls in place were generally adequate.

Audit Field Work

We conducted field work from May 22 through January 20, 1999, at Goddard and the contractor's plant in Redondo Beach, California. The audit was conducted in accordance with generally accepted government auditing standards.

Appendix B. DCMC Quality Assurance Delegation Requirements

Letter of Delegation

The Letter of Delegation sets forth the quality assurance functions to be performed by DCMC in support of the Flight Assurance Manager on the EOS Common Spacecraft contract with TRW. The quality assurance functions include verification of purchase documents, inspections and tests of work in process, and monitoring the software configuration and change management system. The Letter of Delegation states that these services shall be performed in accordance with Chapter 4 of NASA Handbook 5300.4, "Management of Government Quality Assurance Functions for NASA Contracts," except as modified and expanded in the Letter of Delegation. Modifications are contained in paragraphs 2B400 through 2B426 of the Letter of Delegation.

DCMC Agency Quality Plan

Chapter 4 of NASA Handbook 5300.4 provides requirements for the DCMC Agency Quality Plan and states that the plan shall describe how DCMC will perform the delegated quality assurance functions necessary to assure contractor conformance. The handbook states that the Agency plan shall "describe in narrative format how the Agency will perform the functions outlined in the Letter of Delegation."

The handbook requires that the DCMC submit its quality plan within 30 calendar days after acceptance of the Letter of Delegation. Paragraph 2B403 of the Letter of Delegation modifies this requirement to submission within 60 days after the delegation is signed.

Agency Reports

The handbook also provides requirements for DCMC reports and states that the Agency shall prepare and submit monthly a summary narrative quality status report for each procurement. The report shall address results or events that have an effect on status, performance, or quality of supplies or services and contractor or DCMC performance. The handbook lists 17 minimum topics that should be considered for the report, which include:

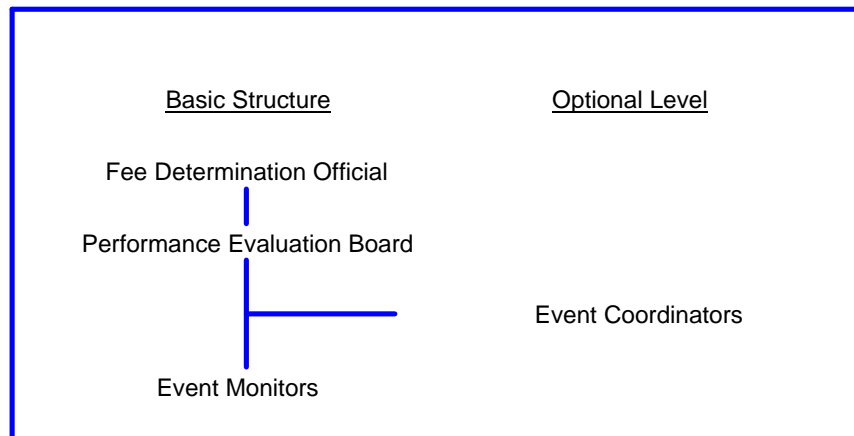
- A summary of DCMC inspection and test results, including mandatory inspections.
- DCMC independent comments on contractor or DCMC-initiated corrective action that is considered unsatisfactory.
- Problems previously reported that remain unresolved, including delinquent corrective action.

Appendix B

Paragraph 2B405 of the Letter of Delegation states that monthly status reports shall be provided to the NASA Flight Assurance Manager 15 days after the end of each month. Additionally, any potential problem areas with recommended preventive action shall be reported.

Appendix C. Award Fee Administration Responsibilities

NASA's Award Fee Contracting Guide, June 1994, contains the organizational structure and associated responsibilities for administering contractor award fee. The Fee Determination Official can modify the basic structure to meet the requirements of individual programs or projects. In certain high-dollar value, complex efforts such as contract NAS5-32954, the optional event coordinator level is used.



Event monitors' responsibilities include:⁴

- monitoring, evaluating, and assessing contractor performance in assigned areas;
- preparing an Event Monitor Report during each 6-month evaluation period for the Performance Evaluation Board; and
- recommending needed changes in the performance evaluation plan.

Event monitors are specialists with a thorough knowledge of their assigned areas of cognizance. Their duties as monitors generally are in addition to, or an extension of, the responsibilities under their position titles. In performing their duties, monitors are required by the guide to maintain ongoing communication with their contractor counterparts; conduct assessments in an open, objective, and cooperative spirit; and emphasize negative performance as readily as positive performance.

³ The positions, Event Coordinators and Event Monitors, listed in the Performance Evaluation Plan for this contract, correspond to Performance Evaluation Coordinators and Performance Monitors, respectively, in NASA's Award Fee Contracting Guide. The positions and associated responsibilities are the same; only the titles differ.

Appendix C

Event coordinators' responsibilities include:⁵

- furnishing instructions to event monitors in the coordinators' assigned areas;
- ensuring that the contractor is promptly notified when a problem is identified that requires immediate contractor attention; and
- coordinating, consolidating, and analyzing data submitted by event monitors and preparing written reports for presentation to the Performance Evaluation Board for each evaluation period.

Performance Evaluation Board responsibilities include:

- conducting ongoing evaluations of contractor performance based on event monitor reports and other sources;
- submitting a report to the Fee Determination Official covering the Board's findings and recommendations for each evaluation period; and
- recommending appropriate changes in the performance evaluation plan.

Fee Determination Official responsibilities include:

- establishing the Performance Evaluation Board;
- determining the amount of interim fee to be paid for each evaluation period;
- issuing and signing the award fee determination report or letter for the evaluation period; and
- approving the award fee evaluation plan.

⁵ The positions, Event Coordinators and Event Monitors, listed in the Performance Evaluation Plan for this contract, correspond to Performance Evaluation Coordinators and Performance Monitors, respectively, in NASA's Award Fee Contracting Guide. The positions and associated responsibilities are the same; only the titles differ.

Appendix D. Award Fees Based on Monitors' Scores

Award fee for the EOS Common Spacecraft contract is based on two factors: (1) project and technical management and (2) cost and schedule performance. Maximum award fee available for these two factors for evaluation period 2 was \$1,079,978 (\$412,656 and \$667,322, respectively). Both factors have a number of subfactors.

The contractor was awarded \$979,620 of the available fee for evaluation period 2.

Deliberative process information omitted.

Appendix E. Management's Response

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771



Reply to Attn of: 201

FEB 25 1999

TO: NASA Headquarters
Attn: W/Assistant Inspector General for Auditing

FROM: 100/Director

SUBJECT: GSFC Response to Office of Inspector General (OIG) Draft Report on Audit of Earth Observing System (EOS) Common Spacecraft Planning and Management, Assignment A-HA-98-040, January 20, 1999

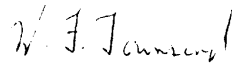
Thank you for providing us this opportunity to respond to the subject draft report. We are pleased that the preliminary survey activity found adequate EOS contractor-planned schedule and cost performance, correct award fee determinations, and effective performance monitoring by program and project officials.

With respect to the three recommended process improvements in the report, we concur in all three. We have taken actions to clarify Defense Contract Management Command (DCMC) weekly and monthly reporting requirements, document formal approval of the DCMC Quality Assurance Plan, and assure that performance event monitors and coordinators discuss their performance assessments with one another, particularly when they are at variance. Detailed responses are enclosed.

The body of the report contains inaccuracies and points that require correction or clarification. These corrections and clarifications are provided in the enclosure.

We would like to thank Mr. Samoviski, Mr. Lawson, and Ms. Seger of your staff for their constructive efforts during our exit meeting January 29.

Please feel free to contact me or Ms. JoAnn Clark, GSFC Audit Liaison Officer, if you need further information or assistance.

for 
A. V. Diaz

Enclosure

Appendix E

cc:
HQ/HK/Mr. J. Horvath
HQ/JM/Ms. M. Myles
HQ/Y/Dr. G. Asrar
HQ/YF/Ms. A. Johnson
HQ/YM/Ms. D. Santa

Appendix E

GODDARD SPACE FLIGHT CENTER (GSFC)
RESPONSE TO
OFFICE OF INSPECTOR GENERAL (OIG)
DRAFT REPORT A-HA-98-040
DATED JANUARY 20, 1999
ON AUDIT OF
EARTH OBSERVING SYSTEM (EOS)
COMMON SPACECRAFT PLANNING AND MANAGEMENT

FEB 25 1999

DATE _____

ENCLOSURE

Appendix E

GSEC Response to OIG
1/20/99 Draft Report
A-HA-98-040
Page 2

The following corrects inaccuracies in the OIG draft report and provides additional clarifications to improve the balance of the report. It also provides GSEC concurrences and responses to OIG recommendations for improved process.

1. OIG draft page i, paragraph 2: "TRW will design, fabricate, integrate, test, deliver, and provide launch support and **flight operations** support for the spacecraft."

Correction: **Flight operations** should read **sustaining engineering**. Also, **the spacecraft** should read **each spacecraft**.

2. OIG draft page i, paragraph 6: "Further, DCMC had not finalized its Agency Quality Assurance Plan for contract NAS5-32954."

Correction: DCMC submitted the Agency Quality Assurance (QA) Plan in August 1998 prior to completion of this audit in November 1998. It was approved via email on August 3, 1998. In response to the OIG audit, formal approval was reiterated by letter dated February 10, 1999. (See Enclosures 1, 2, and 3.)

3. OIG draft page ii, first full paragraph: "Event coordinators made significant **changes** in contractor award fee scores and did not discuss the **changes** with the event monitors."

Correction: Event coordinators did not "change" event monitors' scores. Coordinators provided their assessments and their scores on the same form as the monitors. Thus, the Performance Evaluation Board (PEB) had the benefit of all views and supporting rationale. (See Enclosure 4.)

****Deliberative process information omitted.****

4. OIG draft page ii, first full paragraph: "Without the opportunity to discuss and reach agreement, award fee scores may not accurately reflect contractor performance."

Clarification: We would like to clarify several points to insure a proper understanding of this statement. The Award Fee Contracting Guide does not require agreement or reconciliation of differing assessments and scores. PEB members expect and value honest and individual assessments; and they regard differences in assessments and scores as important opportunities to fully understand and explore all aspects of contractor performance. The PEB Chairman and members thoroughly explore significant differences in scores, in order to arrive at informed recommendations to the Fee Determination Official for consideration and final decision regarding contractor award fees. (The OIG sought no input from the PEB regarding how scoring is accomplished and how differences between the monitors' and coordinators' assessments and scores were considered.)

Appendix E

3

5. OIG draft page 1, paragraph 3: “TRW will design, fabricate, integrate, test, deliver, and provide launch support and 72 months of **flight operations** support...”

Correction: **Flight operations** should read **sustaining engineering**.

6. OIG draft page 1, paragraph 3: “The launch vehicle and associated services are being provided under **Goddard’s** Medium Expendable...”

Correction: **Goddard’s** should read **Kennedy Space Center’s**.

7. OIG draft page 1, paragraph 5: “Flying in low-earth orbit, PM-1 will **pass over the same position each afternoon**,...”

Correction: Bolded phrase should read **cross the equator at the same local time each orbit**.

8. OIG draft page 2, paragraph 1: “...performing the work described in **each contract task assignment**.”

Correction: The Common Spacecraft Contract does not employ task assignments. This should read: **in the contract**.

9. OIG draft page 2, paragraph 3: “As of September 30, 1998, DCMC [Defense Contract Management Command] had not submitted a finalized Agency Quality Assurance Plan to Goddard, which was due by January 5, 1997. The current plan is in draft form and contains out-of-date information.”

Correction: This plan was submitted in August 1998 and approved by email on August 3, 1998. (Cross reference note 2 above.)

10. OIG draft page 2, paragraph 3: “In addition, DCMC has not submitted the required weekly and monthly status reports to the Flight Assurance Manager. Rather than submit the reports, DCMC **chose** to have weekly teleconferences to discuss quality assurance functions performed by DCMC.”

Clarification: On June 18, 1998, the EOS PM Flight Assurance Manager requested weekly telecons in lieu of written weekly reports. In response to the OIG audit, a formal letter to this effect was issued February 10, 1999. In addition, on February 18, 1999, the Flight Assurance Manager wrote a letter to formally request compliance with the Letter of Delegation requirement for monthly written reports. (*See Enclosures 5 and 6*).

Appendix E

4

11. OIG draft page 3, first full paragraph: “Each Program Integrator **chose** to communicate orally with the Flight Assurance Manager because of higher priorities.”

Clarification: The EOS PM Flight Assurance Manager requested weekly telecons in lieu of written weekly reports; and, as stated in clarification note 10 above, in response to the OIG audit, a formal letter to this effect was issued on February 10, 1999.

12. OIG draft page 3, first full paragraph: “Additionally, the Flight Assurance Manager **did not follow up** on DCMC’s noncompliance with the requirements of the Letter of Delegation.”

Clarification: The Flight Assurance Manager followed up orally regarding DCMC noncompliance with monthly reporting; and as noted in the clarification for note 10 above, in response to the OIG audit, the Flight Assurance Manager followed through with a written, formal request dated February 18, 1999, for compliance with the Letter of Delegation requirement for monthly written reports.

13. OIG draft page 3, paragraph 3: “Without the **finalized QA Plan...**”

Correction: The QA Plan was submitted and approved in August 1998. (Cross reference note 2 above.)

14. OIG draft page 3, paragraph 3: “...work described in **each contract task assignment...**”

Correction: The contract does not employ task assignments. Should read: **the contract**.

15. OIG draft page 3, paragraph 3: “Information received only by teleconferences could be misinterpreted or misstated to Goddard officials, which could lead to quality assurance issues and concerns not being adequately addressed in a timely manner.”

Disagree: This OIG opinion is debatable. Our experience is that teleconferences in fact allow timely, interactive, and full discussion and clarification of issues. Teleconferences that have taken place on a regular basis with DCMC since the transmission of the Letter of Delegation in November 1996 have been found to be timely and highly informative.

16. OIG Recommendation 1: (\$0)

The Director, GSFC, should request DCMC to submit weekly and monthly status reports to the Flight Assurance Manager as required by the Letter of Delegation.

GSFC Response: (\$0) Concur

On February 10, 1999, a letter was written to formally confirm the verbal agreement of June 18, 1998, requesting weekly telecon status discussions and reports rather than weekly written reports. In addition, on February 18, 1999, the Flight Assurance Manager wrote a letter to formally request compliance with the Letter of Delegation requirement for monthly written reports. (Cross reference note 10 above.) We consider this recommendation closed for reporting purposes.

Appendix E

5

17. OIG Recommendation 2: (\$0)

The Director, GSFC, should finalize the Agency Quality Assurance Plan for submission to the NASA Flight Assurance Manager.

GSFC Response: (\$0) Concur

The Agency Quality Assurance Plan was submitted in August 1998 and approved via email on August 3, 1998. In response to the OIG audit, formal approval was reiterated by letter dated February 10, 1999. (Cross reference note 2 above.) We consider this recommendation closed for reporting purposes.

18. OIG draft page 5, paragraph 1: “When NASA event coordinators disagreed with and **changed scores and assessments** regarding contractor award fees, the coordinators did not discuss **those changes** with the monitors...”

Correction: Event coordinators did not “change” event monitors’ scores. Coordinators provide their assessments and their scores on the same form as the monitors. Thus, the Performance Evaluation Board had the benefit of all views and supporting rationales. (Cross reference note 3 above.)

19. OIG draft page 5, paragraph 1: “Essential communication was lacking because coordinators considered the event reports prepared in accordance with the Award Fee Contracting Guide and to be self-explanatory. Consequently, award fee scores and amounts awarded to the contractor may not accurately reflect performance, and specific problem areas requiring corrective actions may not be adequately addressed.”

Disagree: The Performance Evaluation Board had the benefit of both the monitors’ and the coordinators’ assessments and scores, and they seriously considered both in recommending a score to the Fee Determination Official. (Cross reference note 4 for additional discussion.)

20. OIG draft page 5, paragraph 4: “The coordinators evaluate the monitor’s assessment and the score, either concurring or disagreeing with the assessment, and may **assign** a score in the report that they consider more appropriate.”

Clarification: The word **assign** in this context is misleading, as it suggests a dictating, overriding, or superceding of the coordinator’s assessment and score over that of the monitor. The coordinator simply **provides** his own assessment and score.

21. OIG draft page 5, paragraph 4: “Coordinators generally have not discussed...significant **changes** to scores...”

Correction: Again, as stated in previous notes, coordinators did not change assessments or scores.

Appendix E

6

22. OIG draft page 5, paragraph 5: "Significant award fee differences need to be discussed between monitors and coordinators as **prescribed by the guide.**"

Correction: The Award Fee Contracting Guide **emphasizes** communication, and we agree that discussion of largely -variant assessments between monitors and coordinators is a good practice. We have implemented improved discussion practices into our process. (Cross reference note 23 below.)

23. OIG draft page 6, continuation paragraph from preceding page: "Frequent communication between coordinators and monitors is vital to effectively assess the contractor's performance and to keep everyone participating in the Government evaluation process informed."

Clarification: We agree. The monitors and coordinators are all part of the same project, and they discuss contractor progress and performance on a regular basis as part of normal day-to-day Project activities. In response to the OIG audit, we have implemented improved communications in the award fee determination process for the Common Spacecraft Contract. This improved process was begun during Award Fee Period 5, which ended September 30, 1998. The event coordinator provided copies of the Cost Plus Award Fee (CPAF) Contractor Individual Event Report form (GSFC 18-15), after he recorded his assessment and scoring, to all event monitors, to give them the opportunity to review and discuss variances.

24. OIG draft page 6, paragraph 2: "...being informed of the **changes** in scores."

Correction: Again, as stated in previous notes, scores were not changed.

25. OIG draft page 7, footnote 1: "Scores and ratings from the second and fourth award fee evaluation periods..."

Clarification: The OIG footnote implies that the 15 subfactor events listed are the total number of events rated from the second and fourth award fee evaluation periods and thus the scoring disparity "problem" is global. In fact, they are only a selected sample of 15 out of 89 total for those two periods. ****Deliberative process information omitted.****

26. OIG draft page 8, paragraphs 1 and 2: (OIG discussion of effects on award fee)

Additional Information: The Award Fee Contracting Guide was revised in December 1997. The revised version changed the method of accounting for scores below 61 at the subfactor level by eliminating the "no reward" requirement. While the two periods selected by the OIG for this survey occurred prior to December 1997, the Guide revision implies that the prior guidelines were considered to be unreasonable.

We would like to reiterate, here, that the Performance Evaluation Board had the benefit of both the monitors' and the coordinators' assessments and scores, and the Board takes both into consideration in recommending a score to the Fee Determination Official. (Discussion in previous notes.)

27. OIG Recommendation 3: (\$0)

The Director, GSFC, should require coordinators to discuss significant award fee score differences with the monitors **as required by the Award Fee Contracting Guide.**

GSFC Response: (\$0) Concur

We agree that improved discussion of significant award fee score differences between monitors and coordinators is a good practice as encouraged by the Guide. In response to the OIG audit, we have implemented improved communications in the award fee determination process for the Common Spacecraft Contract. This improved process was begun during Award Fee Period 5, which ended September 30, 1998. The event coordinator provided copies of the CPAF Contractor Individual Event Report form, after he recorded his assessment and scoring, to all event monitors, to give them the opportunity to review and discuss variances. We consider this recommendation closed for reporting purposes.

28. OIG draft page 9, paragraph 5: OIG Scope and Methodology: "...interviewed award fee evaluation participants, including event monitors and event coordinators."

Clarification: While there was an exchange of information via email with the event coordinators, we were disappointed that neither the coordinators nor the PEB Chairman and members were actually approached for interviews to provide auditors with a complete understanding of the process.

29. OIG draft page 17, paragraph 2: ****Deliberative process information omitted.****

Additional Information and Comment: There is no requirement to award fee based on the lowest possible score. In addition, this finding would be negated by the December 1997 Award Fee Contracting Guide revision.

30. OIG draft page 18: (Features OIG's list for distribution of final report.)

Suggestion: Add Code Q Associate Administrator for Safety and Mission Assurance

Agency Plan

Agency Quality Assurance Plan

August 8, 1998

EOS Common Satellite

NASA GSFC

Contract No. NAS 5-32954

DCMC
Van Nuys GVORP
at TRW
Redondo Beach, CA

ENCLOSURE 1

Appendix E

1.0 SUBJECT	3
2.0 PURPOSE	3
3.0 2B401 QUALITY ASSURANCE DOCUMENTS	3
3.1 APPLICABLE SPECIFICATIONS	3
3.2 OTHER DOCUMENTS	3
3.3 APPLICABLE FORMS AND COMPANY DOCUMENTS	4
4.0 2B402 CONTRACT REVIEW AND PLANNING	5
5.0 2B403 AGENCY QUALITY PLAN	5
6.0 2B404 PERSONNEL AND STAFFING	5
7.0 2B405 AGENCY REPORTS	6
8.0 2B406 PROCEDURES REVIEW AND EVALUATIONS	7
9.0 2B407 DESIGN REVIEWS	7
10.0 2B408 SPECIAL AGENCY SURVEYS	8
11.0 2B409 MANDATORY REQUIREMENTS	8
12.0 2B410 PROCUREMENT CONTROL	8
13.0 2B411 REDELEGATING QUALITY ASSURANCE FUNCTION	9
14.0 2B412 RECEIVING INSPECTION AND TEST	10
15.0 2B413 IN-PROCESS CONTROLS	10
16.0 2B414 END ITEM TEST AND INSPECTION	10
17.0 2B415 NONCONFORMING MATERIAL CONTROL, DISPOSITION, AND CORRECTIVE ACTION	11
18.0 2B416 MATERIAL REVIEW BOARD (MRB)	11
19.0 2B417 GOVERNMENT FURNISHED PROPERTY	11
20.0 2B418 UTILIZATION OF INSPECTION AND TEST EQUIPMENT BY AGENCY PERSONNEL	11
21.0 2B419 FAILURES AND FAILURE ANALYSIS	12
22.0 2B420 QUALITY STATUS STAMPING AND CONTROL	12
23.0 2B421 CONFIGURATION AND CHANGE CONTROL	12
24.0 2B422 SOFTWARE ASSURANCE	12
25.0 2B423 METROLOGY CONTROL	12
26.0 2B424 PRESERVATION, PACKAGING, PACKING, MARKING, HANDLING, AND SHIPPING	13
27.0 2B425 SUPPLIES, SERVICES ACCEPTANCE	13
28.0 2B426 STORES CONTROL	13
29.0 2B427 SAFETY	14
30.0 2B428 AGENCY RECORDS	14
31.0 2B429 CHANNELS OF COMMUNICATION	14
ATTACHMENT A	
ATTACHMENT B	
ATTACHMENT C	
ATTACHMENT D	
ATTACHMENT E	
ATTACHMENT F	
ATTACHMENT G	
ATTACHMENT H	
ATTACHMENT I	
ATTACHMENT J	

Appendix E

****Deliberative process information omitted.****

Appendix E

****Deliberative process information omitted.****

Appendix E

Bob Cash, 12:02 PM 4/21/97 , Flight MEC ATP & Deliveries

Date: 21 Apr 1997 12:02:08 -0700
From: "Bob Cash" <Bob_Cash@qmail4.nba.TRW.COM>
Subject: Flight MEC ATP & Deliveries
To: "Michael Donnelly" <mdonnell@pop400.gsfc.nasa.gov>
Cc: "Ken Camacho" <Ken_Camacho@qmail4.nba.TRW.COM>,
"Rick Hayner" <Rick_Hayner@qmail4.nba.TRW.COM>,
"Gene Starr" <Gene_Starr@qmail4.nba.TRW.COM>,
"Steven Ton" <Steven_Ton@qmail4.nba.TRW.COM>,
"Brooks Vogt" <Brooks_Vogt@qmail4.nba.TRW.COM>

10:41 AM	Subject:	Time:
OFFICE MEMO	Flight MEC ATP & Deliveries	Date:
4/21/97		

As a result of our management meeting and negotiation with Raytheon on 4/17/97 we successfully concluded all technical, schedule, SOW and QA issues. We have a marked up, initialed copy of the SOW to that effect. Based on our prior discussions with GSFC, we know of no open issues in these areas provided that the Raytheon provided hybrid in the MEC is approved by the PMPCB. Raytheon offers this part as Grade B+, which is the same as our contractual baseline of Level 2 and agreed to by TRW PMPCB personnel. We are also assuming a QA source survey by TRW which certifies their facility and QA system as satisfactory for EOS. We will conduct an EOS MEC design specific MRR as well. We have to finalize the cost negotiation and some standard T&C's which will be done NLT May 15.

The following agreements are offered for GSFC consideration:

- 1) Limited Raytheon ATP for long lead material by 4/25/97 and full ATP by mid-May.
- 2) TRW supplied parts commitments to date support Raytheon's manufacturing schedule.
- 3) Flight MEC deliveries are then promised in 2 lots available by month end Mar. and Apr. 1998.
- 4) These deliveries provide a minimum of 2 months internal slack to need date for the C&DH subcontractor, 3 months for GN&C, and 5 months for EPS. Therefore the subcontractor delivery slack to I&T need date of 60 days minimum will not be impacted in any area.

Bob

Printed for Mike Donnelly <Michael.L.Donnelly.1@gsfc.nasa.go... 1

PAGE 2

Appendix E

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771



Recovery Act #: 422

February 10, 1999

DCMC-Van Nuys GVORP & TRW
Mr. J. Sunkees, PI
One Space Park
Rendondo Beach CA, 90278

Subject: Agency Quality Assurance Plan for the EOS Common
Satellite, Contract No. NAS5-32954

Ref: NASA GSFC Letter of Delegation to DCMC Van Nuys
GVORP at TRW for Contract NAS5-32954

The Referenced document cited above requires, in Section 2,
that the Agency provide an informal written status of issues
and concerns on a weekly basis. In accordance with our verbal
agreement of 18 June, 1998 a written report will no longer be
necessary as at that time we agreed that a weekly Telecon with
the System Assurance Manager would be more efficient and
beneficial to the Project.

A handwritten signature in black ink, appearing to read "Gregory L. Robinson".

Gregory L. Robinson
EOS PM System Assurance Manager

cc:
213/Ms. M. Forte
422/Mr. G. Morrow
422/Mr. M. Donnelly
TRW Mr. E. Deogracias

ENCLOSURE 5

Appendix E

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771



422

February 18, 1999

Re: 422/422/422

DCMC Van Nuys - TRW
Attn: Mr. W. Tuck, Team Leader
Bldg. E1/1018a
One Space Park
Redondo Beach, CA 90278-1078

Subject: EOS PM Monthly Reports

Reference: LOD, Contract NAS5-32954

Your office has failed to comply with Section 2B405 Agency Reports of the above referenced LOD.

I cannot impress upon you and your team the significance and importance these reports are in the Project efforts to understand and evaluate the contractors' performance as the EOS Common Bus Program unfolds.

Therefore, all missed reports prior to November, 1998 are to be submitted no later than 15 March, 1999. Additionally, the reports for November and December, 1998, and January 1999 are to be submitted no later than 30 March, 1999. All subsequent reporting will be in accordance with Section 2B405.

Your continued satisfactory support of the other delegated functions of the LOD is appreciated and is expected to continue.

A handwritten signature in black ink, appearing to read "Gregory L. Robinson".

Gregory L. Robinson
EOS PM System Assurance Manager

213/Ms. M. Forte
422/Mr. G. Morrow
422/Mr. W. Schiavone
422/Mr. M. Donnelly
DCMC/LtCol. D. Wright
DCMC/Mr. G. Sunkees
DCMC/Mr. C. Smith
NASA/Mr. E. Deogracias

ENCLOSURE 6

Appendix F. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

Code B/Chief Financial Officer
Code B/Comptroller
Code G/General Counsel
Code H/Acting Associate Administrator for Procurement
Code I/Associate Administrator for External Relations
Code J/Associate Administrator for Management Systems and Facilities
Code JM/Director, Management Assessment Division
Code L/Associate Administrator for Legislative Affairs
Code Q/Associate Administrator for Safety and Mission Assurance
Code Y/Associate Administrator for Earth Science

NASA Centers

Director, Goddard Space Flight Center

NASA Offices of Inspector General

Ames Research Center
Dryden Flight Research Center
John H. Glenn Research Center at Lewis Field
Goddard Space Flight Center
Jet Propulsion Laboratory
Lyndon B. Johnson Space Center
John F. Kennedy Space Center
Langley Research Center
George C. Marshall Space Flight Center
John C. Stennis Space Center

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Budget Examiner, Energy Science Division, Office of Management and Budget

Appendix E

Non-NASA Federal Organizations and Individuals (Cont'd)

Associate Director, National Security and International Affairs Division, General Accounting Office

Special Counsel, House Subcommittee on National Security, International Affairs, and Criminal Justice

Professional Assistant, Senate Subcommittee on Science, Technology and Space

Commander, Defense Contract Management Command Van Nuys - TRW, Space and Defense Sector, Redondo Beach, CA

Chairman and Ranking Minority Member - Congressional Committees and Subcommittees

Senate Committee on Appropriations

Senate Subcommittee on VA, HUD, and Independent Agencies

Senate Committee on Commerce, Science and Transportation

Senate Subcommittee on Science, Technology and Space

Senate Committee on Governmental Affairs

House Committee on Appropriations

House Subcommittee on VA, HUD, and Independent Agencies

House Committee on Government Reform and Oversight

House Committee on Science

House Subcommittee on Space and Aeronautics, Committee on Science

Congressional Member

The Honorable Pete Sessions, U.S. House of Representatives

Major Contributors to this Report

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