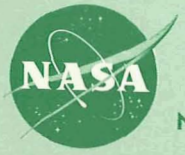
NASA SP-7034

R & D REPORTING
Guidance for Technical Monitors of NASA Contracts



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA SP-7034

R & D REPORTING
Guidance for Technical Monitors of NASA Contracts

Scientific and Technical Information Division 1969
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C.

FOREWORD

This guide has been assembled to answer questions frequently asked by men newly assigned to serve as technical monitors on NASA research and development contracts. It addresses itself particularly to reporting requirements in such contracts. No inference should be drawn that experienced technical monitors, wise in the subtleties of managing contracted research, are believed to need instruction in elementary aspects of that complex art. Rather, the objectives are to explain the various options that monitors may wish to exercise in directing the course of the resultant R&D reports within the NASA scientific and technical information system, and to remind them of the various informational resources open to them and to their contractors.

The great preponderance of funds expended by NASA is directed into contract work, a fact that attests to the importance the agency attaches to the skill and judgment of its technical monitors. Their role is seeing to the quality and the timing of the research that is often crucial to subsequent successful achievement of NASA's missions. It is a role far more significant than simply clause-enforcing and schedule-watching. Instead, it demands creative, consistent and imaginative managerial-technical skill. Seeing that this fresh information that has been nursed into being becomes broadly available is a crucial part of this skill. For it will then become a readily assimilable part of the NASA information system, a complex and computerized entity that is surely one of the world's most comprehensive resources of aerospace knowledge.

John F. Stearns, Director
Scientific and Technical Information Division
November 1969 *Office of Technology Utilization*

A technical monitor of a NASA contract must be a guide, expediter, and technical reviewer for reports on the scientific and technical information evolving from the contract. His responsibility results from the injunction in the Space Act that NASA "shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

As a technical monitor, you are a key figure in the process of transferring information. It is part of your job to establish the frequency and verify the quality of contractor reports. This booklet is intended to give you guidance and counsel for the task. It also points out further help available to you in obtaining top-grade contractor reports. Technical monitors are in a sense privileged custodians of professional work performed by others, and their responsibilities include both seeing to it that this work is of the highest quality and protected against unwarranted appropriation before it is formally published.

AVOID THE NARROW VIEW

Some technical monitors have tended to regard reports as merely a device for keeping themselves or their immediate office informed about the work they have contracted for. Contractor's investigators often have shared this opinion, failing to consider the potential value to others of their findings. But both within NASA and in the broader realm of government and academic research, other men are likely to be working on allied problems. One purpose of NASA's scientific and technical information system is to place these bits and pieces of new knowledge under centralized control, and to make them available as rapidly as possible. Moreover, the people of the United States have a right to information which their government has paid contractors for acquiring.

DON'T MIX REPORTS

Many contractor reports arrive at NASA's Scientific and Technical Information Facility with built-in handicaps. Some are unsuitable in content. Some are not physically in shape for publication.

The first difficulty often derives from confusion about the kind of report NASA wants. As a technical monitor, you will require both administrative and R&D reports from the contractor. They should *not* be combined in a single document. An occasional reference to technical accomplishments may be excused in a report primarily devoted to managerial matters, but housekeeping details, such as work schedules, personnel problems, or funding, have no place in an R&D report.

Make these essential distinctions clear to the contractor from the start. Be sure that they are observed in his reports before you approve them.

A technical monitor naturally will require administrative reports to be prepared on a fairly frequent schedule. Technical reports are quite a different matter. It is unreasonable to expect technical achievements or useful research results to occur with calendrical regularity. These reports should be spaced to suit the pace of progress, or written whenever a particular phase of the work under contract is considered to be complete.

JOURNALS OR REPORTS?

Contractors' investigators sometimes say they would prefer to publish the results of their research in professional journals. When this hope is realized, it helps achieve the intent of the Space Act. When investigators supported by NASA propose to publish the results of their contracted work in non-NASA media, they are expected to provide NASA with an advance copy of each paper. Caution should be exercised in handling information that is definitely scheduled to be published in the journal literature, since prior broad release of the information in report form can jeopardize journal publication.

In practice, duplication of the information in NASA and non-NASA media is not likely. Journal editors typically want

discipline-oriented and highly compressed treatments of research findings. NASA wants comprehensive and interdisciplinary reports on work done under specific contracts.

HOW TO DEFINE WHAT NASA WANTS

To obtain the kind of contractor reports that NASA wants, a technical monitor should make certain that the contract specifies what is required and then effectively monitor the contractor's performance to ensure compliance with the contract requirements. He can rely on the contracting officer for cooperation, advice, and backing when needed.

The choice of contract language on report frequency and characteristics depends on the type of contract involved and on its duration. If the work undertaken is to be accomplished in a short time (six to 12 months) and is limited in scope, the contract will probably require only one report, a final one.

In a short-term, sharp-focus contract, the single, summarizing contractor report that the work is expected to produce should be described in detail.

In a long-term contract of broad scope and complexity, the reporting requirements should permit greater flexibility, to allow for the unknown nature of the significant scientific and technical information that may develop.

For this second kind of contract, you might reasonably require the preparation of a contractor report whenever:

(a) The research has reached the point where it is natural and logical to summarize the results, or

(b) A research phase has been completed, or

(c) Important findings have been achieved, calling for prompt publication.

Appendix 1 in this booklet gives typical reporting-requirement "boilerplate" that you may wish to adapt to suit your contract.

ABETTING "NEW TECHNOLOGY" REPORTS

The New Technology Clause of NASA contracts (since May 1966) requires the contractor to identify and document any

invention, discovery, improvement, or innovation, patentable or not, that is made in the course of fulfilling the contract or in work done under a written understanding that a contract would be awarded.

New technology may emerge in basic research, in manufacturing, or in the development and production of space equipment. Usually it is mentioned in a contractor report; and it may be important enough to become the entire subject of a contractor report. This, however, cannot be taken for granted. A technical monitor should always be on the lookout for new technology that should be reported to NASA in one form or another.

Although the reporting of new technology developed in a NASA contract is primarily the responsibility of the Technology Utilization Office, technical monitors share this obligation. They should call the attention of the staff of that office to any items of apparently new technology that they note during performance of the contract work. This does not mean that as a technical monitor you are responsible for authenticating the items. Whether or not the New Technology Clause of the contract applies to the item or items in question will be determined by the NASA contracting officer and the Technology Utilization Office.

NASA HELP AT HAND

The NASA Scientific and Technical Information Division provides important aids and services to NASA contractors. Each contractor's investigators should acquaint themselves promptly and thoroughly with all other research accomplished or under way in areas relating to their own work. There are two guides to this body of knowledge. They are the announcement journals of the aerospace world, *STAR (Scientific and Technical Aerospace Reports)* and *IAA (International Aerospace Abstracts)*, published twice a month in alternate weeks. *STAR* provides comprehensive abstracts and indexes of worldwide report literature; *IAA* covers journal, book, and other non-report literature with comparable thoroughness.

When a NASA contract goes into effect, the Scientific and Technical Information Facility should be asked to arrange for the contractor to receive announcement journals regularly, without

charge, for the duration of the contract. In addition, the Facility will send the contractor a form on which his investigators may list the subjects in which they are particularly interested. When they complete this form and mail it in, NASA will automatically send them NASA publications on those subjects that are released in the course of the contract.

With *STAR* and *IAA* available to them, the contractor's investigators thereafter need only notify the Facility of any *STAR*-listed reports they want to see, and the Facility will send without charge microfiche or facsimile copies of those reports to them. If the investigators want copies of *IAA*-listed documents, however, they must purchase them from the American Institute of Aeronautics and Astronautics, Inc., 750 Third Avenue, New York, N.Y. 10017.

Contractor researchers can call upon the Facility at any time to conduct literature searches of the hundreds of thousands of documents under computer control there. They may also ask the Facility to prepare special bibliographies of report, journal, and book literature in specified subject areas. These bibliographies, compiled from computer tapes, list citations without abstracts—they give the accession number, title, pages, author, and date—of pertinent documents that are thereupon available upon request.

All requests for these services, which cost the contractor nothing, should be addressed to NASA Scientific and Technical Information Facility, P.O. Box 33, College Park, Maryland 20740.

REPORT STANDARDS NASA PREFERS, AND WHY

A new document called *Guidelines to Format Standards for Scientific and Technical Reports Prepared by or for the Federal Government* (NASA Implementation Edition, July 1969)—which is not a prime example of conciseness in titling—explains the mechanical requirements for preparing reports for possible publication and microfilming. Meeting these requirements imposes no hardships or undue expense. It covers such points as:

1. Contractor reports may be prepared on an ordinary typewriter, in black ink on white paper. They should be single spaced,

and pages numbered correctly for printing on both sides of each sheet. This procedure saves space, paper, and money.

2. Corrected reports must be submitted to NASA in the form of original typescripts, original drawings, and glossy, unscreened photographic prints. Such "*reproducible copy*" is needed for high-quality printing and microfilming.

3. Do not use oversize or foldout pages without obtaining the prior approval of the Scientific and Technical Information Division, NASA Headquarters. Their use slows and complicates printing, increases costs, and may make microfilming impossible.

4. Do not prepare copy for multicolor printing. Because of the much greater cost involved, NASA does not use multicolor printing except when color is essential to the scientific value of illustration. Such cases are rare, and color distinctions are usually lost in microfilming.

5. Avoid the use of "volume," "section," or "part" in report titles. The segmented parts of a serial report may not become equally available, because of classification or some other restriction; and the use of such title distinctions then becomes confusing. Use a series title and suitably descriptive subtitles instead.

If you acquaint yourself thoroughly with these format standards, you will be a better guide and monitor for the contractor's technical reporting. The standards provide useful guidelines for monitoring the contents of contractor reports as well as their physical appearance.

OTHER AIDS FOR CONTRACTOR REPORTING

Additional printed aids to preparing contractor reports for NASA include:

NASA Publications Manual (NASA SP-7013)

Preparing Contractor Reports for NASA–Repro Typing and Layout (NASA SP-7007)

Preparing Contractor Reports for NASA–Technical Illustrating (NASA SP-7008)

Preparing Contractor Reports for NASA–Data Presentation (NASA SP-7025)

Those booklets should be available in a contractor's Technical Information Division. The chief researcher on the contract you are monitoring should consult them before he and his colleagues start to prepare their first contractor report for NASA.

If, despite printed guidance, a contractor's researchers have questions about details of preparing contractor reports for NASA, suggest that they consult the Scientific and Technical Information Division at NASA Headquarters.

REVIEWING REPORTS

When a completed contractor report is sent to a technical monitor for review and approval, he must consider carefully the following:

1. Does the report indicate that the contractor has met the objectives of the contract? Although generally so, this is not invariably the case. If the report reveals that the objectives were not met, and the contract has not been extended, you may recommend that it be placed in an informal series of contractor reports where it is under bibliographic control but not announced or printed.

2. Is the coverage of the technical work sound, objective, and adequate? Does the report meet the requirements specified in the contract?

3. Does the report contain brand names, evaluations of commercial products or firms, trade secrets of the contractor, or other information that NASA should not publish? If you doubt whether NASA should publish any of the information in the report, refer the question to your division chief.

If your contractor asks you to limit the distribution of any scientific or technical report because it contains proprietary information, you should satisfy yourself that this is truly the case. Ask him to specify in writing the information that is proprietary, and why he feels that it would be equitable to restrict it.

4. Does the report contain information that should be protected by a security classification? If you are not certain, refer it to the Center classification officer for his opinion. If he rules that the text should be classified as written or illustrated, ask if selective

rewording or a change in illustration would obviate this necessity. If so, have the contractor make the required changes. NASA wants as many contractor reports as possible to be unclassified.

ROUTING REPORTS YOU APPROVE

When a report you are reviewing satisfies all of the points enumerated above, you are now at a switching point in the course this report may take to the Facility. Yours is the initial, and often essential, decision on the following questions:

1. Do you recommend formal publication by NASA in the green-cover series of NASA contractor reports? To deserve this recommendation, the report should contain significant scientific or technical information, creditably presented, that you feel will be of value to a substantial audience.

If you make this recommendation, you must arrange for the kind of full-dress technical review of the material that a formal report ordinarily receives. If the review board approves it, make sure that the changes and corrections, if any, are transferred to the reproducible copy of the report before you forward it to the Center director, or his designee, for signature and transmittal, through the Associate Administrator of the cognizant Program Office, to the Scientific and Technical Information Division.

2. Is the contractor report under consideration too limited in scope to interest more than a small audience? If so, you should recommend that it keep its designation as a "high-numbered" contractor report. It will be announced (if unclassified), indexed, microfiched, and distributed in facsimile form only as requested. The essential difference between the way such reports and the formal NASA contractor reports are handled is that the latter, if unclassified, are printed and bound in green covers and given automatic initial distribution to those addresses on NASA's list of Government agencies, industrial firms, universities, research institutes, libraries, and individual scientists and engineers who have asked to receive all NASA reports in specified subject areas. The average distribution of this sort totals 1,800 to 2,000 copies.

If you recommend that a contractor report be kept in the

informal category, you may ask the contractor to produce as many as 25,000 units in the aggregate, provided that the contract permits it. The term "25,000 units in the aggregate" simply means that the number of pages times the number of copies may not exceed 25,000. Send one copy to the cognizant Program Office. Be sure also to send at least one copy suitable for photocopying to the Scientific and Technical Information Facility for reproduction and distribution upon request.

An alternate procedure is to ask the contractor for the original typescript, drawings, and photographs of the report and forward them to the Facility for copying on microfiche.

THE ULTIMATE GOAL

Keep ever in mind that while it may sometimes be irksome or inconvenient to follow all the advice and counsel in this booklet, the ultimate purpose is the further advancement of U.S. science and technology.

The roles of reporting and publishing in this beneficial work are summarized in the following passage from the Weinberg Committee's report, *Science, Government, and Information*:

"Transfer of information is an inseparable part of research and development. All those concerned . . . must accept responsibility for the transfer of information in the same degree and spirit that they accept responsibility for research and development itself . . . . The technical community generally must devote a larger share than heretofore of its time and resources to the discriminating management of the ever-increasing technical record. Doing less will lead to fragmented and ineffective science and technology."

APPENDIX I

As technical monitor, you can and should spell out precisely the nature of the reporting requirements that you wish the contractor to follow. The following "boilerplate" will serve as a pattern that you can modify to suit the particular needs of the contract.

REPORTING REQUIREMENTS

A. General

Work under this contract shall be fully reported to NASA. Scientific and technical information deriving from the work shall be reported in a form in accordance with *Guidelines to Format Standards for Scientific and Technical Reports Prepared by or for the Federal Government;* these reports shall contain no managerial, fiscal, or administrative material. Administrative reports containing such material—and supporting technical information as required—shall be informally prepared in a manner mutually satisfactory to the technical monitor and the contractor.

B. Scientific and Technical Reports

The technical monitor may authorize or require research reports of an interim or final nature, or both. They shall be prepared in accordance with *Guidelines to Format Standards for Scientific and Technical Reports Prepared by or for the Federal Government.*

1. *Interim Scientific and Technical Reports*

The technical monitor may require the preparation of an interim research report when the investigation has reached a point when it is

logical to summarize results achieved, when a milestone or significant phase has been completed, or when a new scientific finding is deemed to warrant prompt publication. Reports of this type shall be submitted days after the technical monitor and contractor agree upon subject and scope. copies shall be sent to (Technical Monitor; address); copies shall be sent to (Contracting Officer; address).

Upon approval of the report by the technical monitor, and the incorporation of any modifications required, the reproducibles of the report, and two additional copies, shall be sent to:

NASA Scientific and Technical Information Facility
Post Office Box 33
College Park, Maryland 20740

One additional copy shall be sent to:

NASA Headquarters
New Technology Representative
Code UT
Washington, D.C. 20546

2. *Final Scientific and Technical Report*

A final report summarizing the work done and results achieved shall be prepared by the contractor. It shall be a technically oriented account of the investigation, supported as necessary by tabulations of data, figures, and photographs. Interim reports need not be fully duplicated but may be cited as references. The final report shall be submitted to the technical monitor within days after the completion of the work.

Upon approval of the final report by the technical monitor, and the incorporation of any changes required, the reproducibles of the report, and two additional copies, shall be sent to:

NASA Scientific and Technical Information Facility
Post Office Box 33
College Park, Maryland 20740

One additional copy shall be sent to:

NASA Headquarters
New Technology Representative
Code UT
Washington, D.C. 20546

C. Administrative Reports

1. *Monthly Progress Reports*

The contractor shall submit informal progress reports within seven days of the end of each 30-day period. This period shall summarize activity, indicating current problems, if any, and suggesting corrective actions. It shall also indicate work to be undertaken during the next reporting period. copies shall be sent to (Technical Monitor; organizational element; address); and copies shall be sent to (Contracting Officer; address).

2. *Semiannual Reports*

The contractor shall submit a semiannual report within 20 days after each six-month period of performance. It shall summarize both the work performed during the period and the degree of progress achieved toward the contract objectives. copies shall be sent to (Technical Monitor; address); copies shall be sent to (Contracting Officer; address).

APPENDIX II

Scientific and technical reports generated by NASA research and development contractors are handled in a variety of ways in the NASA information system. The Headquarters Scientific and Technical Information Division can help you with questions you may have on what happens to the information once it leaves your hands. The following is an outline of the variety of ways the information can be processed.

STAR Announcement.—The report is assigned an accession number in the N10,000 series. Along with indexing and abstracting in *STAR* the document is filmed and distributed in microfiche and copies released to the Clearinghouse for Federal Scientific and Technical Information for public sale.

IAA Announcement.—The item is assigned an accession number in the A10,000 series. Along with the indexing and abstracting in *IAA*, the document is filmed—if not copyrighted—and made available for sale from the Technical Information Service, American Institute of Aeronautics and Astronautics.

CSTAR Announcement.—The report is assigned an accession number in the X10,000 series. Along with the indexing and abstracting in *CSTAR*—the classified counterpart to *STAR*—it is on file in the NASA Scientific and Technical Information Facility and available to those organizations having a need for the information and appropriate security clearance.

80,000 Series.—Items assigned an accession number in this series are not announced in any abstract journal. The item is indexed, but not

filmed, and references to the document (title, authors, date, source, indexing terms, etc.) are put on magnetic tape for computer manipulation and retrieval. Documents that have no limitations of any sort in this series are assigned an N80,000 number and are available for sale from the Clearinghouse. Any limitation, administrative or security, on items in this series results in the document being assigned an X80,000 accession number. These documents are protected in the same fashion as documents actually announced in *CSTAR*. The type of material that is put in the 80,000 series includes older reports, older reprints or journal articles within NASA's interests; looseleaf handbooks and manuals, nonaerospace documents that deal with management or information sciences of interest to the NASA community, and reports for which NASA contract monitors or Program Offices have specified no announcement but availability upon request.

90,000 series.—Like the 80,000 series documents, these are not announced in an abstract journal, not filmed, but are indexed on magnetic tape for manipulation and retrieval. The indexing is not as detailed as 80,000 series indexing. There are N90,000 and X90,000 series paralleling the 10,000 and 80,000 series. Items in the 90,000 series normally have no or very little scientific or technical information. Such items as library tools (e.g., translation lists), monthly contractor reports, other documents containing only funding, scheduling, or status information, or reports stated by the technical monitor to lack value for further distribution or public attention, are included in this series.

NASA-Langley, 1969 —— 34

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"The aeronautical and space activities of the United States shall be conducted so as to contribute . . . to the expansion of human knowledge of phenomena in the atmosphere and space. The Administration shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

— NATIONAL AERONAUTICS AND SPACE ACT OF 1958

NASA SCIENTIFIC AND TECHNICAL PUBLICATIONS

TECHNICAL REPORTS: Scientific and technical information considered important, complete, and a lasting contribution to existing knowledge.

TECHNICAL NOTES: Information less broad in scope but nevertheless of importance as a contribution to existing knowledge.

TECHNICAL MEMORANDUMS: Information receiving limited distribution because of preliminary data, security classification, or other reasons.

CONTRACTOR REPORTS: Scientific and technical information generated under a NASA contract or grant and considered an important contribution to existing knowledge.

TECHNICAL TRANSLATIONS: Information published in a foreign language considered to merit NASA distribution in English.

SPECIAL PUBLICATIONS: Information derived from or of value to NASA activities. Publications include conference proceedings, monographs, data compilations, handbooks, sourcebooks, and special bibliographies.

TECHNOLOGY UTILIZATION PUBLICATIONS: Information on technology used by NASA that may be of particular interest in commercial and other non-aerospace applications. Publications include Tech Briefs, Technology Utilization Reports and Technology Surveys.

Details on the availability of these publications may be obtained from:

SCIENTIFIC AND TECHNICAL INFORMATION DIVISION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Washington, D.C. 20546