MA-96-002

# AUDIT REPORT

## EARTH OBSERVING SYSTEM DATA & INFORMATION SYSTEM'S (EOSDIS) DISTRIBUTED ACTIVE ARCHIVE CENTER (DAAC)

MARSHALL SPACE FLIGHT CENTER

May 7, 1996

National Aeronautics and Space Administration

OFFICE OF INSPECTOR GENERAL

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

MAY 7 1996

Reply to Attn of: W

TO: DA01/Director, Marshall Space Flight Center

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Audit Report
Earth Observing System Data and Information System's (EOSDIS)
Distributed Active Archive Center (DAAC)
Marshall Space Flight Center (MSFC)
Assignment No. A-MA-95-007
Report No. MA-96-002

The NASA Office of Inspector General (OIG) has completed a review of the annual recurring costs of the DAAC facility hosted at MSFC in the Global Hydrology and Climate Center (GHCC). This review was initiated to address specific local issues that surfaced as a result of an ongoing audit of EOSDIS DAACs being managed by the Goddard Space Flight Center (GSFC) OIG.

One of the objectives of the EOSDIS DAAC audit was to determine whether facility requirements are properly justified and supported. We found that budgeted annual recurring costs for Fiscal Year 1995 at the MSFC-hosted DAAC location were overstated and inadequately supported. This overstatement led to an inequitable distribution of costs to the DAAC. We recommended the MSFC Center Comptroller review annual recurring costs for the GHCC to determine whether costs are reasonable and equitably allocated, estimates are adequately supported, and funds are effectively used.

A draft report was issued January 31, 1996. The management response was received March 11, 1996, and is presented in its entirety as Appendix A. Management was generally responsive to the intent of the recommendation as indicated by the fact that the Chief Financial Officer (CFO)'s Team has performed a review of the GHCC. However, several of the CFO Team's concerns mirrored those of the OIG, and there is little assurance of adequate oversight to ensure suggested changes are implemented. A discussion of this, as well as our assessment of Marshall's detailed comments, is presented in the Evaluation of Management's Response (see report page 12).

The MSFC response suggests that sufficient actions have been taken to close the report recommendation. As noted on page 2 of the response, MSFC is in the process of determining the best procedure for recovering the unallowable costs associated with excess utility payments.

Therefore, in accordance with the OIG's audit follow-up policy, please include our office in the concurrence cycle for closing the recommendation. Please provide written notification to our office when resolution is complete.

Debra A. Guentzel

Debra A. Guentzel

Enclosure

cc:
BE01/L. Cucarola
W/N. Echerd
D. Samoviski

# INTRODUCTION

The NASA Office of Inspector General (OIG) initiated this review to address specific local issues that surfaced as a result of an ongoing audit of Earth Observing System Data and Information System's (EOSDIS) Distributed Active Archive Centers (DAAC). One of the objectives of the EOSDIS DAAC audit was to determine whether facility requirements are properly justified and supported. Our portion of the review related to this objective is addressed in the overall report to be issued by the Goddard Space Flight Center (GSFC) OIG.

Based on the results of the work performed for Goddard, we initiated a local review of annual recurring costs of the DAAC facility hosted by Marshall Space Flight Center (MSFC) in the Global Hydrology and Climate Center (GHCC). Annual recurring costs are those costs which are incurred annually for operations and maintenance of the facility. We believe annual recurring costs at the DAAC location are overstated and inadequately supported. This overstatement led to an inequitable distribution of cost to the DAAC.

## BACKGROUND

One of the major elements of EOS is the EOSDIS. EOSDIS enables quick and easy access to data about the Earth system by the research community and other users. EOSDIS is a physically distributed system, with information stored at nine DAACs. DAACs are institutions that generate EOS standard products and carry out NASA's responsibilities to archive, distribute, and manage data.

The DAAC hosted by MSFC is responsible for receiving, processing, distributing, and archiving global hydrologic cycle data. The DAAC is collocated with MSFC's Earth System Science Division, the Universities Space Research Association, and the University of Alabama in Huntsville (UAH) at the Global Hydrology and Climate Center (GHCC). The GHCC is a cooperative research and education center leading the science community in the understanding of the global water cycle and energy budget.

## OBJECTIVES, SCOPE, AND METHODOLOGY

***OBJECTIVES***

One of the objectives of the overall EOSDIS DAAC audit was to determine whether facility requirements are properly justified and supported. The specific objectives of this audit were to evaluate the reasonableness and propriety of the allocation of annual recurring costs by the GHCC to the MSFC hosted DAAC. This included a review of the composition, reasonableness, and allocation basis for overhead charges allocated to the DAAC.

***SCOPE AND METHODOLOGY***

To meet our audit objectives, we interviewed NASA personnel and reviewed budget and cost documents pertaining to the facility expenses.

***MANAGEMENT CONTROLS REVIEWED***

We reviewed selected aspects of the management controls associated with the allocability, reasonableness, and supportability of amounts included in budgets for the MSFC cooperative agreement with UAH.

***AUDIT FIELD WORK***

Audit field work at MSFC started in April 1995 in support of the GSFC OIG. A local issue surfaced as a result of our field work for GSFC. The audit was performed in accordance with generally accepted government auditing standards.

## OBSERVATIONS AND RECOMMENDATIONS

Annual recurring costs for the Global Hydrology and Climate Center (GHCC) are overstated. We recognize that the Center is within the first year of operation, and a business plan for future operations is being developed. Nevertheless, there should be assurance that current facility costs are reasonable and supportable. We found cost elements inappropriately included in the annual recurring costs, such as:

- contingency funds
- elements that are unlikely to be incurred
- capital improvements and other nonrecurring costs
- elements already provided for in the cooperative agreement
- improper applications of UAH overhead

The overstated annual recurring cost resulted in an inflated overhead pool. This led to an inequitable distribution of cost to the DAAC.

MSFC could not provide a reasonably equitable basis for the allocation of annual recurring costs. As a result, some participants sharing in the funding of these costs may be overbilled while others are underbilled. Based on our review, we determined the following allocation.

| | Square Feet | | Lease | | Overhead | | Total | |
|---|---|---|---|---|---|---|---|---|
| DAAC | 10,000 | 25% | $ 120,000 | 26% | $ 230,625 | 66% | $ 350,625 | 43% |
| NASA-NON DAAC | 25,852 | 63% | 279,391 | 62% | 120,534 | 34% | 399,925 | 50% |
| UAH | 5,000 | 12% | 55,700 | 12% | | | 55,700 | 7% |
| TOTAL | 40,852 | 100% | * $ 455,091 | 100% | $ 351,159 | 100% | ** $ 806,250 | 100% |

* This is the actual lease amount per the lease agreement. The amount shown on the annual recurring cost table below was rounded.

** The source of this number is the annual recurring costs shown below. This figure does not include $250,000 of project support cost because it was considered excessive (see report page 11). Also, not included in this figure are the potential payables to MSFC. We included the unsupported elements questioned below.

The GHCC, in which the DAAC is located, is leased by UAH. The DAAC occupies approximately 10,000 square feet (25% of the building). Their area consists of office space and a computer room with raised floors. The DAAC pays annual recurring costs for the

GHCC with funds budgeted specifically for facility and Project Mission Support (PMS) costs.

Overhead costs of the GHCC were presented by the Global Hydrology Project Office as "annual recurring costs." Fiscal Year (FY) 1995 annual recurring costs for the GHCC and the amounts we question are presented in the following table. We requested supporting documentation for amounts included in the overhead pool. The supporting documentation provided and our concerns are discussed below.

| REQUIREMENT | ANNUAL RECURRING COSTS | QUESTIONED/ UNSUPPORTED COSTS | NOTES |
|---|---|---|---|
| BUILDING LEASE | $ 455,000 | | 1 |
| UTILITIES | 30,000 | $ 10,847 | 2 |
| ENGINEERING SUPPORT PERSONNEL | 126,807 | 126,807 | 3 |
| SECURITY | 58,836 | 1,004 | 4 |
| MEGALINK LEASE/ TELEPHONE SERVICE | 29,958 | 9,281 | 5 |
| GENERAL OPERATIONS & MAINTENANCE | 105,558 | 87,300 | 6 |
| *COMMUNICATION | 30,384 | 30,384 | 7 |
| *MAINTENANCE-OFFICE/ADP/ETC. | 33,876 | 33,876 | 8 |
| *MAIL/VEHICLES | 8,264 | 8,264 | 9 |
| PROJECT SUPPORT | 250,000 | 250,000 | 10 |
| | | | |
| TOTAL | $ 1,128,683 | $ 557,763 | |
| *PAYABLE TO MSFC | | | |

1. <u>Building Lease</u>

The annual recurring cost presented for building lease is $455,000. The lease amount is calculated by multiplying the square footage of 40,852 by the full service lease rate of $11.14, resulting in an annual lease of $455,091 for the entire building. UAH pays the full service lease cost for 5,000

square feet. NASA reimburses UAH for the costs incurred for the remaining 35,852 square feet. The NASA funded DAAC occupies 10,000 square feet which leaves 25,852 square feet for MSFC to fund. NASA also funds the following for all 40,852 square feet:

- renovations over $25,000
- all furniture
- all telephone facilities and hardware
- all computer networking
- all utilities above those provided in the lease rate

The annual full service rate of $11.14 per square foot is composed of the following:

| | | |
|---|---|---|
| Base rate | $8.58 | |
| Insurance | .08 | |
| Taxes | .00 | |
| Maintenance | .44 | |
| Net Rental Rate | | $ 9.10 |
| | | |
| Utilities | $1.20 | |
| Janitorial | .60 | |
| Grounds Maintenance | .24 | |
| Taxes | .00 | |
| Operating Expense | | $2.04 |
| | | |
| **Full Service Lease Rate** | | $11.14 |

Detail on the lease rate was provided; therefore, we did not question any of the building lease costs. However, we did not audit the components of the lease rate.

2. Utilities

The $30,000 of annual recurring utilities cost are the utilities "expected" over and above the amount specified in the full service lease rate. MSFC provided partial support on the utilities over allowance.

The full service lease rate includes an Allowance for Utilities of $49,022 (40,852 x $1.20) per year. This amount equates to a monthly allowance of $4,085 ($49,022 divided by 12). The lessor is reimbursed by UAH for the actual cost of monthly

utilities over and above the $4,085 per month contemplated by the rental rate. UAH bills NASA for "Utilities Above Allowance."

As support for the $30,000 utilities "above allowance" line item, we were provided copies of utility bills for two months. Annual projections for FY 1995 utility costs above the full service rate equaled $25,882. A review of the utility bills revealed that UAH added overhead at a rate of 26%, raising the "Utilities Above Allowance" estimate to $32,611 for FY 1995. The basic lease provides for the payment of utilities above the allowance and UAH overhead factor is not applied. Subsequent action to the lease regarding utilities should not be eligible for the UAH overhead cost. Further, the lease agreement is not clear if MSFC is credited should the utility bill fall below the monthly allowance.

The questioned amount of $10,847 is the added overhead ($25,882 x 26%= $6,729) and the unsupported differences between the utilities line item and the FY 95 annual projection ($4,118).

3. Engineering Support Personnel

Annual recurring costs of $126,807 are represented as the engineering support personnel for the GHCC. The Nichols Research Corporation (NRC), under contract with UAH, supplies engineering support personnel to perform information systems research and implementation. According to the Statement of Work, NRC is required to "collect information regarding overall scientific research and computational requirements of the GHCC and utilize them in guiding overall implementation and integration of all computational facilities associated with the Center. These computational facilities include but are not limited to:

- desktop computers
- visualization workstations
- servers
- data archival systems
- mainframe and/or supercomputer platforms

...Although the contractor is not responsible for the operation or maintenance of all of these systems the contractor may have responsibilities for some components of the integrated system..."

Support for the line item amount of $126,807 was not adequate. The 1995 NRC proposal totaling $783,632 was provided; however, the cost data was not traceable to a specific task. Therefore, we question the full amount of $126,807.

4. Security

The annual recurring cost for security is identified as $58,836. The UAH security proposal provides for an unarmed, uniformed security guard to provide after hours and weekend security at the GHCC. The security proposal cites annual cost of $57,832.

Security guard services are provided through the NRC contract via a subcontract with Alabama Security Associates. Additional security is provided by NRC under the General Operations and Maintenance line item. This includes implementation of a security system plus the installation of security motion detectors, additional card readers, and security system maintenance.

The variance between annual recurring costs and the supporting UAH security proposal is $1,004. We question this amount.

5. Megalink Lease/Telephone Services

The annual recurring cost for Megalink telephone services is $29,958. Megalink is the South Central Bell line into the building and the "telephone services" represent the monthly service for Megalink usage. Monthly phone services documentation show an estimated annual amount of $20,677. This is based on actuals for September through November 1994 and an estimate of $1,500 per month for the rest of the year.

Other telephone charges are included in the general operations and maintenance and communications line items. Under general operations and maintenance are the implementation of

the telephone system data base, network/telephone cable, and phone system upgrade. The communications line item payable to MSFC is the Program Support Communications Network.

The unsupported annual recurring costs amounted to $9,281, the variance between annual recurring cost and estimated cost.

6. General Operations and Maintenance

General Operations and Maintenance annual recurring costs have been identified as $105,558. The General Operations and Maintenance line item in the annual recurring costs spreadsheet is "to cover the ongoing non-recurring costs associated with operating a facility." According to the GHCC manager, "the General O & M is designed to give Nichols Research Corporation (NRC) a pot of money to purchase one-time type items that are required for the good of all occupants in the facility versus a specific project." Activities under this line item include:

- implementation of the telephone system data base
- implementation of a security system for the facility
- recommendations for an effective maintenance plan
- projections for materials needed to enable research activities

The "pot of money" is presented as $105,558. Back-up documentation for this amount was not adequate. The NRC proposal totaling $783,632 for 1995 was provided as support; however, the cost data was not traceable to a specific task. In addition the following estimates were provided to support this amount.

## Support for General Operations & Maintenance

| | | | |
|---|---|---|---|
| A/C Filters | $ | 30.25 | Installed 4/17/95 |
| Coat Hooks | $ | 140.00 | Delivered 4/27/95 |
| Network/Telephone Cable | $ | 1,894.80 | Awaiting Delivery |
| First Aid Kits | $ | 59.96 | Awaiting Delivery |
| Monitor Mounting Brackets | $ | 115.00 | Awaiting Delivery |
| Power Mods | $ | 10,000.00 | Pending Technical Direction |
| Phone System Upgrade | $ | 19,904.00 | Pending Funds |
| Anemometer Antennae | $ | 720.00 | Pending Funds |
| Liebert Air Conditioner Maintenance | $ | 4,800.00 | Pending Funds |
| New A/C Backup System | $ | 10,000.00 | Pending Funds |
| A/C Vent Installation | $ | 330.00 | Pending Funds |
| Security Motion Detectors | $ | 1,700.00 | Pending Funds |
| Perforated Floor Tiles | $ | 200.00 | Pending Funds |
| Uninterruptable Power Supply (UPS) Maintenance | $ | 12,000.00 | Pending Funds |
| Additional Card Readers | $ | 8,769.00 | Pending Funds |
| Security System Maintenance | $ | 1,428.00 | Pending Funds |
| **TOTAL** | **$** | **72,091.01** | |

The difference ($33,467) between the annual recurring cost of $105,558 and the estimates of $72,091 is considered a "wedge" to cover unforeseen needs. With the exception of the A/C Filters and maintenance of the Liebert Air Conditioner, Uninterruptable Power Supply, and the security system (totaling $18,258), we consider the majority of these costs to be capital improvements and not annual recurring costs. As a result, we questioned $87,300 ($105,558 less $18,258) of the General Operations and Maintenance designated annual recurring cost.

7. Communication

Annual recurring costs of $30,384 have been identified for communications. However, these costs represent only a potential assessment by the MSFC Comptroller against the GHCC budgets. As of June 1995, no decision had been rendered by the Comptroller's office as to whether or not such assessment will occur. Therefore, we question the full amount of $30,384.

8. Maintenance-Office/ADP/ETC

Annual recurring costs of $33,876 were identified for maintenance. However, these costs represent a potential assessment by the MSFC Comptroller against the GHCC budgets. As of June 1995, no decision had been rendered by the Comptroller's office as to whether or not such assessment will occur. Therefore, we question the full amount of $33,876.

9. Mail Vehicles

Annual recurring costs of $8,264 have been identified for mail vehicles. However, these costs represent a potential assessment by the MSFC Comptroller against the GHCC budgets. As of June 1995, no decision had been rendered by the Comptroller's office as to whether or not such assessment will occur. Therefore, we question the full amount of $8,264.

10. Project Support

Annual recurring costs of $250,000 were presented for project support. Project support is defined by the Global Hydrology Project Office as a pool for contingencies, ( e.g. possible purchase of a color copier) which represents "a pool of money to be used to procure items necessary to the operation of the facility but are for the good of all..."

Detail supporting this amount was not provided. We take exception to the excessive amount budgeted for use in this cost allocation. Also, the purchase of a copier should not be considered an annual recurring cost; therefore, we consider the $250,000 to be inappropriately categorized.

***SUMMARY***

The overstated annual recurring costs have led to an inequitable distribution of cost to the DAAC. We acknowledge that the Global Hydrology and Climate Center is within its first year of operations, and a learning curve is a natural part of any new venture. However, operating costs associated with the facility must be reasonable and supportable.

***RECOMMENDATION***

The MSFC Center Comptroller should review the annual recurring costs for the GHCC and ensure that:

- costs are reasonable,
- estimates are adequately supported,
- costs are equitably allocated, and
- funds are effectively used.

***MANAGEMENT RESPONSE***

We concur with the recommendation. The Chief Financial Officer (CFO) staff has already completed this review, and corrective actions are underway to correct identified problems. Therefore, we consider this recommendation closed upon issuance of the final report.

***EVALUATION OF MANAGEMENT'S RESPONSE***

The GHCC Cost Review Team's Exit Briefing (CFO Team Review), dated December 7, 1995, which was performed in response to the Discussion Draft Report, produced six findings, 12 issues/concerns, and multiple suggested changes. Two of the team's findings confirm our concerns recognizing the lack of "cost traceability" and lack of "allocation of cost between users" of the GHCC facility. In addition, one of the issues/concerns identified was the inappropriate indirect charges applied to utilities. Although suggestions for improvement were identified, the briefing document does not indicate any plans for continued oversight and/or follow-up to insure implementation. We noted that an allocation rate was derived for the DAAC; however, there is no recommendation regarding its implementation.

With specific regard to the MSFC response to the OIG Draft Report, it should also be noted that the $79,491 credit questioned by the Center (page 1 of Response, paragraph 3) was not an OIG figure, but rather a calculation made by MSFC and contained in the MSFC "talking paper" used during the exit conference.

In addition, the data shown below describes the differences between the OIG review and the CFO Team review.

| | |
|---|---|
| **Different Time Frames:** | The OIG review was conducted for the period September 1, 1994, through August 31, 1995. The CFO Team review was based on Fiscal Years (FYs) 1994 and 1995. |
| **Estimated Dollars versus Actuals:** | The OIG review analyzed estimated budget figures . The CFO Team used actual historical data in performing their review (unavailable to the OIG due to time of review). |
| **Scope of Review:** | The OIG reviewed only the budgeted annual recurring costs of the GHCC for a twelve-month period. The CFO Team considered all expenses for a two-year period, including the costs of building modifications. We do not agree that the cost of building modifications is appropriate in calculation of annual recurring costs. |

We have not, to date, evaluated the CFO Team's findings; however, as part of the follow-up process we will remain in the concurrence cycle and assess any data submitted as part of the Center's closure request package. This data should include the resolution of unallowable utility costs. The actions taken and planned are considered to be responsive to the intent of the recommendation.

## MAJOR CONTRIBUTORS TO THIS AUDIT

| | |
|---|---|
| ***MARSHALL SPACE FLIGHT CENTER*** | C. Thomas Hassell, Audit Manager<br>Amy Larkin, Auditor<br>Sandra Leibold, Audito |

National Aeronautics and
Space Administration

**George C. Marshall Space Flight Center**
Marshall Space Flight Center, AL 35812

MAR 11 1996

Reply to Attn of: BC01-96-051

TO: Office of Inspector General
Attn: M-DI/Ned Echerd

FROM: BC01/Carolyn S. Griner

SUBJECT: OIG Draft Audit Report on Earth Observing System Data and Information System's (EOSDIS) Distributed Active Archive Center (DAAC), MSFC, Assignment No. A-MA-95-007

We have reviewed the subject report. We concur with the recommendation that the MSFC Chief Financial Officer should review the annual recurring costs for the Global Hydrology and Climate Center (GHCC). In fact, we have already completed this review, and corrective actions are underway to address the problems that were identified.

However, as we mentioned in the exit conference on November 1, 1995, many of the cost figures and statements in the report are inaccurate or somewhat misleading. Therefore, we are enclosing our detailed comments.

Our GHCC cost estimates were based on the best data that was available at the time the estimates were prepared in December 1994. With a year of actual data, we are now in a better position to estimate the annual operating expenses and have refined our FY96 estimates accordingly.

If you have any questions concerning our comments, please call BE01/Lana Cucarola at 544-0096.

Carolyn S. Griner
Acting, Chief Financial Officer

Enclosure

**MSFC RESPONSE TO OIG DRAFT AUDIT REPORT ON EARTH OBSERVING SYSTEM DATA AND INFORMATION SYSTEM'S (EOSDIS) DISTRIBUTED ACTIVE ARCHIVE CENTER (DAAC), MSFC, ASSIGNMENT NO. A-MA-95-007**

**COMMENTS**

The majority of the GHCC operations expenses are accommodated through the cooperative agreement NASA has with The University of Alabama in Huntsville (UAH). Cooperative agreements have a less stringent set of rules and guidelines to follow than traditional government contracts.

**Page 1, Paragraph 2/Lines 6-8 and Paragraph 4/Lines 2-3:** We take exception to these statements. Our cost estimates for the first year of operations were within approximately 10 percent of the actual costs incurred, which does not appear unreasonable since we had only limited data upon which to base our cost estimates. Furthermore, our FY95 actual cost figures formed the basis for our FY96 projections.

We do not agree that there is a potential credit of at least $79,491 to the DAAC. On the contrary, a recent Chief Financial Officer review of the GHCC costs revealed that the DAAC's portion of the cost to establish and operate the GHCC in FY94 and FY95 exceeded the amount funded by the DAAC by $12,237 (see Attachment 1 for details). The team noted large expenditures in FY94 that had not been adequately allocated to the participating organizations. This indicated that MSFC had subsidized the DAAC in FY94.

**Page 4, Paragraph 1:** While we may agree that some items were inappropriately categorized, they were still necessary expenses. The capitalization issue is addressed by our comments regarding page 10. The fact remains that there will always be unforeseen operating expenses in the future. We do not agree that we had an inflated overhead pool (operating expenses). As previously mentioned, our initial estimate was within about 10 percent of the actual costs incurred, and we think that is reasonable for the first year of operations.

**Page 4, Table:** This table inaccurately reflects the total operating expenses and allocations for the first 12 months. We have revised the table to reflect the actual GHCC operating expenses for this period, including adjustments resulting from the recent cost review by the Chief Financial Officer staff. See Attachment 2 for a copy of the revised table.

**ENCLOSURE**

**Page 5, Table:** In order to show how the GHCC's actual operating costs compared to the original estimates, we have included a table in Attachment 3 that identifies the original estimates, the amounts questioned by the OIG, and the actual costs incurred during the first year.

**Page 6, Paragraph 1, Lines 8-14:** We disagree with this statement. NASA did not fund all of the specified costs for the entire 40,852 square feet. UAH paid for the:

--renovations to develop the GHCC library in the classroom/ seminar room;

--furniture for the UAH quadrant, with the exception of a few pieces of furniture in the common areas;

--telephone handsets for the UAH quadrant; and

--modems, terminal servers, and Appletalk bridge as well as enthernet cards, cabling, and connectors for the UAH computers in the UAH quadrant.

In addition, UAH arranged to have the state WATTS line, ATTNET, brought into the GHCC to serve as the UAH equivalent to the NASA FTS lines.

**Page 7, Paragraph 2:** The GHCC's $30,000 estimate for the "above allowance" utilities was calculated as follows:

--Actual utility bills received by UAH for the period October through November ($12,619)

--Less: Allowance from the lessor ($8,170)

--Translated into a monthly estimate ($2,225)

--Rounded up to the nearest $500 ($2,500)

--Translated into a yearly estimate ($30,000)

We agree that UAH should not have applied the 26 percent indirect factor to the utilities cost. MSFC is in the process of determining the best procedure for recovering the $7,447 ($28,644 in actual direct utilities cost x 26 percent) in unallowable costs.

**Page 8, Paragraph 3:** The supporting documentation that was previously provided to the OIG included the:

--Statement of Work for the Nichols Research Corporation (NRC), including three specific tasks. Task 2 specifically addressed the requirement for the GHCC Research Facilities Maintenance and Growth.

--NRC proposal addressing the accomplishment of the three specific tasks.

--NRC estimate for the period November 1, 1994, through August 31, 1995, with the specific elements highlighted that comprised the "engineering support personnel" estimates as well as the "general operations and maintenance" estimates.

In addition, the NRC estimates were further subdivided by NASA personnel between the facility operations and the science support estimates.

The original estimate of $126,807, which was prepared in December 1994, was based on three Full Time Equivalents (FTE's) for facility operations at an annual loaded rate of $42,269 each and did not include the UAH indirect factor. When the original estimate was developed, three FTE's were supporting the building. These three FTE's were categorized as "engineering support personnel" on the annual recurring list when, in actuality, they should have been identified as "facilities support personnel." During the year, the facilities support requirement was reduced to two FTE's. Consequently, the GHCC "facilities support personnel" costs for the period September 1994 through August 1995 were actually $115,957, rather than $126,807.

The estimate and resulting negotiated subcontract amount covered all three tasks. There was never an intent to negotiate at the task level.

**Page 8, Item 5, Lines 4-6 and Page 9, Item 5, Paragraph 3:** The annual Megalink lease/telephone service cost estimate of $29,958 was for the South Central Bell monthly phone service and Megalink service. The estimated annual amount that was cited by the OIG (i.e., $20,677) was MSFC's estimate of the monthly phone service charges for 1 year based on an analysis of UAH's proposal. The $20,677 estimate did not include the estimated cost of the Megalink service. For the first 12 months of operation, the actual cost of South Central Bell phone service and Megalink service totaled $34,421. Therefore, the Center's initial estimate of $29,958 was understated--not overstated.

**Page 10, Paragraph 1, Lines 3-10:** In leasing the building from Progressive Properties, the lessor allowed a maximum of $25,000 for renovations to accommodate the needs/requirements of UAH and NASA. Anything over and above that amount was a requirement of UAH/NASA and, as such, was an expense to be borne by those parties. UAH, as lessee, had no choice other than to expense those items that would normally have been classified as capital improvements if UAH owned the facility. These expenses were passed on to NASA since NASA was the originator of the requirements.

NASA has provided $87,965 to UAH for the "general operations and maintenance" expenses. Documentation was provided to the OIG that specifically identified this amount on the NRC proposal estimates for the period November 1, 1994, through August 31, 1995. Since the initial estimate of $105,558 was developed, we have identified requirements for the "general operations and maintenance" line totaling $155,461, exclusive of the NRC fee and the UAH indirect charges. [NOTE: A list of these requirements was provided to the OIG auditors after the exit conference.] Of this total, $44,467 has been documented as an actual expense. At the time of the exit conference, it was anticipated that another $36,800 would be substantiated with invoices by the end of the calendar year. Of the $36,800, approximately $23,000 was associated with upgrading the phone system. However, this action has been placed on hold since the MSFC DAAC is being eliminated. The other actions totaling approximately $14,000 were delayed as a result of the government furloughs.

In this regard, the facility operations subcontract has funds to cover unforeseen operating expenses. If these funds are not needed, they are available for future periods. In our opinion, the only items at risk are the NRC profit and the UAH indirect charge.

**Pages 10-11, Items 7-9:** As a note of reference, when the original GHCC estimates were prepared, GHCC managers anticipated that they would be billed by MSFC for the communications, maintenance - office/ADP/etc., and mail/vehicles services that were scheduled to be provided. However, MSFC management decided not to bill the GHCC for the communications and maintenance services that were provided during the first year of operation. Furthermore, an alternate solution was implemented for the mail/vehicle service in that the student aid assigned to the GHCC picks up the mail. In preparing the POP 95-2 submission, the providing organizations for the communications and maintenance services indicated that charges will be forthcoming for FY96. In FY96, the GHCC will be charged $31,560 for communications and $13,000 for maintenance - office/ADP/etc. There will be no charge for mail/vehicles.

**Page 11, Item 10, Paragraph 1:** In retrospect, the term "project support" is probably used erroneously. The more correct terminology would be "allowance for program adjustment," and this terminology will be reflected in the FY96 listing. An "allowance for program adjustment" is common to projects throughout NASA. Of the total NASA FY95 funds ($8.3 million) coming into the GHCC, the $250,000 represents 3 percent of the total funding.

Although the specific items procured with these funds are not annual recurring expenses, the pool itself is an annual recurring item. Therefore, it should be reflected as an annual expenditure.

**Page 12, RECOMMENDATION:** We concur with the recommendation. The Chief Financial Officer (CFO) staff has already completed this review, and corrective actions are underway to correct identified problems. Therefore, we consider this recommendation closed upon issuance of the final report.

# SUMMARY OF DAAC'S PORTION OF GHCC COSTS (FY94 & 95)

| COST APPLICABLE TO DAAC | TOTAL $ |
|---|---|
| MODS TO BUILDING | 207,314 |
| LEASE* | 124,467 |
| NRC FACILITY SUPPORT (FY94 & 95)* | 262,532 |
| EXCESS UTILITIES EXPENSE* | 9,871 |
| NRC - MOVE, CABLING, SAFETY PLAN* | 21,192 |
| NRC - PHONE SYSTEM* | 32,099 |
| MEGALINK - INSTALLATION & SERVICE* | 1,816 |
| MONTHLY PHONE SERVICE* | 7,598 |
| SECURITY* | 13,527 |
| **TOTAL FY94 & 95 GHCC COST APPLICABLE TO DAAC**** | **680,417** |
| **DAAC FUNDING (FY94 & 95)** | **668,180** |

* 27.35% APPLIED TO DETERMINE APPROPRIATE DAAC COSTS

** DOES NOT INCLUDE COST PROVIDED BY MSFC TO DAAC THROUGH THE PRISMS CONTRACT

ATTACHMENT 1

# GLOBAL HYDROLOGY AND CLIMATE CENTER
# OPERATIONS EXPENSES
# ACTUALS FOR 9/1/94 THROUGH 8/31/95

| | Square Feet | % | Lease | % | Operations Cost | % | Total | % |
|---|---|---|---|---|---|---|---|---|
| DAAC | 11173 | 27.35% | $124,467.00 | 27.35% | $199,418.22 | 36.05% | $ 323,885.22 | 32.12% |
| NASA NON-DAAC | 24679 | 60.41% | $274,924.00 | 60.41% | $295,358.22 | 53.39% | $ 570,282.22 | 56.56% |
| UAH | 5000 | 12.24% | $ 55,700.00 | 12.24% | $ 58,438.56 | 10.56% | $ 114,138.56 | 11.32% |
| | | | | | | | | |
| TOTAL | 40852 | 100.00% | $455,091.00 | 100.00% | $553,215.00 | 100.00% | $ 1,008,306.00 | 100.00% |

| | |
|---|---|
| DAAC CONTRIBUTION FY95 | $ 381,670.00 |
| DAAC BILLABLE AMOUNT FOR FY95 | $ 323,885.22 |
| BALANCE APPLIED TO NONRECURRING COSTS FROM FY94 (SEE ATTACHMENT 1 - INCLUDED IN DAAC FUNDING FOR FY94 AND FY95) | $ 57,784.78 |

ATTACHMENT 2

# MARSHALL SPACE FLIGHT CENTER
# GLOBAL HYDROLOGY AND CLIMATE CENTER
# OPERATIONS EXPENSES

| REQUIREMENT | ESTIMATE | IG QUESTIONED/ UNSUPPORTED COSTS | FIRST YEAR ACTUALS |
|---|---|---|---|
| Building Lease | 455,000 | | 455,091 |
| Utilities | 30,000 | 10,847 | 36,091 ** |
| Engineering Support Personnel ^ | 126,807 | 126,807 | 115,957 |
| Security | 58,836 | 1,004 | 49,459 |
| Megalink Lease/Telephone Service | 29,958 | 9,281 | 34,421 |
| General Operations & Maintenance | 105,558 | 87,300 | 44,467 |
| Communication * | 30,384 | 30,384 | 0 *** |
| Maintenance - Office/ADP/etc. * | 33,876 | 33,876 | 0 *** |
| Mail/Vehicles * | 8,264 | 8,264 | 0 |
| Project Support # | 250,000 | 250,000 | 272,820 |
| **TOTAL** | **1,128,683** | **557,763** | **1,008,306** |

* Items payable to MSFC

** $7,447 is unallowable and steps are being taken to recover from UAH

*** In FY96 the charges from MSFC will be $31,560 for Communications and $13,000 for Maintenance

^ Should be labeled Facilities Support Personnel
# Should be labeled Allowance for Program Adjustment

ATTACHMENT 3