TO: H/Acting Associate Administrator for Procurement
FROM: W/Assistant Inspector General for Auditing
SUBJECT: Final Report on the Audit of NASA Science Research Institutes
       Assignment Number A-HA-97-053
       Report Number IG-98-037

The subject final report is provided for your review and comment. Please refer to the
executive summary for overall audit results. We have incorporated management’s comments
into the final report, as appropriate, and included them in their entirety as an appendix to our
report. In response to management’s comments, we revised our recommendations.
Therefore, we request additional comments on the final report by October 30, 1998. The
recommendation will remain open for reporting purposes.

If you have questions concerning the report, please contact Mr. Dennis E. Coldren, Program
Director, Human Exploration and Development of Space Audits, or Ms. Kathleen E. McDonald,
Auditor-in-Charge, at 281-483-4773. We appreciate the courtesies extended to the audit staff.
The report distribution is in Appendix E.

[original signed by]
Russell A. Rau

Enclosure

cc:
B/Chief Financial Officer
G/General Counsel
JM/Director, Management Assessment Division
ARC/Director, Ames Research Center
JSC/Director, Lyndon B. Johnson Space Center
LeRC/Director, Lewis Research Center
MSFC/Director, Marshall Space Flight Center
AUDIT REPORT

NASA SCIENCE RESEARCH INSTITUTES

September 30, 1998
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To obtain additional copies of this audit report, contact the Assistant Inspector General for Auditing at 202-358-1232.

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To suggest ideas for or to request future audits, contact the Assistant Inspector General for Auditing. Ideas and requests can also be mailed to:

Assistant Inspector General for Auditing
NASA Headquarters
Code W
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Washington, DC  20546

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ACRONYMS

OMB Office of Management and Budget
USRA Universities Space Research Association
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NASA SCIENCE RESEARCH INSTITUTES

EXECUTIVE SUMMARY

**Introduction**

In 1995, NASA’s Zero Base Review identified the concept of science research institutes as a potentially beneficial approach to maintain or improve the quality of science research despite organizational streamlining. The strategy involved “privatization” of a portion of the Agency’s science programs into several science research institutes. Under its Science Institute Plan, NASA intended to select universities, not-for-profit organizations, and consortia to operate 11 institutes under competitively awarded contracts or cooperative agreements to conduct research to support the missions of selected NASA Centers. Although NASA announced in June 1996 that its efforts to create the institutes were being discontinued, in 1997 the Agency established the following science research institutes through the award of cooperative agreements:

- National Center for Microgravity Research on Fluids and Combustion (the Microgravity Research Center) at Lewis Research Center,

- Institute for Global Change Research and Education at Marshall Space Flight Center,

- Research Institute for Advanced Computer Science at Ames Research Center, and

- National Space Biomedical Research Institute (the Biomedical Research Institute) at Johnson Space Center.

The first three institutes were established through cooperative agreements with the Universities Space Research Association (USRA) in Columbia, Maryland. The cooperative agreement for the fourth institute is with the Baylor College of Medicine in Houston, Texas. Appendix B contains details on each cooperative agreement award.

**Objective**

The overall objective was to evaluate the policies, procedures, and practices that NASA used in establishing science research institutes.
and centers.\textsuperscript{1} Appendix A contains additional details on objectives, scope, and methodology.

**RESULTS OF AUDIT**

NASA generally followed Office of Management and Budget (OMB) policies and procedures and Agency guidance on the use of cooperative agreements in establishing the science research institutes. NASA’s Johnson Space Center established the Biomedical Research Institute in conformity with OMB and NASA guidance. However, three other centers\textsuperscript{2} paid management fees to the USRA on three cooperative agreements that will total about $1.54 million over a 5-year period. NASA did not have policy for the authorization, justification, and approval of the use of management fees on cooperative agreements. As a result, USRA was able to obtain Government reimbursement for otherwise unallowable costs charged to the cooperative agreements.

**RECOMMENDATIONS AND MANAGEMENT’S RESPONSE**

This report contains a recommendation aimed at controlling the payment of management fees on cooperative agreements with non-profit organizations. Management did not concur with the recommendations in a draft of this report and provided additional information that we agreed was a sufficient basis for deleting one recommendation and revising the remaining recommendation. We request additional management comments on the revised recommendations.

\textsuperscript{1} The Microgravity Research Center and the Biomedical Research Institute were the initial science research institutes established when audit field work began. The Institute for Global Change Research and Education and the Research Institute for Advanced Computer Science were created after field work began.

\textsuperscript{2} Lewis Research Center, Marshall Space Flight Center, and Ames Research Center.
FINDING AND RECOMMENDATION

USE OF MANAGEMENT FEES FOR UNALLOWABLE COSTS

NASA paid management fees totaling approximately $1.54 million\(^3\) to a non-profit organization over a 5-year period on three cooperative agreements without a clear process for justifying and approving payment of such fees. Specifically, NASA had not established policy that defines a process for consideration of the use of management fees and that emphasizes that routine use should be discouraged. In the absence of stated policy, NASA Centers agreed to pay the fees because NASA Headquarters determined the action was proper. Consequently, the non-profit organization used management fees to pay for unallowable costs on the cooperative agreements.

OMB Guidance on Cooperative Agreement Awards to Non-Profit Organizations

In 1993, OMB was revising Circular A-110, “Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals and Other Non-Profit Organizations.” Federal agencies are to apply the guidance in the revised circular in establishing cooperative agreements with non-profit organizations. In its “Final Revision of Circular A-110,” OMB reported its response to comments solicited on proposed revisions to the circular. In responding to a request to clarify the provisions concerning the allowability of fees or profits, OMB responded that fees and profits should generally not be paid to recipients unless authorized by legislation. The revised Circular A-110, issued in 1997, did not include guidance regarding the payment of fees or profits but did allow agencies to establish policy on exceptions. (see Appendix C).

OMB also revised OMB Circular A-122, “Cost Principles for Non-Profit Organizations” in August 1997. The circular establishes principles for determining costs of grants, contracts, and other agreements with non-profit organizations. OMB also confirmed that these cost principles are based on actual costs incurred by the recipient for the work performed on an ongoing project and that Federal agencies cannot reimburse non-profit organizations for costs that are unallowable under other contracts, grants, or agreements. The circular states that either profit or other increment above cost is outside its scope (see Appendix C).

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\(^3\) The amount comprises $176,000 at the Lewis Research Center, $96,000 at the Marshall Space Flight Center, and $1.27 million at the Ames Research Center.
**NASA Guidance on Cooperative Agreement Awards to Non-Profit Organizations**

In July 1996, NASA issued NASA Procurement Guidance 5800.1D, “Grant and Cooperative Agreement Handbook.” The handbook prescribes policies and procedures relating to the award and administration of NASA grants and cooperative agreements. Additionally, the handbook allows NASA to make exceptions on a case-by-case basis, but requires NASA to obtain approval from OMB. Further, the handbook does not provide criteria that explain how the exceptions are to be determined. Also, the guidance does not discuss the authorization, justification, or approval of payment of management fees and does not discourage the routine payment of such fees. Appendix C contains details of the NASA guidance.

**NASA Decision to Pay Management Fee**

Although NASA officials at the Lewis Research Center disagreed with paying a management fee for the cooperative agreement on the Microgravity Research Center, NASA Headquarters ultimately decided to pay it. During negotiations, USRA persisted in its request for a management fee based on other NASA instruments under which USRA receives a fee. Also, USRA presented documentation from the NASA Science Institutes Team (the team that created the Science Institute Plan) which stated, “The Agency does not expect the use of cooperative agreements to be limiting with respect to facility acquisition or the award of management allowances or fees.” USRA’s proposal stated that the management fee would be used for “…financing debt, purchasing general purpose equipment, paying business costs not allowable under OMB Circular A-122, and providing a buffer against disruptions of funding from the government.” The Office of Chief Counsel at the Lewis Research Center issued an opinion against the payment of a fee. However, the Office of Chief Counsel and the Procurement Division at the Lewis Research Center discussed the fee payment with the Office of General Counsel at NASA Headquarters. Subsequently, NASA determined that the fee payment to USRA on the Microgravity Research Center at Lewis Research Center was appropriate. In September and October 1997, respectively, the Marshall Space Flight Center and the Ames Research Center established cooperative agreements with USRA for science research institutes and agreed to pay management fees (see Appendix B).

**Accounting for Management Fees**

USRA combines management fees with all other receipts (such as interest income) in its management fund. In FY 1997, fee income
Management fund costs are not charged to contracts, grants, or cooperative agreements. USRA records showed, and its managers confirmed, that the management fund helped to pay for unallowable costs that totaled about $839,000. USRA will use management fees totaling about $176,000 (over a 5-year period) from the Lewis Research Center cooperative agreement on the Microgravity Research Center to help pay the unallowable expenses.

**Unallowable Transactions**

We reviewed transactions for 5 of 23 expense accounts for unallowable costs paid by the management fund. The five expense accounts represented about $357,000 of the $839,000 of expenses incurred in FY 1997. We confirmed that USRA used the management fee to partially pay for unallowable costs. The figure shows the major categories of USRA’s unallowable costs.

![Pie chart showing the major categories of USRA's unallowable costs.](chart.png)

**Expenses Paid by the Management Fund**

USRA defined the expenses as:

- Bond debt service on a building in Houston, Texas.
- Office support for long-term leased office space in Washington, D.C. that was no longer needed, but could not be charged back to USRA contracts.

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4 USRA’s FY 1997 operating revenue totaled about $54.2 million from its 70 contracts, grants, cooperative agreements, and interest. Operating expenses that USRA charged against those contracts, grants, and cooperative agreements totaled about $52.9 million. USRA had available the difference, $1.3 million, for unallowable costs on contracts, grants, and agreements.
• Capital equipment purchases for general-purpose computer equipment such as that bought for the Microgravity Research Center.

• Rate ceiling adjustment for overhead rates that were higher than the negotiated ceiling and cannot be charged to USRA contracts.

• Adjustment by the Defense Contract Audit Agency for interest received by USRA on deposited advance Government payments that were required to be returned to the Government.\(^5\)

• Other expenses that could not be charged to contracts such as miscellaneous publications, entertainment costs, etc.

USRA used management fees on the three cooperative agreements with NASA to pay for unallowable costs. By payment of these management fees, $1.54 million was not available for NASA’s research efforts.

**Deleted and Revised Recommendations**

As a result of management’s comments on the draft report, we deleted draft Recommendation 1 and revised the remaining recommendation. Draft Recommendation 1 sought to have NASA obtain retroactive approval from OMB on cooperative agreements for which it paid a management fee, or absent OMB’s approval, to recoup management fees previously paid. Draft Recommendation 2 sought to have NASA establish policy in conjunction with the OMB guidance that the Agency would not pay management fees on cooperative agreements to non-profit organizations unless it obtained advance approval from OMB. Management nonconcurred with the draft report recommendations. The complete text of management’s comments on the draft report is in Appendix D. During discussions with OMB and NASA officials following our receipt of management’s comments, we confirmed that OMB Circular A-110, not A-122 as cited by management, is the correct guidance to be followed in establishing cooperative agreements with non-profit organizations. Additionally, while fees and profits can be considered inconsistent with the concept of a

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\(^5\) During an audit requested by NASA, the Defense Contract Audit Agency determined that USRA received more than $65,000 as interest on deposited advance Government payments. The NASA Grants and Cooperative Agreements Handbook states that interest received of more than $250 annually must be returned to the Government as required by OMB Circular A-122.
cooperative agreement for a non-profit organization, there is no statutory or regulatory prohibition on their payment. OMB affirmed that a Federal agency may establish policy, in conjunction with OMB, that outlines the criteria for payment of fee on cooperative agreements to non-profit organizations. Such policy does not presently exist in NASA. The revised recommendation incorporates alternative action that will ensure that adequate justification exists to pay fee or profit to non-profit organizations on cooperative agreements established under OMB Circular A-110.

**RECOMMENDATION**

We recommend that the Acting Associate Administrator for Procurement establish policy in accordance with OMB Circular A-110 guidance that requires the authorization, justification, and approval of management fees to non-profit organizations on cooperative agreements and that discourages routine payment of such fees.

**MANAGEMENT’S RESPONSE**

We request additional comments on the revised recommendation.
OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES
The overall objective was to evaluate the policies, procedures, and practices that NASA used in establishing science research institutes or centers, namely, the Biomedical Research Institute at the Johnson Space Center and the Microgravity Research Center at the Lewis Research Center. Our specific objectives were to determine:

- the purpose of establishing the institutes and centers,
- the source of funding, and
- the control NASA would have over the work performed.

SCOPE AND METHODOLOGY
In conducting the audit, we:

- Reviewed pertinent documents of the 1997 cooperative agreement administration files for the Biomedical Research Institute at the Johnson Space Center and the Microgravity Research Center at the Lewis Research Center.

- Reviewed the cooperative agreements for the Institute for Global Change Research, Education and Outreach Related to the Earth’s Energy Hydrologic Cycle at the Marshall Space Flight Center and the Research Institute for Advanced Computer Science at the Ames Research Center.

- Interviewed civil servant personnel at NASA Headquarters, Lewis Research Center, and Johnson Space Center to obtain an understanding of the controls and procedures NASA used in establishing science research institutes or centers.

- Interviewed management personnel at the USRA to gain an understanding of its accounting system.

- Sampled and reviewed USRA’s FY 1997 financial statements and accounting records to determine the use of the management fee received.

- Researched NASA involvement with the National Academy of Sciences and the National Research Council.
• Reviewed the fiscal years 1995 through 1997 National Science Foundation Office of Inspector General and the fiscal years 1996 through 1997 General Accounting Office Reports to Congress to determine whether either organization had performed audits of cooperative agreements.


• Discussed the use and administration of cooperative agreements and grants with officials from OMB, General Accounting Office, NASA, and Department of Defense.

**MANAGEMENT CONTROLS REVIEWED**

We reviewed management controls related to the award of cooperative agreements to non-profit organizations established by NASA as described in OMB Circular A-110 and the NASA Handbook on Grants and Cooperative Agreements. We also reviewed OMB Circular A-122 for accounting policy on cooperative agreements and compared it to the accounting records of USRA. The controls were adequate, except for controls over payment of management fees to non-profit organizations under cooperative agreements. See the finding in this report, “Use of Management Fees for Unallowable Costs.”

**AUDIT FIELD WORK**

We performed field work at NASA Headquarters, the Johnson Space Center, the Lewis Research Center, and USRA from June 1997 to July 1998. We conducted the audit in accordance with generally accepted government auditing standards.
In March 1997, NASA’s Lewis Research Center signed a cooperative agreement to establish the National Center for Microgravity Research on Fluids and Combustion with the Universities Space Research Association (USRA), Cleveland, Ohio. The new center, at Case Western Reserve University School of Engineering, is the first national center dedicated to microgravity research. The university-based science community will own and operate the center through USRA, a consortium of 80 colleges and universities that includes Case Western Reserve University. NASA will provide about $17.8 million in funding over the next 5 years to support the center. The agreement includes a fee of 1 percent, or about $176,000.

Additionally, in March 1997, NASA’s Johnson Space Center signed a 60-day cooperative agreement for the National Space Biomedical Research Institute with the National Space Biomedical Research Institute consortium led by Baylor College of Medicine, Houston, Texas, to perform a detailed definition phase. The phase was to define the management and operating procedures necessary to develop a successful, long-term working relationship and to ensure that implemented organization and logistical concepts were workable. The Johnson Space Center awarded a cooperative agreement to the Biomedical Research Institute consortium immediately following the 60-day period of performance. The total value of the 20-year agreement is about $145 million. The agreement does not include a fee. (OMB cost principles for universities are contained in OMB Circular A-21, “Cost Principles for Educational Institutions.”)

In September 1997, NASA’s Marshall Space Flight Center signed a cooperative agreement with USRA for the Institute for Global Change Research, Education and Outreach Related to the Earth’s Energy Hydrologic Cycle for a base period of 5 years, totaling about $9.7 million. The agreement includes a fee of 1 percent, or about $96,000.

In October 1997, NASA’s Ames Research Center signed a cooperative agreement with USRA for the Research Institute for
Advanced Computer Science for a base period of 5 years, totaling about $43.5 million. The agreement includes a fee of 3 percent, or about $1.27 million.

**NASA PARTICIPATES IN THE FEDERAL DEMONSTRATION PARTNERSHIP**

NASA is one of the Federal agencies in the Federal Demonstration Partnership. The Federal Demonstration Partnership was established in 1988 by the Government-University-Industry Research Roundtable of the National Academy of Sciences. The thrust of this national effort is to transition from contracts to grants and cooperative agreements as primary research support mechanisms among 65 universities or research institutes and 11 Federal agencies. The Federal Demonstration Partnership is designed to improve the management of federally funded research. The goal is to enhance research productivity without compromising the stewardship of public funds, by eliminating unnecessary administrative procedures and by streamlining those necessary to ensure accountability. The Federal agencies enter into contracts, grants, and cooperative agreements based on Federal and respective agency guidance. The Federal Demonstration Partnership does not create policies under which the members operate; therefore, the partnership has no specific policy related to the payment of management fees. Partnership members must comply with applicable OMB circulars.
OMB AND NASA CRITERIA FOR COOPERATIVE AGREEMENTS

OMB Circular A-110, “Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.” In 1993, OMB reported in the Final Revision of Circular A-110 its responses to comments solicited on proposed revisions to the guidance. One respondent requested OMB to clarify provisions concerning the allowability of fees or profits. OMB stated, “No change. Generally fees and profits are not paid to recipients unless authorized by legislation.” In 1997, OMB issued a revised Circular A-110 with no changes regarding the payment of fees or profits. Circular A-110 states that it is the agency’s responsibility to establish policy for exceptions to the circular, so that adequate justification can be documented. The need for a policy for payment of management fee, although not specifically cited in Circular A-110, is based on these circular provisions.

OMB Circular A-122, “Cost Principles for Non-Profit Organizations.” OMB Circular A-122 establishes principles to be used by all Federal agencies for determining costs of grants, contracts, and other agreements with non-profit organizations. The circular defines a non-profit organization as “any corporation, trust, association, cooperative, or other organization that (1) is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest; (2) is not organized primarily for profit; and (3) uses its net proceeds to maintain, improve, and/or expand its operations.” Attachment B of the circular, “Selected Items of Cost,” provides the principles to be applied in establishing the allowability of certain items of cost. We used the principles in determining the allowability of cost items reviewed as discussed in our finding and recommendation.

NASA Procedures and Guidelines 5800.1D, “Grant and Cooperative Agreement Handbook.” The Grant and Cooperative Agreement Handbook consists of four sections that prescribe policies and procedures relating to the award and administration of NASA grants and cooperative agreements. Specifically, Sections A and B establish policies and procedures for all grants and cooperative agreements awarded by NASA to educational institutions and other non-profit organizations. Section A provides the text of provisions and special conditions covered by 14 Code of Federal Regulations, Part 1260, that apply to NASA. Section B implements the administrative requirements of OMB Circular A-110. Section B, Subsection 1260.104, “Deviations,” states that NASA may make case-by-case exceptions and then references Section A, Subsection 1260.6(c). The latter states that, when necessary to obtain a deviation on OMB Circular A-110, the Contract Management Division (Code HK) will process all necessary documents in accordance with Section 1260.104. However, the handbook does not address criteria for exceptions in the payment of fees and profits.
Management’s Comments

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001

HC

TO: W/Assistant Inspector General for Auditing
FROM: HC/Director, Analysis Division

Enclosed is our response to the subject draft report dated July 23, 1998.

Please call Steve Miley at (202) 358-0493 or Jack Horvath at (202) 358-0456 if you have any questions or need further coordination or assistance on this.

Anne Guenther

Enclosure
HEADQUARTERS OFFICE OF PROCUREMENT
RESPONSE TO
OFFICE OF INSPECTOR GENERAL (OIG)
DRAFT REPORT NO. A-HA-97-053
DATED JULY 23, 1998
NASA SCIENCE RESEARCH INSTITUTES

DATE: SEP 3 1998

ENCLOSURE
Code H’s narrative response is provided as follows:

NOTE: Although the two recommendations discussed below are addressed to the Director, Contract Management Division, this area of responsibility has been reassigned within the NASA Headquarters Office of Procurement to the Director, Analysis Division. Therefore, any actions taken in response to the OIG recommendations will be the responsibility of the Analysis Division of NASA Headquarters Office of Procurement.

OIG RECOMMENDATION 1:

The Director, Contract Management Division, Office of Procurement, should: (1) Seek retroactive approval from OMB on cooperative agreements for which NASA has paid a management fee. Absent such approval, initiate recoupment actions to recover the previously paid management fee.

CODE H RESPONSE TO RECOMMENDATION 1: NON-CONCUR

OMB-Circular A-122, Cost Principles for Non-Profit Organizations, does not address the issue of management fee paid to non-profit organizations. OMB has informed this office that, unless individual agency regulations provide guidance to the contrary, management fees are permitted and are not subject to the cost allowability requirements of OMB Circular A-122. Therefore, no retroactive approval is needed from OMB nor is it appropriate for us to seek recoupment of previously paid management fees.

CORRECTIVE ACTION OFFICIAL: Code HC/S. Miley
CORRECTIVE ACTION CLOSURE OFFICIAL: Code HC/A. Guenther
PROJECTED CORRECTIVE ACTION CLOSURE DATE: N/A

OIG RECOMMENDATION 2:

The Director, Contract Management Division, Office of Procurement, should: (2) Establish policy, in conjunction with OMB, that NASA will not pay a management fee on cooperative agreements unless it obtains advance approval from OMB.

CODE H RESPONSE TO RECOMMENDATION 2: NON-CONCUR

Since OMB Circular A-122 leaves it up to the individual agencies to determine their policy regarding payment of management fee on cooperative agreements and grants, no coordination with OMB is necessary prior to establishing future NASA policy on this issue.

CORRECTIVE ACTION OFFICIAL: Code HC/S. Miley
CORRECTIVE ACTION CLOSURE OFFICIAL: Code HC/A. Guenther
PROJECTED CORRECTIVE ACTION CLOSURE DATE: N/A
REPORT DISTRIBUTION

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Senate Subcommittee on Science, Technology and Space
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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

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Honorable Pete Sessions, U.S. House of Representatives
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