

IG-97-021

**AUDIT
REPORT**

**COLLECTION AND PROCESSING OF
NAS RESEARCH RESULTS**

April 23, 1997



National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL

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National Aeronautics and
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APR 23 1997

Reply to Attn of: W

TO: Ames Research Center
Attn: D/Center Director

FROM: W/Acting Assistant Inspector General for Auditing

SUBJECT: Final Audit Report on Collection and Processing of NAS Research Results
Ames Research Center (ARC)
Report No. IG-97-021
Assignment No. A-AR-96-003

The NASA Office of Inspector General (OIG) has completed an audit of the Collection and Processing of NAS Research Results. We found that NASA should improve both the NAS Program application and the technical summary review process. Improvements in these areas will help ensure that NASA receives all potentially useful scientific information, and that only properly reviewed and approved research summaries are released to the general public.

The OIG issued a draft report to ARC management on March 11, 1997. Management's proposed corrective actions are responsive to our recommendations. As a result, we consider recommendations 1 and 2 closed upon issuance of this report. We have incorporated management's responses into the report. If you have any questions regarding this report, please call me at 202-358-1232.


Robert J. Wesolowski

Enclosure

cc:
JM/M. Myles
OIG Audit Liaison Representative, ARC (w/6 encl.)

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COLLECTION AND PROCESSING OF NAS RESEARCH RESULTS

INTRODUCTION

The Numerical Aerodynamic Simulation (NAS) Program at the Ames Research Center (ARC) provides supercomputer and related resources for aeronautics and other scientific research. The resources are available to researchers from NASA, other Government agencies, private industry, and the academic community. The NAS Program does not impose a user charge on the researchers if the research is directly sponsored by the Government or if the research results are shared with the Government. If the research is proprietary and the results are not shared, the non-Government researcher must reimburse the costs to NASA. The NAS Program has never imposed a usage fee.

Researchers who require NAS resources must submit a completed application package directly to the NAS Program. Non-Government researchers requesting NAS resources free of charge, must submit a completed form that includes the signature of a Government "point of contact" who certifies that the research will be conducted in the interest of the Government. Upon receipt of the completed application package, the NAS Program and the appropriate program office review the proposed research for its technical merits and determine the need for NAS resources. Once their applications are approved, researchers may use the allocated computer time within the designated NAS operational year.

The NAS Program requires all users of NAS resources to provide a summary of results (technical summary) after completing their research. The NAS Program publishes a selected number of these results through the Internet (NAS Home Page) and in book format.

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OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES

The overall audit objective was to evaluate controls over the collection and processing of research results provided by users of NAS resources. Specifically, the audit was performed to determine whether:

- NAS users had complied with requirements to submit non-proprietary research results to the Government; and
- NASA had properly reviewed the summaries of research results (technical summaries) before disseminating them to the general public.

SCOPE AND METHODOLOGY

To determine whether NAS resource users had submitted their research results to the Government, we sent a questionnaire to cognizant Government personnel inquiring about the outcome of the projects they had sponsored or endorsed. To determine whether the technical summaries had been properly reviewed and approved prior to dissemination, we reviewed the applicable requirements in NASA Handbook 2200.2 (NASA Scientific and Technical Information Handbook) and contacted officials from ARC's NAS Program and various Aeronautics program offices at Ames Research Center, Langley Research Center, and Lewis Research Center.

MANAGEMENT CONTROLS REVIEWED

We evaluated ARC's compliance with the following management controls:

- NAS Program policy that requires non-Government users of NAS resources to submit their research results to the Government.
- NASA Handbook 2200.2 that requires NASA review and approval of research papers before disseminating them to the public.

Management control weaknesses were identified and are described in detail in the Observations and Recommendations section of the report.

AUDIT FIELD WORK

Audit field work was conducted from June through September 1996. The audit was performed in accordance with generally accepted government auditing standards.

OBSERVATIONS AND RECOMMENDATIONS

OVERALL EVALUATION

The NAS Program can improve its controls over the collection and processing of research results. Specifically, the NAS resource application package should clearly identify the requirement for sponsoring Government agencies to obtain the results of research from non-Government users of NAS resources. In addition, the NAS Program should satisfy itself that appropriate NASA officials have reviewed and approved the research summaries before releasing them to the general public.

RESEARCH RESULTS NOT ALWAYS PROVIDED TO THE GOVERNMENT

Responsible NASA personnel outside the NAS Program did not always seek and/or obtain the results of research from non-Government researchers who had used NAS resources free of charge. This condition occurred because some of these responsible personnel were not aware of their duty to obtain research results. As a result, NASA and other agencies may not learn of potentially useful scientific information.

The NAS Program's user-application package contains the following instructions:

Research may be conducted using the NAS resources free of charge only (1) if the research is directly sponsored by the U.S. Government or (2) if the research codes and results are shared with the U. S. Government. If the research is proprietary and the codes and results cannot be distributed, the usage fees for the NAS resources will be reimbursed to the U. S. Government by the principal investigator or his organization.

NAS Program officials advised they had never imposed a usage fee because non-Government researchers had never conducted proprietary research using NAS resources. Since no proprietary research had been conducted, all non-Government users of NAS resources should have shared the research results with the Government. We found that research sharing did not always occur.

The Deputy Chief, NAS Systems Division, said the NAS Program is not responsible for ensuring that NAS users provide their research results to the Government. Although the NAS Program requires all users of NAS resources to submit a summary of research results

(technical summary), the Deputy Chief said this requirement is not intended to "ensure the collection" of research results. Rather, NAS Program officials obtain technical summaries only so that they may keep informed of NAS-supported research work, and publish some of the research results for NAS promotional purposes.

To determine whether non-Government users of NAS resources had complied with the requirement to share non-proprietary research results with the Government, we sent 169 questionnaires to cognizant Government representatives (called "technical monitors/points of contact" in the NAS application), located mostly at ARC, LaRC, and LeRC. Each questionnaire addressed one research project -- some points of contact were responsible for more than one project. The questionnaires pertained to selected projects performed by non-Government researchers during NAS operational year 1994-95. The Government representatives were asked about the quality, timeliness, and relevancy of the research work, as well as their knowledge of the research results. We received responses to 130 of the 169 questionnaires sent, or 77 percent; 74 Government representatives responded.

Most respondents claimed they were aware of the project results and were satisfied with the performance of the non-Government researchers. However, 10 of the 74 respondents (13.5 percent) said they were not aware of the outcome of the projects. Some of them stated that, at the time they co-signed the NAS Form RN-001A (Non-Federal Applicant Information), they understood they only had to endorse the projects for their technical merits, and not obtain the researchers' results. They noted that NAS Form RN-001A only requires Government points of contact to certify that the non-Government researcher will perform the research "in the interest of the Government."

We believe ARC should ensure that Government points of contact for NAS projects are apprised of their responsibility to obtain research results from non-Government researchers. Specifically, ARC should revise the user-application package to require the Government points of contact to certify on the NAS Form RN-001A that they will obtain the research results. A revised package will help ensure that ARC complies with the user charge policy, and that NASA learns of potentially useful research information in a timely manner.

RECOMMENDATION 1

ARC should revise the NAS Program's resource application package to require Government points of contact to certify that they will obtain research results from non-Government researchers.

***MANAGEMENT'S
RESPONSE***

Concur. The Information Technology Program/Advanced Computing, Networks and Storage (formerly the NAS Program) proposal submission form is being revised to read as follows:

Contracting Officer's Technical Representative (COTR) or Government POC:

I, (their full name), certify that the research described in this proposal is being performed in the interest of the U.S. Government. I further agree to obtain and review the research results from this project and advise the NASA Aeronautics IT Program Office within one month of the end of FY 98 if the results are NOT suitable for publication.

Signature: _____ Date: _____

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

The actions planned by the Center are considered responsive to the recommendation. We suggest ARC change the form's reference to "FY 98" to "FY ___" so that the Center may use it for any fiscal year.

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***NAS PROGRAM
MISINTERPRETED
PROCEDURE FOR
RELEASING
TECHNICAL
SUMMARIES***

ARC's NAS Program had not ensured that cognizant Government representatives reviewed and approved technical summaries, before the NAS Program released them to the general public. This condition occurred because the NAS Program had incorrectly interpreted applicable requirements in NASA Handbook (NHB) 2200.2 (NASA Scientific and Technical Information Handbook). Compliance with the established requirements will help guard against the premature release of sensitive research results to the general public, and possible harm to America's competitiveness in the global aircraft and aerospace industry.

NHB 2200.2 requires the cognizant NASA project officer, technical monitor, or an authorized alternate to first determine the appropriate "availability" of the NASA-sponsored scientific and technical documents. The cognizant NASA program office must then approve the availability classification before releasing the document to the public. NASA uses Form FF 427 (NASA Scientific and Technical Document Availability Authorization) for conducting the screening process.

The Deputy Chief, NAS Systems Division, stated that the NAS Program had complied with the requirements in NHB 2200.2, and that NASA had authorized the NAS Program to prepare and approve the Form FF 427. She also advised that the Chief and Deputy Chief of the NAS Systems Division were the cognizant project officers as well as representatives of the NASA program offices, thereby allowing either of them to prepare and approve the Form FF 427. The Deputy Chief said she viewed the NAS Program as the sponsoring organization for the research projects, and was, therefore, authorized to screen the technical summaries for security purposes.

We believe the NAS Program is not authorized to approve technical summaries for publication, for the following reasons:

- NAS Program officials were unable to provide any documents showing that the NAS Program is responsible for reviewing and approving technical summaries for security purposes.
- We believe NHB 2200.2 intends that only the NASA organizations having the most technical knowledge of and direct interest in the subject research, should approve research papers for publication. Since most of the research projects that use NAS resources are aeronautics-related, NASA's

Aeronautics program offices would logically be in the best position to screen the technical summaries. In fact, the Aeronautics program offices are already responsible for approving research proposals that require NAS computer resources.

- The NAS Form RN-001A (Non-Federal Applicant Information), clearly requires non-Government researchers to provide the names of the sponsoring Government agency and the technical monitor/point of contact. All completed copies of the NAS Form RN-001A identified other organizations (mostly NASA Aeronautics program offices) as the sponsoring organization, not the NAS Program. Similarly, the program offices, not the NAS Program, sponsored the research projects performed by Government researchers.

To further evaluate the NAS Program's position, we requested various Aeronautics program officials to comment on what they believed to be the proper policy for screening technical summaries. These officials (listed below) were responsible for reviewing and approving aeronautics-related research proposals that required the use of NAS computer resources.

Manager, High Speed Research Program, LaRC
Manager, Subsonics Technology Program, LaRC
Manager, Airframe Systems Program, LaRC
Manager, Propulsion System Program, LeRC
Manager, Airspace Operations Program, ARC
Manager, Rotorcraft Program, ARC
Manager, Flight Research Program, DFRC

Of the seven officials contacted, one (Manager, Airspace Operations Program) advised that his program requires no NAS computer support and hence offered no comment. Of the remaining six officials, five said their program offices should approve the technical summaries before the NAS Program publishes them. Only the Manager, Rotorcraft Program, ARC, expressed a willingness to delegate the approval function to the NAS Program.

We believe ARC can strengthen internal controls over the publication of technical summaries by ensuring that sponsoring program offices screen the technical summaries before they are disseminated to the public. We did not identify instances where the NAS Program had

inappropriately released technical summaries; nonetheless, we believe the program offices are better qualified to determine whether the technical summaries may be published. One Aeronautics program official advised the OIG that it is logical to expect the office that evaluates research proposals for technical merits, to also approve the technical summaries for publication.

RECOMMENDATION 2

ARC should ensure that the NAS Program publishes technical summaries only after the sponsoring program offices have screened and approved the documents for release.

***MANAGEMENT'S
RESPONSE***

Concur. In the future, ARC will obtain an FF427 form signed by the sponsoring program offices for each technical summary to be published.

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

The actions planned by the Center are considered responsive to the recommendation.

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GENERAL COMMENTS

We appreciate the courtesy, assistance, and cooperation extended to us by NAS officials contacted during this audit.

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National Aeronautics and
Space Administration
Ames Research Center
Moffett Field, CA 94035-1000



APR 10 1997

J:241-11

Reply to Attn of:

TO: NASA Headquarters
Attn: W/Robert J. Wesolowski, Assistant Inspector General for Auditing

FROM: Director of Center Operations

SUBJECT: Draft Audit Report on Collection and Processing of NAS Research
Results, Ames Research Center, Assignment No. A-AR-96-003

We have reviewed the subject report and appreciate the opportunity to respond.

RECOMMENDATION 1

Ames Research Center (ARC) should revise the NAS Program's resource application package to require Government points of contact to certify that they will obtain research results from non-Government researchers.

RESPONSE: CONCUR

The Information Technology Program/Advanced Computing, Networks and Storage (formerly the NAS Program) proposal submission form is being revised to read as follows:

Contracting Officer's Technical Representative (COTR) or Government POC:

I, (their full name), certify that the research described in this proposal is being performed in the interest of the US Government. I further agree to obtain and review the research results from this project and advise the NASA Aeronautics IT Program Office within one month of the end of FY 98 if the results are NOT suitable for publication.

Signature: _____ Date: _____

RECOMMENDATION 2

ARC should ensure that the NAS Program publishes technical summaries only after sponsoring program offices have screened and approved the documents for release.

RESPONSE: CONCUR

In the future, ARC will obtain an FF427 form signed by the sponsoring program offices for each technical summary to be published.

If you have questions, please contact Wanda Riney at (415)604-6628.


Jana M. Coleman

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Budget Examiner, Energy Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, General Accounting Office
Special Counsel, Subcommittee on National Security, International Affairs, and Criminal Justice

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Senate Subcommittee on VA-HUD-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-Independent Agencies
House Committee on Government Reform and Oversight
House Committee on Science
House Subcommittee on Space and Aeronautics

Congressional Members

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

MAJOR CONTRIBUTORS

David L. Gandrud, Program Director
Howard Kwok, Auditor-in-Charge

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the 1990s, the number of people in the world who are poor has increased from 1.2 billion to 1.6 billion.

There are two main reasons for this. First, the population of the world has increased from 5 billion to 6 billion. Second, the number of people who are poor has increased in almost every country in the world. In the United States, the number of people who are poor has increased from 25 million in 1980 to 35 million in 1995. In the United Kingdom, the number of people who are poor has increased from 5 million in 1980 to 7 million in 1995.

There are many reasons for this. One reason is that the cost of living has increased. Another reason is that the number of people who are unemployed has increased. A third reason is that the number of people who are disabled has increased. A fourth reason is that the number of people who are elderly has increased.

There are many things that we can do to help the poor. We can give them money. We can give them food. We can give them shelter. We can give them education. We can give them healthcare. We can give them a job. We can give them a home. We can give them a better life.

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