

**AUDIT
REPORT**

**MANAGEMENT CONTROLS ON THE
EARTH SYSTEM SCIENCE BUILDING
(ESSB) CONTRACT**

June 8, 1998



National Aeronautics and
Space Administration

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Acronyms

CoF	Construction of Facilities
EOS	Earth Observing System
EOSDIS	EOS Data and Information System
ESSB	Earth System Science Building
FPIH	Facility Project Implementation Handbook
GSFC	Goddard Space Flight Center
NASA	National Aeronautics and Space Administration
NHB	NASA Handbook
NHQ	NASA Headquarters
R&D	Research and Development
USC	United States Code

W

TO: J/ Associate Administrator for Management Systems and Facilities
W/Goddard Space Flight Center
Attn: 100/Center Director

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on Management Controls on the Earth System Science Building
(ESSB) Contract
Assignment Number A-HA-97-055
Report Number IG-98-015

The subject final report is provided for your use. Your comments on a draft of this report were responsive to our recommendation. The report provides our evaluation of your response. We consider the recommendation closed for reporting purposes.

If you have questions concerning the report, please contact Mr. Daniel J. Samoviski, Program Director for Earth/Space Science Programs, at 301-286-0497, or Ms. Diane R. Choma, Auditor-in-Charge at 301-286-6443. We appreciate the courtesies extended to the audit staff. See Appendix B for the report distribution.

Russell A. Rau

Enclosure

cc:
B/Comptroller
B/Chief Financial Officer
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Y/Associate Administrator for Earth Science

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GSFC/190/D. Samoviski, K. Carson, D. Choma

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TABLE OF CONTENTS

BACKGROUND 1

OBJECTIVES, SCOPE AND METHODOLOGY 2

OBSERVATION AND RECOMMENDATION 4

 R&D FUNDS USED TO AUGMENT CONSTRUCTION OF THE ESSB 4

APPENDIX A - MANAGEMENT RESPONSE 7

APPENDIX B - REPORT DISTRIBUTION 8

BACKGROUND

The Earth System Science Building (ESSB) is a 237,000 gross square foot structure presently under construction on the Goddard Space Flight Center's (GSFC) East Campus. The ESSB will provide technical facilities and support space to adequately conduct interdisciplinary Earth science research on a worldwide scale for the Earth Observing System (EOS) Program. The EOS Program has an anticipated mission duration of 15 years. The GSFC will be responsible for the collection, processing, storage, and distribution of more than 15,000 terabytes¹ of data as well as the design and development of satellite instruments and computer algorithms for Earth observation. To achieve this mission, the GSFC must provide a facility to foster interdisciplinary science among all Earth science disciplines. To meet these goals, the ESSB will consolidate all personnel from the GSFC's Earth Sciences Directorate, in addition to providing space for personnel from the National Academy of Sciences/National Research Council, university post-doctoral candidates, contractors, and visiting scientists and students.

GSFC awarded a \$36.5 million firm-fixed-price contract for construction of the ESSB to the Manhattan Construction Company on September 25, 1995. Under the terms of the contract, Manhattan Construction Company will furnish all management, labor, materials, equipment, and supervision necessary to provide site development, utilities installation, and construction of the ESSB. Construction of the ESSB is scheduled for completion on June 23, 1998.

The ESSB Project Management Plan outlines organizational responsibilities from planning to final acceptance. At NASA Headquarters (NHQ), the Office of Earth Science, Code Y, has overall programmatic responsibility for earth science enterprise activities at GSFC. The NHQ Facilities Engineering Division, Code JX, verifies the facility requirements with the Office of Earth Science, monitors the project planning and progress to ensure that the program activities are properly supported, and coordinates funding availability to meet the approved schedules. At the GSFC, the Facilities Management Division has established a multi-discipline ESSB Project Team responsible for project execution from planning through initial operation of the facility.

¹ A terabyte is 1,000 gigabytes or 1 million megabytes (10 to the 12th power).

OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES

The overall audit objective is to determine whether management controls on the ESSB contract are adequate to ensure the facility will meet EOS Program requirements. Specific objectives are to determine whether:

- (1) The building will be completed on time and within budgeted cost.
- (2) Appropriate actions have been taken or are planned to address the effects of NASA downsizing and EOS Program changes.

SCOPE AND METHODOLOGY

We performed this audit because of problems reported in Report No. IG-97-014, "Earth Observing System Data and Information System (EOSDIS) Facility Construction Contract Management," February 7, 1997. The EOSDIS was the first (ESSB is the second) of two facilities constructed at GSFC in support of the EOS Program. The EOSDIS audit showed that the facility contract had a significant number of change orders that were not definitized in a timely manner and that about half of the contract modifications were caused by design errors, omissions, or conflicts. This audit on the ESSB contract was performed to determine whether similar problems were occurring.

The scope of this audit included reviewing:

- ESSB contract with Manhattan Construction Company (NAS5-35163),
- progress payments made to the contractor,
- ESSB Partnering Charter,
- contract modifications and definitization schedule, and
- NASA Facility Project – Brief Project Document.

Also, we interviewed various personnel from the GSFC and NHQ concerning the ESSB construction contract. In addition, we interviewed personnel from the prime contractor and several subcontractors.

***MANAGEMENT
CONTROLS REVIEWED***

The significant management controls reviewed include:

- ESSB Project Management Plan, dated October 1995;
- NASA progress payment procedures;
- architect and engineering liability process;
- deficiency identification documentation resolution process; and
- “Facility Project Implementation Handbook,” NASA Handbook (NHB) 8820.2A, dated July 1993.

Overall, management controls were sufficient. We did, however, identify a weakness in the area of construction funding. This weakness is discussed in detail in the Observation and Recommendation section of the report.

AUDIT FIELD WORK

Audit fieldwork was conducted from June through December 1997 at the GSFC and NHQ. We performed the audit in accordance with generally accepted government auditing standards.

OBSERVATION AND RECOMMENDATION

OVERALL EVALUATION The audit showed that management controls are in place on the ESSB contract to ensure that EOS program requirements are met. In addition, the ESSB is currently within budget and on schedule. The original building plans were rescoped, but not because of NASA downsizing or EOS program changes.² The audit did identify that ESSB partitions were installed with the inappropriate use of NASA Research and Development (R&D) funds. GSFC management needs to take steps to correctly fund the partition installation from the Construction of Facilities (CoF) budget.

R&D FUNDS USED TO AUGMENT CONSTRUCTION OF THE ESSB NASA R&D funds were improperly used to install partitions in the ESSB at the GSFC. The partitions were classified as facility outfitting by GSFC management personnel in order to justify the use of R&D funds and bypass the NHQ approval process. These partitions do not meet the description of outfitting as defined in NASA's NHB 8820.2A because they were completed during the construction phase and are permanent fixtures. As a result, approximately \$385,000 of R&D funds was used inappropriately for completing construction of partitions in the ESSB.

CoF Funds Requested For Construction Of ESSB NASA asked Congress to provide funding for ESSB construction under the CoF appropriation. A total of \$46 million of CoF funds was provided for "Construction of Earth System Science Building" at the GSFC in NASA's fiscal year 1994, 1995, and 1996 appropriations. NASA was separately provided R&D funds in its fiscal year 1994, 1995, and 1996 appropriations for the EOS program.

Original Construction Contract Included Partitions for Two- and Four-Person Offices Original plans for the ESSB prior to contract award called for approximately 100 two- and four-person offices with the option of turning those 100 offices into approximately 200 one- and two-person offices. Prior to the contract being awarded to the Manhattan Construction Company, the option for the one- and two-person offices was eliminated as part of a cost-savings measure. The awarded contract did, however, include installing partitions for the approximately 100 two- and four-person offices.

The partitions creating these offices are constructed of drywall and metal studs and run from floor to ceiling. The partitions also include a door, receptacle, light switch, supply diffuser, and return register for each office created. This installation was completed under the prime contract and was CoF funded.

² The ESSB was rescoped because of increased prices reflected in the initial bids.

***R&D Funds Used to Fund
Contract Modification for
Additional Partitions***

Once construction on the ESSB began, the Deputy Director of GSFC's Earth Sciences Directorate requested that a contract modification be initiated and that all the office partitions be installed to create the one- and two-person offices. The Earth Sciences Directorate used about \$385,000 of R&D funds to finance the modification and have the remaining partitions installed. The Directorate justified the use of R&D funds by classifying the additional partitions as facility outfitting. However, because the partitions added time and money to the construction contract, they do not meet the NHB 8220.2A criteria for R&D funding as outfitting. NHB 8220.2A states that "facility outfitting begins when the construction of a facility project or a portion of a facility, such as a work package or a specific area, is complete and has been accepted by the Government." Facility outfitting includes installation of data systems, systems furniture, and telephones; furniture and personnel move-in; and maintenance services startup. This installation is clearly being completed during construction. As a result, one half the partitions in the ESSB were funded with CoF funds while the other one half were inappropriately paid for with R&D funds.

***Approval to use R&D
Funds was not Obtained***

Documentation obtained during the audit indicated that the request to modify the contract to install the remaining office partitions was not forwarded to or approved by the NHQ Facilities Engineering Division, because GSFC management responsible for the ESSB project assumed that a request for additional CoF funds would not be approved. The ESSB Project Management Plan states that project changes considered to be within the scope of work as defined by the Congressional Budget Document and supporting project documentation, and which are greater than \$250,000, need internal GSFC approval as well as NHQ, Code JX, and Code Y approval. By classifying the additional partitions as facility outfitting and using R&D funds, the NHQ approval process was bypassed. There are sufficient unobligated CoF funds to permit proper charging of the \$385,000 to that appropriation without causing a potential violation of the Antideficiency Act.

Summary

In summary, installation of one half of the ESSB's office partitions was inappropriately paid for with R&D funds when CoF funds should have been used. Use of R&D funds for partition installation has resulted in about \$385,000 being unavailable for its intended purpose. In our opinion, this unavailability could be interpreted as a violation of 31 United States Code (USC) section 1301(a), which states that "appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law." Management actions to address this condition will ensure

that only CoF funds are used to construct the ESSB and that R&D funds are used for their intended purpose, which in turn will result in compliance with 31 USC 1301.

RECOMMENDATION 1

The GSFC Facilities Management Division Chief should request that the GSFC Comptroller return \$385,000 to the Earth Sciences Directorate's R&D account and fund the ESSB partition installation from the CoF budget.

Management's Response

Concur. NASA management agreed to fund the \$385,000 modification for additional partitions from the ESSB facility project funds. Doing so will eliminate any potential concerns about possible impropriety associated with funding the facility. Also, management stated that the funding for the partitions was from the same appropriations as the facility funding. Therefore, the misallocation in the original action is not a violation of 31 USC 1301(a). The complete text of management's comments is in Appendix A.

***Evaluation of
Management's Response***

The actions planned are considered responsive to the intent of the recommendation, and we agree that there is no violation of 31 USC 1301(a).

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NASA MANAGEMENT RESPONSE

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



Reply to Attn of 201

MAY - 7 1998

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

FROM: 100/Director

SUBJECT: GSFC Response to Office of Inspector General (OIG) Draft Audit Report on Management Controls on the Earth System Science Building (ESSB) Contract, Dated April 7, 1998, Assignment Number A-HA-97-055

We appreciate the opportunity to respond to the subject audit report. We are pleased that the audit showed that adequate management controls are in place on the ESSB contract and that the ESSB is currently within budget and on schedule.

We concur with the OIG recommendation to fund the \$385,000 modification for additional partitions from the ESSB facility project funds. In doing so, we will eliminate any potential concerns about possible impropriety associated with funding this facility. The funding in FY95 and FY96 for the ESSB facility project was a budget line item in the Science, Aeronautics, and Technology appropriation. Since the funding for the \$385,000 used for the additional partitions was also from the Science, Aeronautics, and Technology appropriation, the misallocation in the original action does not represent a violation of 31 United States Code (USC) 1301 (a). Additionally, we will continue, as we have done in the past, to consult the NASA Office of Facilities, the Office of Earth Science, and the Office of the Comptroller concerning the interpretation of facility "outfitting" situations. The GSFC Facilities Management Division will accomplish the recommended corrective action as follows:

ACTION OFFICIAL: GSFC/223/B. Reamy/Contract Administrator
CLOSURE OFFICIAL: GSFC/224/T. Snow/Engineering Branch Head
CONCURRING OFFICIAL: GSFC/220/P. Holloway/Acting Chief, Facilities Management
PROJECTED COMPLETION DATE: July 31, 1998

Please call Ms. JoAnn Clark, GSFC Audit Liaison Officer, at 301-286-7977 if you need additional information related to this response.


A. V. Diaz