



Report of Internal and Management Audit

Review of the Office of Research and Development's Extramural Research Activities

The primary mission of the Environmental Protection Agency's Office of Research and Development (ORD) is to provide regulatory offices with scientific information for use in developing and enforcing regulations. ORD accomplishes its mission through a combination of in-house research and extramural research procured through contracts, cooperative agreements, grants, and interagency agreements.

The Office of the Inspector General's (OIG) review indicated that ORD has been faced with a number of problems and criticisms over the last few years and is currently in the process of instituting some important operational and organizational changes to effect improvements. Additional improvements, however, are needed to strengthen administrative and internal controls and increase the efficiency and effectiveness of the processes governing procurement and management of research projects.

The OIG has made a number of recommendations to Agency management to enhance ORD's operational and administrative effectiveness. Agency management has generally concurred with these recommendations and have taken or are in the process of taking corrective action to address problems identified.

Audit Report ElgB2-11-0019-30828

March 31, 1983



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

March 31, 1983

OFFICE OF
THE INSPECTOR GENERAL

MEMORANDUM

SUBJECT: Report of Audit of the Office of Research and Development's
Extramural Research Activities, Audit Report E1gB2-11-0019-30828

FROM: Ernest E. Bradley III *Ernest E. Bradley III*
Assistant Inspector General for Audits (A-109)

TO: Lee L. Verstandig
Acting Administrator (A-100)

We have completed an audit of the Office of Research and Development's
Extramural Research Activities.

The Acting Assistant Administrator for Research and Development did
not respond to all appropriate recommendations contained in the report.
However, according to ORD senior management, ORD is in full agreement with
all of the report's recommendations and has either taken action to correct
deficiencies noted or is committed to proceed.

Due to mischarges to the Research and Development and Abatement and
Control Appropriations totaling \$1.3 million, we have recommended that
the Agency Comptroller review all contract charges to these appropriations
for fiscal 1980 through 1982, and present a formal written report to you
regarding the propriety of such charges. We are requesting the Office
of Legal and Enforcement Counsel, under a separate memorandum, to provide
us with a formal legal opinion on whether such mischarges constitute a
violation of 31 U.S.C. 628 and/or 665, and what actions if any, you must
take. The Comptroller proposed to conduct a review of contract charges
for fiscal 1983, but disagreed with our recommendation to review charges
for fiscal 1980 through 1982.

With the exception of the Comptroller's position on review of contract
charges, the Agency's comments to the recommendations in our draft report
were responsive.

We request that within 120 days, you provide us information concerning the actions undertaken to implement each recommendation contained in this report.

Should your staff have any questions concerning the report, please contact me at 382-4106.

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ABBREVIATIONS

ORD	Office of Research and Development
RTP	Research Triangle Park, Durham, North Carolina
IAG	Interagency Agreements
OER	Office of Exploratory Research
GAO	United States General Accounting Office
FMD	Financial Management Division
GAD	Grants Administration Division
ORDIS	Office of Research and Development Information System
IERL	Industrial Environmental Research Laboratory
OEPER	Office of Environmental Processes and Effects Research
PCMD	Procurement and Contracts Management Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
THE INSPECTOR GENERAL

Audit Report E1gB2-11-0019-30828

Report of Review of the
Office of Research and Development's
Extramural Research Activities

PART I--DIGEST

PURPOSE AND SCOPE OF REVIEW

We have completed a review of the Office of Research and Development's (ORDs) extramural research activities. The purpose of the review was to:

- (1) Identify important issues and problems facing ORD, as well as their historical perspective;
- (2) Identify recent key actions taken by ORD to address major problems and institute improvements;
- (3) Determine whether the results of research projects were meeting the high priority needs of the agency; and
- (4) Determine the adequacy of administrative and internal controls and the efficiency and effectiveness of the process governing the procurement and management of projects financed through cooperative agreements, contracts, interagency agreements, and grants.

Our field work was conducted from March 15, 1982, through May 28, 1982. We held a preliminary exit conference with the Acting Assistant Administrator for Research and Development and his office directors in June 1982. We also discussed matters contained in this report with the director of the Office of Fiscal and Contracts Management and his staff. Additional followup work continued at Headquarters through early August 1982.

Our scope included:

- (1) Interviews with officials and personnel of ORD, Office of General Counsel, Grants Administration Division, Procurement and Contracts Management Division, Office of Personnel and Organization, Financial Management Division, and Headquarters media program offices;
- (2) Review of applicable laws, regulations, policies, procedures, and other documents;
- (3) An examination of files and records pertaining to selected cooperative agreements, grants, contracts, and interagency agreements; and
- (4) An examination of budget and financial data, reports, and studies pertaining to ORD.

We conducted the review at EPA Headquarters and at the environmental research centers located at Research Triangle Park (RTP), North Carolina, and Cincinnati, Ohio. We selected laboratories within these centers because they represented the largest portion of ORD's budget and had a large number of research projects in support of several different media program areas including air, water, and toxic substances.

Our review comprised two major components: (1) an overview of ORD and (2) an analysis of controls and the efficiency and effectiveness of the process governing procurement and management of selected extramural research projects. The former component was basically a broad-based survey of ORD's progress and problems in planning and managing extramural research. In contrast, the latter component, which was the thrust of our review, was broken down into a more detailed assessment of four areas: cooperative agreements, contracts, interagency agreements, and grants. The following is a brief discussion of the scope and methodology for each major component.

Overview

In performing an overview of ORD, we focused on its current operations, key issues, and problems, as well as recent plans for improving its organization and operations. We prepared a series of questionnaires which were used to conduct extensive interviews with the Acting Assistant Administrator for Research and Development, ORD Headquarters office directors and division directors as well as laboratory directors and their staffs. Information obtained during these interviews was to gain background and perspective on ORD, and represented the opinions and beliefs of those interviewed.

Review of Extramural Research Projects

Our review of the procurement and management of extramural research was based on a judgmental sample of cooperative agreements, contracts, interagency agreements, and grants (instruments) funded in fiscal 1981 and the first quarter of fiscal 1982. The following is a breakdown of the universe and sample size for each of the above areas.

	<u>UNIVERSE</u>		<u>SAMPLE</u>			
	<u>Number</u>	<u>Dollar Amount (in millions)</u>	<u>Number</u>	<u>Percent</u>	<u>Dollar Amount (in millions)</u>	<u>Percent</u>
Cooperative Agreements	486	\$ 53.9 <u>1/</u>	49	10.0	\$ 7.4	13.7
Grants	102	15.6	20	19.6	5.3	33.9
Contracts	487	283.9	85	17.4	71.2	25.0
Interagency Agreements	155	\$ 43.2 <u>1/</u>	26	16.7	\$32.4	75.0

1/ This includes only fiscal 1981 funding due to limited funding in the first quarter of 1982.

In selecting these samples, we considered the dollar value of the instruments and the level and type of activities being performed by various laboratories at the two locations selected.

Although one of our four review objectives was to determine whether research results had met the high-priority needs of the agency, we were unable to offer an overall opinion on the issue. During the early stages of the review, we recognized that such an undertaking would be most difficult, requiring substantial assistance from independent scientific and technical staff. In addition, ORD's computerized management information system did not accumulate the kind of detailed information necessary to relate the results of specific laboratory research projects back to ORD's research strategies and plans. Without this information, it would have been extremely time consuming--essentially involving manual review of hundreds of projects and tasks, examination of numerous complex planning documents, and interviews with many different persons inside and outside of ORD--to assess how research results either related to plans or benefited EPA's various media programs.

ORD is sensitive to this problem, however, and was in the process of changing its management information system to better relate research results back to research strategies and plans. (See page 22 of our report for a discussion of such changes.)

BACKGROUND

The primary mission of the ORD is to provide regulatory offices with scientific information for use in developing and enforcing regulations.

ORD is one of six major components of the Agency, each of which is headed by an Assistant Administrator reporting directly to the Administrator. ORD is organized into seven Headquarters offices consisting of five scientific or technical offices, an administrative office, and an office of exploratory research; and fourteen geographically dispersed laboratories, responsible for conducting intramural research, as well as administering a large amount of extramural research (see appendix A).

ORD's research and development activities generally fall into three basic categories: (1) shorter term (1-2 years) regulatory related research, which responds to specific regulatory needs; (2) longer term (3-5 years) regulatory research, which supports planned program or operational requirements but does not address immediately planned regulatory actions; and (3) exploratory research, which is conducted primarily to develop fundamental knowledge and principles to solve current problems or identify or understand future environmental problems for which no specific regulatory activity is currently planned.

ORD accomplishes its mission through a combination of in-house research and extramural research procured through contracts, cooperative agreements, competitive grants, and interagency agreements. At any given time, ORD manages over 2,000 research tasks and projects through several Headquarters offices, field administrative offices, one research information center, and its laboratories.

A number of evaluations of ORD's research program have been made over the last few years. These evaluations were conducted by congressional committees, the General Accounting Office, the Office of Technology Assessment, and the National Academy of Sciences, as well as by EPA itself. The problems identified as a result of these evaluations included:

- (1) A perceived lack of responsiveness to EPA's priority research needs;
- (2) Ineffective and unreasonably complex planning processes;
- (3) Excessively cumbersome and top heavy management;
- (4) A failure to properly balance long-term research against short-term, problem-solving scientific and technical activities; and
- (5) A lack of consistent scientific quality.

SUMMARY OF REVIEW RESULTS

Overall, our review disclosed that ORD has been faced with a number of problems and criticisms over the last few years, and is instituting some major operational and organizational improvements. However, we found that additional improvements are still needed to strengthen administrative and internal controls and increase the efficiency and effectiveness of the processes governing procurement and management of research projects.

Our findings are summarized below and presented in detail in Part II of the report.

Progress and Problems in Managing Extramural Research (See Chapter 1)

The Office of Research and Development is currently making organizational and operational improvements to address problems concerning the responsiveness, timeliness, and credibility of its research activities. Relatively recent changes in progress include implementation of an improved ORD-wide process for planning research and development, with emphasis on a "top-down" policy of management accountability and controls; actions to improve research quality and results by implementing peer review programs and quality assurance mechanisms; establishment of a new system of management information and program documentation; and initiation of a wide-ranging reorganization of both ORD Headquarters offices and laboratory operations.

Our review indicated that contemplated changes appear to address some of the major criticisms. We also believe that these changes appear to be reasonable and, if fully implemented, offer promise for improvement. However, since these changes were not fully implemented, and written policies and procedures effecting these changes were not finalized during our review, we were unable to examine such changes in-depth, and therefore, cannot offer an opinion on them.

Our review also disclosed several issues which we believe warrant management's consideration in planning and implementing contemplated changes. These issues include (1) the importance of appointing a permanent Assistant Administrator for Research and Development; (2) the need to improve ORD's current system for disseminating policies and procedures guiding its operations; (3) a need to improve communication between ORD researchers and media program offices; and (4) concerns expressed by many ORD officials about the negative impact that limited travel funds have had on research project monitoring, training, and professional development. We believe these issues should be considered because to be supportive, research must withstand continuous and comprehensive scrutiny. Thus, ORD must maintain an organizational climate which not only ensures quality research, but also responds to changing public concerns and shifting legislative and executive directives.

We recommend that the Administrator continue efforts to appoint a permanent Assistant Administrator for Research and Development. We also recommend that the Acting Assistant Administrator for Research and Development (1) adopt an effective mechanism to disseminate ORD policies and procedures; (2) vigorously pursue ORD's objectives for implementing improvements and changes in its computerized management information system; (3) reemphasize the need for effective communication between ORD and media program offices; and (4) evaluate the adequacy of ORD's existing and planned travel funds, as well as their allocation, in meeting its operational needs, including project monitoring and employee development and training. (See page 27.)

Administration and Control of Cooperative Agreements (See Chapter 2)

In fiscal 1980, ORD issued interim procedures to control and administer cooperative agreements. Although these procedures are a further step in improving controls over cooperative agreements, we believe they still need to be improved and existing procedures fully enforced. Our review of 49 projects (cooperative agreements) and interviews with 44 project officers disclosed that project officers appeared to have excessive control over certain aspects of the cooperative agreement system. Project officers frequently selected external peer reviewers and were allowed to prepare in-house reviews and important decision memorandums. We believe this gives the appearance of a less-than-objective process and could provide an opportunity for someone to influence the selection of recipients for project funding. Similarly, the General Accounting Office, in an October 1980 report, recognized that opportunities existed in the cooperative agreement system for biased judgments. In addition, we found that: (1) issues raised by external peer reviewers had not been adequately resolved and documented, (2) some project officers believed monitoring could be more effective if additional travel funds were available to make research site visits, and (3) external peer reviewers had not always completed required conflict-of-interest statements in conjunction with their review of cooperative agreement applications.

We recommend that the Acting Assistant Administrator for Research and Development take steps to ensure that: project officers are prevented from having excessive control over aspects of the cooperative agreement system; issues raised by external peer reviewers are adequately resolved and documented; travel funds are sufficient to foster effective monitoring; and conflict-of-interest statements are obtained from all peer reviewers. (See pages 38 and 39.)

Research and Development Contracts (See Chapter 3)

We reviewed 44 active and 41 completed research and development (R&D) contracts for fiscal 1981 and the first quarter of 1982. These contracts were administered by ORD laboratories at RTP, North Carolina, and Cincinnati, Ohio. We found that for the sample we reviewed:

- (1) Contract end products (final reports) were not always received in a timely manner, and in a significant number of the cases we reviewed the end products had not been received at all. In our opinion, the primary reasons for such delays were:
 - (a) The long lead-time required to complete the procurement process; and
 - (b) Failure of individual contractors to deliver end products within the time frames prescribed in individual contracts.
- (2) In six instances amounting to \$3,673,245, it appeared initially that the R&D appropriation was used to fund contracts or portions of contracts that provided management and other types of services which, in our opinion, should have been funded from the S&E appropriation. The Agency Comptroller agreed that four of these six contracts amounting to \$1,313,339 should have been charged to the S&E appropriation. (See page 47). Similarly, in two other instances amounting to \$10,494,314, the R&D appropriation was used to fund contracts which, in our opinion, provided materials and a multitude of services to operate or otherwise support government-owned facilities at RTP and Cincinnati. However, because funding sources were not linked to specific contract work tasks we were unable to determine the accuracy of charges to the R&D and other appropriations. The Acting Assistant Administrator for Research and Development pointed out that the ambiguities contained in the definitions of each appropriation are such that the above contracts could be charged to either the R&D or S&E appropriations (See page 46).
- (3) In six instances amounting to about \$6.8 million, it appeared that program support contracts or portions of contracts were incorrectly classified as R&D contracts, which prevented an accurate comparison of actual expenditures to the amounts budgeted in the Agency's resource management information system.
- (4) Financial controls over level-of-effort contracts funded by multiple program elements were not sufficient to ensure that specific tasks performed were related to the program elements used to fund them.

We discussed the results of our review with the Acting Assistant Administrator for Research and Development and ORD office directors. They generally agreed with the results of our review. We also discussed the results of our review with the director of the Office of Fiscal and Contracts Management and senior members of his staff, and discussed the funding aspects with the Agency Comptroller and senior members of his staff. Although we noted areas for improvement, we recognize that in fiscal 1982, the Agency took a number of positive actions to ensure that (1) major procurements were better managed, (2) procurements were necessary to achieve a specific policy objective, and (3) funding authority was

available and appropriate for the intended procurement. It appeared that if effectively implemented, these corrective actions should prevent or reduce future occurrences of most of the problems we noted. Specific Agency improvements are commented on in various sections of Chapter 3.

We plan to request the Office of Legal and Enforcement Counsel to provide us with a legal opinion on whether the \$1.3 million charged to the wrong appropriations violated 31 U.S.C 628 and/or 665, and if so, what actions must be taken by the Agency Administrator. In general, 31 U.S.C. 628, requires that appropriated funds can be used only for purposes appropriated, while 665 provides that obligations cannot be made in excess of amounts appropriated.

We recommend that the Acting Assistant Administrator for Research and Development take appropriate action to improve internal controls over contract procurement, monitoring, and funding. We also recommend that the Comptroller's office review and report to the Administrator on the propriety of contract charges for fiscal 1980, 1981, and the first quarter of 1982, and, adjust Agency obligation records as necessary. Finally, we recommend that the Assistant Administrator for Administration direct the Office of Fiscal and Contracts Management to review and strengthen controls over level-of-effort and other term form contracts to ensure that work tasks are more directly identifiable to contract funding (see pages 55 and 56).

Management of Interagency Agreements (See Chapter 4)

In the past, due to generally limited involvement by EPA in monitoring interagency agreements (IAGs), and the apparent lack of guidance and training for ORD project officers, there was little assurance that such agreements were effectively administered and managed, or always benefited EPA's high-priority needs. In the last few years, however, EPA has taken some positive actions to improve the overall administration and management of IAGs. Nevertheless, project management and administrative controls still need to be improved.

We found that although the Financial Management Division (FMD) had developed new IAG procedures in draft form, these procedures have not been finalized and can be further strengthened. The Office of Administration recently transferred responsibilities for IAG administration from the Financial Management Division to the Grants Administration Division, which is charged with issuing final IAG procedures.

Our review disclosed that project officers, in many instances, did not require submission of detailed project cost information from other agencies. We believe this information would have enabled project officers to (1) ensure that work was performed in accordance with IAG terms and (2) determine whether billings were commensurate with the progress of the work. The absence of this cost information precluded ORD project officers from providing reasonable assurance that the other Federal agencies complied with IAG terms and authorized project funding.

We also found that some project officers had not received adequate guidance and training and consequently were not aware of all their responsibilities to review financial information and to maintain IAG files properly. We believe that if IAG project officers are allowed to attend the Office of Administration's Project Officer Certification Course, they should be made more fully aware of their responsibilities to manage and administer their projects effectively. Some ORD officials also cited lack of staff and travel funds as adversely impacting project management and monitoring.

We discussed these matters with officials of the Office of Administration, including the director of the Office of Fiscal and Contracts Management, the director of the Grants Administration Division, and a senior representative of the FMD. These officials agreed, in general, with our review results.

We recommend that the Acting Assistant Administrator for Research and Development take action to improve IAG management and monitoring by: providing necessary guidance to project officers concerning their responsibilities for receipt and review of detailed project cost information and file maintenance; ensuring project officers receive adequate training; and evaluating the adequacy of travel funds in ensuring effective project monitoring. We have also recommended that the Assistant Administrator for Administration finalize new IAG procedures as expeditiously as possible to ensure that media program offices and project officers are provided with necessary guidance regarding their responsibilities for effective administration of IAGs (see pages 68 and 69).

Competitive Grants Process and Activities (See Chapter 5)

The Office of Research Grants and Centers' (ORGCs) process for reviewing and administering competitive grants appeared generally adequate. Furthermore, our examination of the overall summary scoring, ranking, and resulting funding decisions of four peer review panels during fiscal 1981 disclosed that the most highly ranked grant applications were usually the ones funded. However, our review also disclosed that there were some areas ORD still needed to address to improve ORGC operations. ORD should:

- (1) Require ORGC Science Review Administrators (SRAs) to maintain readily available documentation to support grant application ranking and funding decisions;

- (2) Consider the appropriateness of adopting a formal ORD-wide mechanism to track, by project, long-term environmental research and development funding;
- (3) Evaluate the existing workload of SRAs and its impact on their ability to effectively monitor grant projects.

We discussed the above areas with the director of Office of Exploratory Research (OER). He agreed, in general, that the above improvements were needed. We also explained to him that because SRAs did not maintain readily available documentation to support grant decisions on funding applications, we were unable to determine the accuracy or appropriateness of some decisions. Therefore, in an effort to further assess ORGCs' process, we requested that the director of OER review selected grant application decisions we could not fully verify during our review of three peer review panels for fiscal 1981. In late October 1982, the director of OER provided an explanation of funding decisions, along with additional supporting documentation. Based on our review of this information and followup discussions with the director, it appeared that the subject funding decisions were appropriate.

In addition, we met with the Acting Assistant Administrator for Research and Development in late August 1982. He informed us that he recognized the need to evaluate ORGC's current operations and that ORD was conducting a comprehensive review of ORGC, focusing on such areas as (1) administrative controls over the peer review process, including the selection of peer panel chairpersons; (2) SRAs' responsibilities and the adequacy of controls governing their responsibilities; (3) effectiveness of grant monitoring; and (4) adequacy of the ORD office directors' relevancy review. This review is expected to be completed in March 1983.

We recommend that the Acting Assistant Administrator for Research and Development (1) ensure that SRAs maintain adequate supporting documentation regarding peer panel funding decisions; (2) consider establishing a formal ORD-wide mechanism to track long-term environmental research and development funding by project; and ensure that, to the extent possible, projects are evenly distributed among the SRAs to ensure effective monitoring (see page 81).

MANAGEMENT RESPONSE

We provided a copy of our draft audit report dated September 9, 1982, to both the Acting Assistant Administrator for Research and Development and the Assistant Administrator for Administration for their detailed review and consideration. Both of these officials generally agreed with our findings and recommendations. They stated that actions had been taken or would be taken to address our recommendations. In addition, they provided us with important comments and editorial suggestions which were incorporated after pertinent findings in the body of the report. A complete copy of these responses is included in the report as appendixes G and H, respectively.

We also discussed our conclusions regarding contract funding with the Agency Comptroller and senior members of his staff and provided him with a copy of our draft report on March 4, 1983. In his written response to the report, the Comptroller agreed that four contracts amounting to about \$1.3 million had been incorrectly charged to the R&D appropriation. The Comptroller, however, disagreed with our recommendation that his office conduct or direct a review of contracts funded from fiscal 1980 through the first quarter of 1982, because he believed such a review would not be fruitful (see page 104). Nevertheless, he agreed that because contract mischarges may be continuing, the Agency should examine all R&D contracts for fiscal 1983. The Comptroller also provided us with other comments on our findings which we incorporated in our final report as necessary. A complete copy of the Comptroller's written response is included as Appendix I.

OIG COMMENTS

We have considered comments provided by the Comptroller's Office and, where we considered it appropriate, revised the report to reflect such comments. However, we strongly disagree with the proposal by the Office of the Comptroller to review only fiscal 1983 contracts for mischarges. In our opinion, the fact that over \$1 million was charged to the wrong appropriations, which may be a violation of 31 U.S.C. 628, is sufficient reason to conduct such a review, regardless of how the amount of such mischarges relate to the total value of the contracts in our sample.

PART II--REVIEW RESULTS

CHAPTER 1

PROGRESS AND PROBLEMS IN MANAGING EXTRAMURAL RESEARCH

The Office of Research and Development (ORD) has long been plagued by problems and criticisms concerning the responsiveness, timeliness, and credibility of its research activities. In response to past criticisms, ORD initiated a number of actions to address the problems. ORD recognized that key problems still existed and at the time of our review was in the process of making additional, broad, organizational and operational changes intended to address them. Important changes planned or in progress included:

- (1) Implementing a new ORD-wide process for planning research and development which emphasized a "top-down" policy of management accountability and controls to achieve planned objectives, and was driven by the development of broad research strategies (see pages 19 and 20);
- (2) Implementing actions to improve research quality and results by starting peer review programs and quality assurance mechanisms (see pages 20 and 21);
- (3) Establishing a new system of management information and program documentation designed to monitor accomplishment of planned objectives and improve project accountability (see pages 22 and 23); and
- (4) Initiating a wide-ranging reorganization of both ORD Headquarters offices and laboratory operations (see pages 23 and 24).

Our review also disclosed the following issues which we believe warrant consideration in planning and implementing contemplated changes:

- (a) The importance of appointing a permanent Assistant Administrator for Research and Development;
- (b) The need to establish a more effective system for disseminating ORD's operating policies and procedures;
- (c) The need to improve communication within ORD and between ORD and other program offices (such as pesticides, toxic substances, water, etc.); and
- (d) The belief of many ORD officials and employees that limited travel funds have had a negative impact on monitoring research projects, training, and professional development.

Our review disclosed that ORD's proposed changes appeared reasonable and, if effectively implemented, offered promise for improvement. However, since these changes had not been fully implemented, and written policies and procedures reflecting such changes had not been completed during our review, we did not review them and we are not offering an opinion on them.

SCOPE AND METHODOLOGY

Our review of EPA's research program focused on operations, areas identified as problems, and ORD's plans for improving its organization and programs to correct these problems. The purpose of this part of the review was to obtain a broad overview of EPA's progress and problems in planning and managing extramural research.

In performing this review, we prepared a series of questionnaires which were used to conduct extensive interviews with the Acting Assistant Administrator for Research and Development, ORD office directors, Assistant Administrators, laboratory directors at RTP and Cincinnati, and other senior ORD officials. We also examined prior studies conducted by EPA and other organizations, and reviewed policies, procedures, and other documentation governing ORD's organization and operations.

BACKGROUND

The Environmental Protection Agency's mission is to systematically abate and control pollution through an integrated program of research, monitoring, standard setting, and enforcement activities which is aimed at protecting human health and ensuring environmental quality. The ability of the Agency to perform these congressionally mandated tasks depends to a great extent upon the ability of its scientific staff to (1) analyze and interpret the implications of scientific and technical data, (2) provide information considered necessary to support the basic decision making process, and (3) develop and enforce Agency regulations. Because of the regulatory and consequently sensitive nature of EPA's mission, research, to be supportive, must withstand continuous and comprehensive scrutiny.

Responsibility for anticipating the need for and providing the wide range of quality scientific data required to develop and enforce regulations rests principally with ORD, as well as with program offices.

Organization, Responsibilities, and Funding

The Office of Research and Development is one of six components of EPA, each headed by an Assistant Administrator reporting directly to the Agency Administrator. It performs multidisciplinary research funded by numerous congressional acts in each area over which EPA has regulatory authority. (e.g., Clean Air Act, Clean Water Act, Solid Waste Disposal Act). In general, ORD conducts research and development to (1) support decision making, (2) anticipate future problems, and (3) advance basic environmental science horizons. ORD accomplishes its mission through a combination of both its own in-house research staff and an extensive program of extramural research obtained by utilizing contracts, cooperative agreements, competitive grants, and interagency agreements. As of March 31, 1982, ORD had a total of about 1,563 permanent full-time employees and 507 temporary employees.

ORD's current organization couples its disciplinary approach to research and development with the program offices through a media orientation of the Agency's research committee system. ORD's present organizational framework is the product of an evolutionary series of reorganizations and consolidations designed to improve its management and enhance responsiveness to changing Agency priorities.

Total funding levels requested in the President's budget for ORD have decreased significantly in total from fiscal 1981 through 1983. The largest portion of this decrease has been in the research and development appropriation, which provides funds for ORD's extramural research activities. As shown below, ORD's total funding declined about 44 percent, from about \$373.9 million in fiscal 1981 to \$209.5 in fiscal 1983. Further, the research and development appropriation declined about 60 percent, from \$270.4 million in fiscal 1981 to \$108.7 million in fiscal 1983. In contrast, however, the salaries and expense appropriation remained relatively constant during the same period.

Total ORD Funding Levels based on the President's Budget (thousands)

	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>	<u>Percentage Decrease 1981 to 1983</u>
Total Salaries— and Expense Appropriation	\$103,553.1	\$115,599.9	\$100,844.8	2.6
Total Research and Development Appropriation	<u>270,383.4</u>	<u>190,635.0</u>	<u>108,703.8</u>	59.8
Totals	<u>\$373,936.5</u>	<u>\$306,234.9</u>	<u>\$209,548.6</u>	44.0

PROBLEMS AND COMPLEXITIES IN MANAGING RESEARCH AND DEVELOPMENT ACTIVITIES

As early as 1977, EPA identified inadequate research planning and management systems as the primary reasons for ORD's failure to meet Agency needs for quality, responsive, and timely research. These problems led to additional congressional hearings, as well as to reviews by the General Accounting Office (GAO) and independent studies by the National Academy of Sciences and the Congressional Office of Technology Assessment. In addition, the Agency conducted internal reviews and contract studies which also confirmed such problems. Reports resulting from these reviews generally repeated major criticisms concerning the quality, responsiveness, and timeliness of EPA's research and development. The criticisms were commonly acknowledged as perennial by several senior ORD officials we interviewed. In the past, EPA's response to these criticisms involved numerous reorganizations and realignments of the planning and management process. We found that although positive progress had been made, some problems still existed.

In part, the problems not only reflected faults of the ORD, but also reflected the complexities of (1) environmental policy, (2) externally imposed constraints, and (3) expectations over which EPA in general and ORD in particular had little or no control.

Environmental Policy

In the 12 years since Congress created EPA as a regulatory agency with the mandate to protect human health and the environment, progress has been made in achieving environmental goals. However, due to the complexities of environmental problems, meeting these goals continues to be difficult. This is further complicated by having to deal with unanticipated and unpleasant environmental crises and changing public perceptions of environmental problems.

To the extent that ORD provides the scientific and technical data in support of these critical decisions, it forms an important part of the Agency's operations. Any attempt at an objective review of ORD's activities must acknowledge the changing politics, science, regulations, and public concern affecting the evolution of environmental policy.

External Constraints

Numerous externally imposed constraints limit ORD's planning and management of environmental research and development, including:

- (1) The Congressional policy-making process;
- (2) The lack of compatibility between the Federal budgetary process and the R&D program planning and implementation process, resulting because Congress appropriates funds for Agency resources on an annual cycle while research strategies, plans, programs, and projects are most often prepared and implemented on a multiyear basis;
- (3) The Federal procurement process; and
- (4) Civil service regulations which tend to create a relatively inelastic mix of ORD in-house scientific and technical personnel.

Differing Expectations

Differing expectations (perspectives, orientations, and interests) produce chronic tensions and frequent confrontations between researchers and regulators which are not readily (and in some cases may never be) overcome. Regulatory personnel are generally results-oriented and possibly less sensitive to the time demands of research, whereas scientists are process oriented and possibly less sensitive to providing specific results to meet regulatory deadlines.

Researchers approach problems from a long-term perspective, and thus require long lead-times to complete a project. Researchers also tend to resist stopping or dropping a project to refocus efforts as required by regulators. In contrast, regulators are frequently faced with immediate and often inflexible deadlines established by legislation, court decisions, or unanticipated occurrences, and are interested in timeliness and utility. The inherent tensions in this relationship may never be fully resolved. In our opinion, with proper communication and education, both regulators and researchers can achieve a greater appreciation of each other's needs and concerns and the reasonable balance necessary to best support the Agency's regulatory mission.

PROBLEMS AFFECTING ORD'S ABILITY TO PLAN RESEARCH

The principal EPA mechanism for planning its research and development program is the research committee system. EPA has had several years of experience operating under the research committee system, which is primarily responsible for: (1) developing multiyear research strategies; (2) reviewing research plans; (3) participating in the development of research budget plans; and (4) reviewing ongoing and recently completed research. As of June 30, 1982, there were 13 research committees in existence (see appendix B). Each research committee was cochaired by a senior manager from ORD and an official from the corresponding program office. Participants included managers with technical and scientific background from EPA program offices. A primary output of these research committees is a strategy document jointly developed by ORD and program offices which address ORD program goals.

From our interviews with ORD and program officials and staff, we received numerous comments and concerns about the research committee system, planning and budget cuts, and other related areas involving research planning. These are presented in detail below.

Comments on the Research Committee System

Interviews with ORD and program office personnel resulted in diverse opinions concerning (1) the success of the research committee system in meeting its stated responsibilities and (2) how the system should operate to accomplish its responsibilities more effectively.

Most of those we interviewed believed that by creating the research committee system, EPA management elevated previously informal communications between ORD research and program staff to a higher and more formal level. They generally believed that this helped to eliminate some of the previous frustrations they experienced due to the lack of assurance that such interchanges would result in program office needs being recognized and addressed by the researchers. The system enabled program offices to be brought into the planning process in a more formal manner, resulting in research strategies and priorities being arrived at on a consensus basis. In our opinion, the fairly flexible procedures governing the research committee system also serve to a great extent to increase trust and communication between researchers and program personnel by allowing them to establish their own research strategies and work out their own problems.

A number of program officials told us that because research committees were only advisory in nature, they could not ensure that all program office priorities and programs would be addressed. However, they agreed that the top priorities of program offices were being met by ORD through the research committee system.

Impact of Funding Cuts on Planning Research

Research committees meet at the beginning of the fiscal year planning period with an estimate of the resources available for each program. This estimate is then used to prepare decision units related to the research strategies which have been developed. According to program offices and some ORD officials, the process can develop problems, however, when a higher level (i.e., the Assistant Administrator for Research and Development, OMB, or Congress) initiates funding cuts or redirections in the planned program. Although research committees have input into the process, the final decisions on the impact of the budgetary change on the planned program occur at the ORD Headquarters level (office directors, Assistant Administrator). As a result, there is no assurance that all research committee program strategies will be accomplished. According to one senior ORD official, this is an example of the "normal" tension that exists in the system. This official stated that the Acting Assistant Administrator for Research and Development is responsible for the research program, and as such, has an agency-wide perspective and the responsibility to advise the Administrator on R&D funding shifts. He also stated that when such shifts are made, specific research committees (or ORD program managers) whose areas have been cut sometimes believe they have lost control and have been victimized.

Other Problems in Planning Research

Another problem in planning the research program is the relatively long-term (typically three to five years) nature of research versus the annual budget process. There was a consensus among those interviewed that it was difficult to plan years ahead when the current year (fiscal 1982) had not been finalized and fiscal 1983 plans were just being initiated. Other problems which were brought to our attention by ORD research and program staff included:

- (1) A lack of flexibility in allocating funding to cover unanticipated problems. Thus, when "crises" situations occurred, they tended to disrupt planned programs. In addition, program office officials told us they were reluctant to acknowledge international research commitments (e.g., World Health Organization, NATO) for inclusion in the research program because they believed such commitments lacked relevance to their own program needs.
- (2) The reluctance of program offices to assist in preparing long-term strategies and needs because of the pressures to respond to more immediate problems and the frequent uncertainty as to the future direction of their program.
- (3) The inability of program offices to present consistently a clear agenda of their needs to ORD. Program officials agreed that they should work more diligently to present well-thought-out needs during research planning sessions.

- (4) The assignment of lower level personnel to attend research committee strategy development sessions. These employees often did not possess the knowledge or the decision-making authority to deal with strategies being developed at these sessions.
- (5) The number of research committees and the way they were set up related to the regulatory programs, but did not complement the multimedia, interdisciplinary requirements of many of the research strategies, programs, and projects.
- (6) Program offices which wished to control some of the research program funds for projects they would like to initiate, but were not included in ORD's program budget. Thus, program offices could design the proposal, give ORD first refusal rights, and proceed with the project. Program officials believed such a system could enhance responsiveness, timeliness, and program and project trackability and control.

The above concerns were discussed in August 1982 with the director of the Office of Research Program Management. He stated that lower level personnel should be allowed to attend research committee strategy development sessions because they may better understand the technical problems and can give needed perspective. In addition, he stated that in 1977 a representative of an EPA task force proposed a system (similar to 6 above) that would allow program offices to control research program funds. However, the proposal was rejected because it could have led to (1) duplication of research; (2) creation of a new duplicative layer of research managers within the program offices; (3) fragmentation of the Agency's research program; and (4) lack of credibility of research sponsored by regulatory offices because of the inherent conflict-of-interest.

RECENT PLANS AND ACTIONS TO IMPROVE ORD OPERATIONS

In recent years, EPA has taken important steps to address deficiencies in its research and development program. Such changes were primarily intended to address (1) a perceived general lack of responsiveness to program offices' regulatory concerns; (2) uneven research quality; and (3) an inadequate research planning and management system. According to ORD and program officials, these problems have been caused by:

- (1) Inherent differences in perspective between research and program staff, inadequate communications between the two groups, and lack of an adequate framework within which to assess potential program needs and to establish relative priorities (research planning);
- (2) Inconsistent use of the peer review mechanism and need to implement fully a quality assurance program (research quality);

(3) Lack of an effective management information and control system; and

(4) The need to change ORD's organizational structure.

A detailed discussion follows of actions taken or being taken by ORD to improve its research planning and quality, management information, and organizational structure.

Research Planning

The formal research committee system was established by EPA in 1978. This system comprised common research and program areas around which research strategies could be developed to relate media program objectives and priorities to research activities. By creating this permanent forum for bringing research and program personnel together, EPA anticipated that more effective communication, monitoring, and decision making would take place and increase the responsiveness of the research and development program to users' (program offices, regional offices, state and local government) needs.

In addition, beginning with the fiscal 1984 planning and budgeting cycle, ORD started developing research strategies on a broad media basis. The strategies, referred to as "megastrategies," were developed by top level ORD managers, with input from program office, Assistant Administrators and other key agency personnel. These strategies which were reported to appropriate media program office Assistant Administrators for concurrence, serve as both programmatic and resource guides to the research committees, which, in turn, are responsible for developing the more detailed plans and objectives at the decision unit level.

It was anticipated that this approach could simplify and amplify the process of combining program office needs into a more efficient planning process. This was an interim measure which, if the current proposed ORD Headquarters reorganization plan is approved by the Administrator, could lead to this approach being institutionalized as the principal ORD planning process. (See pages 23 and 24 for a discussion of ORD's reorganization plans.)

Research Quality

Peer review and quality assurance are very important aspects of the operation of a successful research and development program. By implementing appropriate peer review mechanisms and quality assurance programs, ORD believed it could further improve its research quality and help elevate its credibility and reputation within the scientific community.

Peer Review

A former Acting Assistant Administrator for Research and Development issued guidance in February 1980, to provide uniform mechanisms of peer review throughout ORD. The guidance established the scope of the peer review mechanisms to include: "... (1) the review of research results for publication in scientific and technical journals; (2) peer review of intramural and extramural research projects; (3) peer review of our research programs at the laboratory level, Deputy Assistant Administrator [now office director] level and the Assistant Administrator level; and (4) appropriate peer review in programs that recognize outstanding scientific and technical contributions...." Further, according to this guidance, laboratories were to revise their peer review procedures where necessary.

In June 1982, the Acting Assistant Administrator for Research and Development issued draft instructions to be followed in conducting future ORD peer reviews of proposed and ongoing laboratory research. This proposed peer review process focused on review of:

- (1) The proposed approach to be used in conducting major projects or programs;
- (2) Ongoing major research projects or programs at major milestones in the research; and
- (3) The ability of laboratories to enter into new research areas.

These instructions, however, did not address the peer review of reports that present the results of research. EPA Order 2200.4 dated December 18, 1981, which established Agency policy on reviewing scientific, informational or educational materials, addressed that component of peer review.

Our interviews disclosed some complaints about ORD's peer review process, but given the recent efforts to strengthen this area it is apparent that ORD recognizes the importance of peer review and reasonable steps are being taken to implement uniform standards and controls to review and evaluate research.

Quality Assurance Program

In June 1979, ORD instituted a mandatory quality assurance program designed to ensure research quality by setting (1) standards for methods and procedures to be used in conducting research and (2) criteria for accepting or rejecting research data. This program was the responsibility of ORD's Office of Monitoring Systems and Quality Assurance and at the time of our review had not been fully implemented.

Management Information Systems

Since December 1978, EPA has been developing various subsystems of the Office of Research and Development Information System (ORDIS). Components of the system are in various stages of implementation, revision, and use. During our review of ORD, we noted that an existing project tracking system (not a part of the current ORDIS), which was primarily intended to provide project level information to ORD Headquarters, had essentially ceased to function. However, according to the Director of the Office of Research Program Management, the system has been revived and modified, and will be updated to cover work done since the time it ceased to function. (Functions of this system will be covered by the new systems which are discussed below.)

ORD Headquarters staff and laboratory directors and managers have a critical need for program management information. Headquarters staff must be able to track the status of the research program, and need timely information to do so. Laboratory directors and managers have similar needs, but they require a much higher level of detail. Currently, 14 ORD laboratories have implemented various types of systems, utilizing different degrees of automation, to meet their individual management information needs. The laboratory directors and managers we interviewed indicated a high degree of satisfaction with the performance of their own systems, and a great reluctance to become involved in a centralized system.

Efforts To Improve Management Information

As part of a planned program to develop comprehensive systems, ORD hired an outside contractor in October 1981, to assist in evaluating the system and to make recommendations. On April 23, 1982, the contractor provided a final report to ORD entitled "Laboratory Information Resources for Research Program Management" (Volumes I and II). The report is based on the results of a series of interviews performed by the project staff, which assessed the research program management information systems in use at each of the EPA laboratories. The report states in part:

Of the many possible ways to design a standardized Laboratory Program Management Information System (PMIS), the following options appear to be the most feasible within the constraints and requirements described above:

- (1) Each laboratory uses the ORDIS/PMIS directly.
- (2) Each laboratory implements locally a standardized Lab/PMIS which has been designed to interface with the ORDIS/PMIS.
- (3) Each laboratory chooses either (1) or (2).

The concepts of an ORDIS program management information system (ORDIS/PMIS) and a standardized laboratory program management information system (Lab/PMIS) were the subject of a presentation at an ORD senior management meeting held in Baltimore, Maryland, on April 23, 1982. The Acting Assistant Administrator for Research and Development indicated that such a concept would be implemented.

The proposed ORDIS/PMIS and Lab/PMIS share many of the same requirements, but on the functional level, the Lab/PMIS is oriented toward review and control during the lab planning and implementation process, while the ORD/PMIS is oriented toward data collection, synthesis, and analysis on an ORD-wide basis and is designed to link together research planning, implementation and resource utilization.

An ORDIS coordinating committee has been set up to advise in the implementation of the PMIS components of ORDIS. The Acting Assistant Administrator for Research and Development has charged the committee with performing review, guidance, and coordination functions. Its initial meeting was held on May 19, 1982. Since that time, several meetings have been held.

Proposed Reorganization of ORD Headquarters and Laboratories

The managerial philosophy surrounding the current reorganization of ORD will include (1) top-down planning and development of broad strategies (megastrategies) to ensure, among other things, that the Assistant Administrator for Research and Development's policy is taken into consideration in developing the more specific annual research plans and budgets; (2) linkage of research planning and implementation; and (3) clear accountability trails from research objectives down to specific project plans and outputs at the laboratory level. ORD has planned a two stage reorganization, the first stage involving Headquarters and the second stage the laboratories. The entire reorganization is subject to the Administrator's approval.

As planned, the structure of Headquarters staff offices would be simplified and reconfigured along both program and discipline lines to complement the planning and budgeting process. It is anticipated that one component of ORD will be organized on a program basis and will focus on determining users' research needs, translating these needs into annual research plans and the budget, reviewing and monitoring how laboratories implement the plans, etc. Another component will be organized on a disciplinary basis and will focus on generally long-term activities and issues: evaluating the quality of science, determining overall research program effectiveness, developing and managing the competitive grants program, etc. The middle layer of Headquarters management, which the laboratories have dealt with on most matters, will be eliminated to create what ORD officials believe will be a less complex structure more suitable to guidance and direction from the Acting Assistant Administrator for Research and Development level and below.

As of July 1982, ORD had not decided which of five laboratory reorganization options it would implement. Nevertheless, common to all options were (1) direct reporting from ORD laboratories to the Acting Assistant Administrator for Research and Development and (2) greater accountability and commitment to research results consistent with approved plans. In the latter area, in line with management's more results-oriented philosophy, laboratory performance will be monitored using the revamped ORDIS management information and control system (which was previously discussed).

OTHER IMPORTANT ISSUES TO BE CONSIDERED

As we previously outlined, there are several important issues which we believe should be considered in making contemplated changes: (1) the importance of appointing a permanent Assistant Administrator for Research and Development, (2) the need to improve ORD's system for disseminating policies and procedures, (3) the need to enhance communications between ORD researchers and users of research results, and (4) the need to devote special attention to the impact of limited travel funds on monitoring and on employee development and training.

Assistant Administrator for Research and Development

ORD is presently headed by an Acting Assistant Administrator for Research and Development (AARD) on an organizational par with the Assistant Administrators of the various media program offices. The AARD, among other things, (1) directs and coordinates all ORD research activities; (2) develops and implements policy guidance and targets for planning, budgeting, and controlling research; and (3) interprets the needs of ORD's clients (program offices, regional offices, State and local governments), sets broad program goals and objectives to meet them, and supports these decisions with appropriate resource allocations.

Meeting these objectives requires a careful blend of administrative expertise, scientific leadership, diplomacy, and political skills. Administrative expertise is needed to obtain and allocate resources, to organize people and programs, and to create and maintain an environment which nurtures quality science. Scientific leadership is important for evaluating and establishing priorities and judging the scientific merit of ORD's research. A leader with recognized scientific credentials also enhances both the credibility and acceptance of the Agency's research by the scientific community.

The present Acting Assistant Administrator (AARD) is the third in a series of Acting AARDs since the departure in December 1980 of the last presidentially appointed AARD. Of those ORD employees we interviewed, a majority believed the succession of Acting AARDs in this critical position, has had a negative impact on ORD. They believed that each Acting AARD had placed a strong personal stamp on the organization and had thus contributed to instability in EPA's research programs and hampered ORD's ability to function and achieve its goals and objectives.

We believe the Administrator should continue her efforts to appoint a permanent Assistant Administrator for Research and Development. In our opinion this will help to further stabilize ORD so that it can maintain an organizational climate that promotes quality and responsive research and fosters good morale.

Policies and Procedures

We discussed the system for promulgating and issuing policies and procedures with an ORD administrative management staff official. He indicated that ORD's present system involves issuing policies and procedures by memorandum on an ad hoc basis. It is left to each office to determine how the memorandums will be filed since no standard procedure had been adopted. This official conceded that he could not readily assemble all of the current ORD policies and procedures due to the manner in which they had been disseminated.

This official also stated that ORD had established a policy and procedures manual in 1976. However, updates to the manual could not be made in a timely manner due to the volume of changes that occurred in the source materials and the limited staff available to make changes in the manual. ORD discontinued updating the manual in 1978. Nevertheless, our interviews disclosed that some offices are still using the manual. We did not determine whether they were aware of how current the information was that they were using. At the time of our review there were no plans for revising the updated 1978 policy and procedures manual.

In our opinion, an organization gains a measure of stability and control when it has a clear, current, and readily available series of documents setting down the policies and procedures it expects its personnel to follow in day-to-day administrative and operational matters.

Enhanced Communication

Interviews with both ORD and program personnel emphasized the importance of communication in arriving at research strategies, conveying research capabilities and constraints, and disseminating research results. Most of those we interviewed agreed that the research committee system either improved communications between researchers and research users or institutionalized previously effective informal communication links. Some believed, however, that long-standing communications problems and misconceptions led to skepticism over whether any research management system could function properly.

Clear communication is also a crucial element of any effort to mitigate differences between ORD and its clientele to avoid the potential for failing to meet client needs. This failure can occur for a variety of reasons. The right question may not have been posed or carefully described. Thus, if the questions are invalid, the answers will also be.

Program personnel also were critical of ORD's past failure to market and communicate the results of its research. They stated that good research which is not effectively communicated to those who need it is scarcely better than no research at all. In our opinion, where there is a failure to communicate research progress and results to the appropriate audience, there is a natural inclination to assume that nothing is being done to address their needs. This is compounded by program office perceptions that there was no formal mechanism by which an interested program manager could access an ORD information system and determine what research had been accomplished as well as its progress. However, according to the director of the Office of Research Program Management, summary data is available and ORD recently started to develop a mechanism to assure that program offices receive timely research results.

In our opinion, some of these concerns may be addressed through ORD's actions (which were previously discussed) to improve the planning process by developing research strategies on a broad basis, which will then be presented to appropriate program office assistant administrators. Nevertheless, ORD should move to assess its present system for communicating results and other vital information to program offices.

Limited Travel Funds

Many ORD officials and staff we interviewed believed limits on travel funds had an adverse impact on research monitoring, professional staff development and recognition, and overall employee morale. Those we interviewed believed there were insufficient funds for project officers to monitor extramural research and for program personnel to attend laboratory reviews. They also criticized the negative impact of travel fund limitations on the opportunities for formal training, professional development, and recognition of their technical staff. Several observed that research is only as good as the quality and reputation of the researcher and that the credibility of EPA's research is aided in part by the professional stature of the EPA scientific staff. They believed the inability to fund travel for necessary training, to attend professional conferences, and to maintain contact with the scientific community could impact on ORD's research credibility.

In an October 1980 report concerning ORD's extramural research program, the GAO concluded that insufficient travel funds often prevented ORD project officers from making timely visits to contractors' and grantees' sites to determine whether or not the research was being conducted to best meet EPA's needs. The GAO recommended that ORD (1) determine the amount of travel funds needed for its laboratory project officers to adequately monitor research projects, (2) use that information in seeking additional travel funds in future years from OMB and the Congress, and (3) justify within EPA a larger allocation of its current travel appropriations.

On July 28, 1980, the then Acting Assistant Administrator for Planning and Management presented EPA's comments on the report. He stated, in part, that EPA agreed that attention needed to be given to project officer's workload and travel funds for visits to extramural research project sites. However, he also added that in the past, EPA had consistently sought travel funds for this purpose, but the Congress reduced EPA's travel request by \$2 million for fiscal 1980 and the House of Representatives appropriations committee had proposed a cut of \$250,000 for fiscal 1981. In addition, he stated that OMB imposed both personnel and travel ceilings. Finally, he stated that EPA disagreed with GAO's recommendation to look for appropriations specifically earmarked for site visits because it would split a resource already under continuous scrutiny.

In light of the above concerns, we believe ORD management still needs to evaluate the adequacy of its existing and planned travel funds in meeting its operational needs, including project monitoring and employee development and training. In addition, we believe such an evaluation should take into consideration how effectively such funds have been allocated within ORD.

RECOMMENDATIONS

- (1) We recommend that the Administrator continue efforts to appoint a permanent Assistant Administrator for Research and Development as soon as possible to give necessary stability to ORD's operations.
- (2) We recommend that the Acting Assistant Administrator for Research and Development:
 - (a) Adopt improved uniform, consistent procedures for disseminating and maintaining policies and procedures governing ORD operations;
 - (b) Continue to pursue vigorously the implementation of improvements and changes in the computerized management information system (ORDIS) and work to gain the support of all ORD parties involved to enhance chances of its success;
 - (c) Reemphasize the need for effective communication among ORD, program offices, and other ORD clients to further enhance research planning and management; and
 - (d) Comprehensively evaluate (1) the adequacy of existing and planned travel funds and (2) the manner in which such funds are allocated within ORD. The results of this evaluation should be presented to the Administrator for budgetary considerations.

MANAGEMENT RESPONSE

In a November 18, 1982 memorandum, the Acting Assistant Administrator for Research and Development agreed with the reports' recommendations. In summary, he stated that ORD is already working to achieve the reports' recommendations (i.e., ORD's communications, travel analysis) or is committed to proceed (i.e., policy and procedures dissemination). Further, he stated that ORD is pleased to note that the report finds that its proposed reorganization seems reasonable and promises further improvement. He stated that ORD shares that optimism although it must agree that final judgment as to the efficacy of the reorganization only can be delivered in the future. Finally, he commented that at least in the recent past, ORD has operated in a professional manner and continued to plan for its future even in the absence of permanent leadership, which was due to the cooperativeness and professionalism of ORD career staff, which should be recognized.

The Acting Assistant Administrator for Research and Development stated that ORD was sensitive to the need for adequate travel funds and was in the process of reviewing the adequacy of fiscal 1982 travel funds. In his March 24, 1983 written response, the Agency Comptroller stated that ORD's total travel funds are adequate. He stated that since 1981 ORD's travel ceiling increased from \$2.2 million to \$2.7 million in 1983 while ORD's extramural resources have declined by approximately 50 percent. He stated that in fiscal 1982, ORD lapsed \$230,000 in travel funds or 9 percent of their ceiling. In contrast, however, the Comptroller agreed that the Acting Assistant Administrator for Research and Development should examine the allocation of travel funds within ORD and if appropriate, re-allocate some to support monitoring of extramural resources.

OIG COMMENTS

We believe the Comptroller's comments on ORD travel funds are valid. However, in further discussing the matter with the Deputy Director of the Office of Research Program Management, we were informed that ORD can explain why \$230,000 in travel funds had lapsed and how their travel requirements have increased under Superfund. Nevertheless, we share the Comptroller's concern that ORD needs to evaluate how effectively travel funds are being allocated. We will await ORD's final response regarding this matter.

CHAPTER 2

ADMINISTRATION AND CONTROL OF COOPERATIVE AGREEMENTS

The Office of Research and Development issued interim procedures in fiscal 1980 to control and administer cooperative agreements. In our opinion, although these procedures have helped to improve the cooperative agreement system, there are still some improvements needed. Our review disclosed that:

- (1) Project officers appeared to have excessive control over cooperative agreements. We found that project officers have been allowed to (a) select external peer reviewers and (b) prepare in-house reviews, as well as important decision memorandums.
- (2) The conclusions of external peer reviews, in which issues (concerns over cost, time, technical approach, etc.) are raised, have not always been adequately resolved and documented by project personnel.
- (3) Some project officers believed that due to lack of travel funds, they were unable to monitor their research projects effectively. This problem was previously discussed in Chapter 1 and was cited by ORD officials as having an adverse impact on their ability to monitor contracts and interagency agreements (see chapters 3 and 4).
- (4) About 61 percent of the 44 project officers we interviewed advised us that external peer reviewers had not been required to complete conflict-of-interest statements or they were not sure if such statements had been received.

We discussed the above needed improvements with the Acting Assistant Administrator for Research and Development and ORD Office Directors. They agreed, in general, with the need to make such improvements.

SCOPE AND METHODOLOGY

During fiscal 1981, EPA provided about \$53.9 million to fund 487 projects (cooperative agreements and predecessor grants). Of this amount, only \$15.5 million was used to fund about 140 new awards. The balance (\$38.4 million) was to fund amendments to existing projects.

Our review was based on a sample of 49 projects administered by 5 Headquarters offices and 5 ORD laboratories at RTP and Cincinnati, Ohio, during fiscal 1981 through the first quarter of 1982. Our sample was comprised of newly awarded and completed projects. The following summarizes our sample size.

Projects Administered From	<u>Projects/Agreements Reviewed</u>	
	<u>Number</u>	<u>Amount</u>
Headquarters	8	\$1,844,189
Cincinnati	30	4,588,279
RTP	11	965,468
	<u>49</u>	<u>\$7,397,936</u>

We also interviewed a number of ORD officials, including project officers, on procedures, practices, and specific aspects of project management.

BACKGROUND

The Federal Grant and Cooperative Agreement Act of 1977 (Public Law 95-224) authorized Federal agencies to use cooperative agreements. Cooperative agreements are similar to grants, except that they require substantial involvement by the awarding agency. The Act states that:

"... substantial involvement is anticipated between the executive agency, acting for the Federal Government and the state or local government or other recipient during performance of the contemplated activity...."

Once it is determined by the Agency that a project will be a cooperative agreement, the application should be submitted for peer review. EPA regulations [40 CFR 40.150 (a)] require that such applications be peer reviewed for technical merit by one in-house (EPA) scientist and two scientists from outside EPA. In addition, ORD requires four outside reviewers on any application that has an annual estimated project cost in excess of \$250,000. Before funding a cooperative agreement, issues raised by these peer reviewers must be adequately resolved by ORD management.

PROJECT OFFICER CONTROL OVER THE REVIEW AND SELECTION OF COOPERATIVE AGREEMENTS

Although improved procedures were issued by ORD in May 1980, we found that project officers still appeared to have excessive control over cooperative agreements. We found that they frequently selected the external peer reviewers and have been allowed to prepare in-house reviews, as well as important decision memorandums. We believe this situation gives the appearance of a less-than-objective process and could provide an opportunity for someone to influence the selection of project recipients.

In addition, before ORD initiated its improved procedures, in an October 1980 report, the General Accounting Office stated that:

ORD's procedures for review and selection of grant proposals to be funded were susceptible to bias.

The GAO also stated:

ORD's former proposal review procedures [December 1979] utilized an ad hoc process which seemed to give the project officer undue control of the review and selection process. After formal submission of proposals [applications], reviews and recommendations for funding were largely made by the same scientists who had already established interest in the proposals during the pre-development, negotiation stage. The scientists, who usually would later become project officers, also had strong influence in selecting two outside scientists to assist in the review.

Finally, the GAO stated:

The entire process had the appearance of being controlled in-house by those who had already preselected the proposals for funding.... Opportunities existed for biased judgments.

Until the Federal Grant and Cooperative Agreement Act was enacted on February 3, 1978, ORD followed policies and procedures covering grants which were last revised on November 1, 1976. The Act, as well as criticisms of EPA's research program, demonstrated a need to develop new, substantially revised procedures. To minimize subjectivity in the review process, ORD developed in December 1979 a preapproved list of qualified individuals (peer reviewers) from which external reviewers were to be selected. In a memorandum dated December 5, 1979, a former Acting Assistant Administrator for Research and Development directed that applications over \$50,000 were to be reviewed by someone other than project officers. In addition, on May 28, 1980, ORD issued interim operating procedures which were a further step to minimize EPA scientists' influence over the review and selection of cooperative agreement applications.

Selection Of External Peer Reviewers

We reviewed 49 projects from fiscal 1981 and the first quarter of fiscal 1982. Of the 49 projects, 18 were newly awarded in this time period. We found that project officers selected external peer reviewers from sources other than the preapproved list for 14 of the 18 projects (or about 78 percent). As previously discussed, ORD instituted interim operating procedures in May 1980 to ensure that the process for selecting such reviewers was more objective. The procedures require that extramural reviewers must be selected from the list that was sent to each laboratory.

Although these procedures allow ORD the flexibility to add reviewers to the lists, we believe such additions should be controlled to the extent possible. We recognize that due to employee turnover and other factors, the list will have to be revised from time to time. However, we believe ORD should institute necessary safeguards to ensure that the list is controlled and composed of qualified and highly objective reviewers.

To determine how frequently the list was used, we compared the names of external peers actually selected to perform the reviews to the names of peers on the latest approved list (dated January 1982) provided to us by ORD. The comparison only included those projects which were awarded during fiscal 1981 and the first quarter of fiscal 1982 so that the results would reflect current practices. The results of our comparison are detailed below.

<u>Location</u>	<u>Number of Projects</u>	<u>Number of External Reviewers</u>			<u>Percent of Total Selected Not On List</u>
		<u>Total Selected</u>	<u>On List</u>	<u>Not on the list</u>	
Headquarters	5	19	5	14	73.7
Cincinnati	8	19	12	7	36.8
RTP	5	13	0	13	100.0
Totals	<u>18</u>	<u>51</u>	<u>17</u>	<u>34</u>	<u>66.6</u>

As shown above, of 51 external reviewers about 67 percent (or 34 reviewers) were selected from sources other than the approved list. In our opinion, one possible reason was that project officers had been frequently selecting external reviewers of their own choice.

We interviewed 44 project officers responsible for the 49 projects. These interviews disclosed that 30 project officers (or about 68 percent) selected external peer reviewers for their projects. One ORD project officer told us that in his opinion, project officers select reviewers who will give the best comments. In addition, this employee stated that when project officers work on potential projects for many months and they believe the projects are worthwhile, they select those peers who they think will give a favorable review.

In our opinion, ORD should take necessary action to ensure that project officers are precluded, to the extent possible, from selecting external peer reviewers, especially in those cases where project officers may have personal interests in the project being reviewed. In addition, we encourage ORD management to continue maintaining the preapproved list of qualified external peer reviewers as the only source for selecting such reviewers. Finally, we believe ORD officials should continue to provide an effective means to ensure that the list is properly applied and the selection of names from it is done by ORD officials who have no direct interest in such a selection.

IN-HOUSE REVIEWS PERFORMED BY PROJECT OFFICERS

ORD procedures prohibit project officers from reviewing cooperative agreement applications in which they could be involved. We found that in-house reviews were still being performed by project officers for applications over \$50,000. ORD interim procedures state:

at least one in-house review (not the prospective project Director.... officer) will be designated by the appropriate Laboratory

In May 1979, ORD initiated a special review of its grant and cooperative agreement operations. A primary purpose of the review was to determine if the award process was objective and free from bias. In regard to in-house reviews, the special review concluded:

An analysis of current review procedures revealed that in a sample of 119 funded projects, 71% were reviewed by the project officer as the in-house reviewer. While not in conflict with Part 40 regulations, the purpose of in-house review (or review in general) is to obtain an impartial opinion on the merits of a proposal. When the project officer himself gives advice, the practice does not appear objective.

Our review of 49 projects indicated that this situation has improved since 1979. We found that project officers performed the in-house reviews in 16 (or about 33 percent) of the 49 projects. However, we believe the incidence of in-house reviews performed by project officers is still too high. We believe project officers should be precluded from performing in-house reviews. In our opinion, allowing them to do so gives the appearance of a review process which appears less-than-objective.

Preparation Of Decision Memorandums

Our review disclosed that the project officers prepared and signed decision memorandums involving 11 or (22 percent) of the 49 projects reviewed. Decision memorandums essentially constitute the recommendation to either fund or reject a project. They are also used as the means to discuss and resolve issues raised by peer reviewers. Consequently, a decision memorandum represents a key decision making document. Current interim procedures do not specify who is to prepare and sign the decision memorandum. However, in our opinion, the memorandum should not be prepared or signed by the project officer, who may have personal interests in the project. Rather, we believe it should be prepared and signed by ORD office directors or other senior ORD staff who would be in a better position to independently assess individual applications and make a more objective decision.

During fiscal 1980, ORD made a concerted effort to develop new procedures in accordance with the 1977 Act and to address GAO's concerns. These procedures were, in part, specifically designed to ensure that the review and award processes could not be challenged for lack of objectivity. Based on our review, however, ORD cannot be assured the processes are free from some subjectivity. Project officers still appear to have significant control over the review and award of cooperative agreements.

RESOLUTION OF ISSUES RAISED BY EXTERNAL PEER REVIEWERS

Issues raised by external peer reviewers were not always given adequate consideration or properly resolved. We believe the quality of external review could possibly deteriorate if such reviewers' comments are not given serious consideration. Failure to consider these issues, in our opinion, defeats the purpose of the review process and could raise questions as to its objectivity and usefulness.

ORD officials informed us that scientists who are selected to perform external peer reviews do not receive any compensation for their services. We were told that remuneration for their participation in the review process is based on their interest in the state of the art. We believe that issues (concerns over costs, time, technical approach, etc.) raised by such reviewers should be given careful consideration and resolved in a technically sound manner. Therefore, in our opinion, it is important to document fully how such issues were resolved. Our review of 49 agreements revealed that although many issues raised by external peer reviewers were carefully reviewed and resolved, there were 17 agreements (or 35 percent) in which such issues did not appear to have been adequately addressed. The following is a brief example of this problem. (The example used does not identify the project or ORD personnel.)

Example

The following project was reviewed by one in-house scientist and two external peers. The first external peer stated:

In general, the proposal is quite broad and nonspecific - the research objectives and benefits, and project deliverables, are not clearly delineated.

He then recommended that the project:

...be funded but at a reduced level of effort, with major re-orientation of the work effort....

Similarly, the other external peer stated:

The two year time span is reasonable but it seems that they have more people and money included than they really need.

Basically, the issues raised by these external peers indicated that the project may have been too ambitious and too costly. Subsequently, the project was modified. However, we found that the EPA official who prepared the decision memorandum did not respond to the observations made by these individuals. In the section of the memorandum titled "Reconciliation of Any Contrary View," the EPA official simply stated:

There were no contrary views on this proposal.

It appeared as if no consideration was given to any of these peers comments even though there appeared to be an agreement that the project should be scaled down. In any event, the impression conveyed by the memorandum was that the two external reviewers unequivocally endorsed the project as proposed.

In our opinion, in the example discussed above, no real consideration was given to the external reviewers' comments and observations in regard to costs, period, and technical makeup of the project. However, a majority of the external reviews included in our sample of 49 projects reflected thorough and conscientious evaluations of respective applications. Nevertheless, in our opinion it is still important that controls be introduced in the review and award procedures to ensure that issues raised by external reviewers are carefully resolved and documented. We believe these actions are important to ensure the objectivity of such peer reviews, which is an essential tool in evaluating the merits of project applications.

IMPACT OF LIMITED TRAVEL FUNDS ON COOPERATIVE AGREEMENT MONITORING

Our review disclosed that some project officers believed they could have monitored cooperative agreement projects more effectively if additional travel funds had been available to make needed visits to research sites. In an October 1980 report, the GAO concluded that ORD project officers could not adequately monitor technical progress of extramural research projects, due, in part, to limited travel funds. In its report, GAO concluded that more travel funds were needed by EPA to monitor its extramural program adequately. GAO reported that over 50 percent of those project officers interviewed expressed dissatisfaction with their opportunities to make site visits.

As previously discussed in chapter 1, our interviews with ORD Headquarters and various laboratory personnel revealed that the perceived lack of travel funds is a major concern, especially regarding project monitoring and employee training and development. Although we recognize that budget cuts or other forms of travel funding restrictions are not always under ORD's control, nevertheless, as we previously stated, ORD should evaluate the adequacy of its existing and planned travel funds and their allocation in meeting operational needs, including project monitoring and employee development and training.

Interviews with 44 project officers who were responsible for managing the 49 projects disclosed that 10 of them believed their projects were not monitored and managed as effectively as they could have been due to a lack of travel funds. However, 3 of the 44 project officers explained that they did not always consider site visits imperative because their communication with researchers (telephone, progress reports, etc.) provided necessary information to evaluate their projects.

The following are two examples of projects that we believe could have been monitored more effectively.

Example 1

A project application submitted by a minority institution was rejected by external peer reviewers due to the lack of technical merit. The project officer recommended acceptance because he was confident he could work with the applicant to prepare a revised, acceptable project plan. A revised application was prepared which was considered acceptable, and a grant was awarded to the applicant for about \$44,000 to cover first-year funding. The project officer did not visit the recipient during the first year of work and at the completion of this period he made the following observation:

During the first year of this work, the investigator has expended considerable time on method development, or what I would call verification.

In addition, he stated that much of this effort had been a reevaluation of information available in the literature and probably should have consumed considerably less time.

The project officer also noted that the recipient's plan for the second-year funding was vague. Nevertheless, we found that EPA provided funding for the second year of research. Once again, the project officer did not visit the research site during this period of the project. After considerable delay, the recipient submitted the final report. That report was considered unacceptable by the project officer.

Example 2

The project officer stated that he had not visited the research site due to travel fund shortages. However, he said that provision for additional travel funds was made and budgeted under the grant for the recipient to travel to EPA as a substitute for EPA travel. We believe this is not as effective as project officer visits because it excludes EPA from direct, on-site observation of the research and data collection process. We believe such observations are important further to ensure the progress and quality of projects.

As previously discussed, the Federal Grant and Cooperative Agreement Act provides federal agencies with a new procurement tool, the cooperative agreement. The cooperative agreement's most distinct characteristic is the requirement for a high level of involvement by the awarding agency. The Act states that cooperative agreements are to be used whenever:

...substantial involvement is anticipated between the executive agency, acting for the Federal Government, and the state or local government or other recipient during performance of the contemplated activity....

With substantial involvement as a key characteristic of cooperative agreements, we believe it is imperative that project officers maintain proper vigilance over projects as well as the necessary level of involvement to protect the Agency's interest. In our opinion, although there are various ways to monitor projects, in many instances there does not appear to be an effective substitute for visits to research project sites.

CONFLICT-OF-INTEREST STATEMENTS

External peer reviewers have not always been required to complete required conflict-of-interest statements in conjunction with their reviews of cooperative agreement applications. Such statements are required by ORD interim procedures. We found that in one laboratory, such statements were not obtained because personnel were not aware of the requirement. Discussions with project officers also indicated that they were generally not aware of this requirement.

Research disciplines are often so specialized that there may be a limited number of scientists associated with any given field. Through universities, seminars, meetings, and other associations, such specialization draws scientists together. Thus, it is not unusual for close associations to form among scientists in a particular field of research. Conversely, adversary situations could exist where peers may be competitors for research resources or for some other reason could be biased against certain peer reviewers.

ORD developed procedures to ensure such associations or competition does not adversely affect the external peer review process covering cooperative agreement applications. ORD also issued interim guidelines to be furnished to external reviewers in conjunction with ORD's request for their evaluations of cooperative agreement applications. These guidelines include a preprinted statement that (if signed by the reviewer) certifies that the reviewer does not have a conflict-of-interest regarding his or her review responsibilities.

The statement includes the following certification:

I certify that I have read the above statement and that no conflict-of-interest exists with regard to my review and discussion of EPA assistance applications.

Our review of 18 projects awarded in fiscal 1981 and 1982 disclosed that conflict-of-interest statements were obtained from external reviewers for 10 (or 55 percent) of these projects. However, 30 of the 44 project officers (or about 68 percent) we interviewed informed us that such statements had not been obtained, or they did not know whether such statements had been obtained.

We discussed external review procedures with a laboratory official who was responsible for preparing and sending the requests for reviews to the external peers. The official told us that conflict-of-interest statements were not included in the request packages because he had not been informed of this requirement.

We noted one particular project which may not have been awarded as proposed if the conflict-of-interest requirement had been enforced. This project (grant) application was initially rejected by the Headquarters Office of Research Grants and Centers' peer review panel for lack of technical merit. Subsequently, the same application was submitted for consideration as a cooperative agreement. Requests for external reviews were sent out to three external peers. One external reviewer's comments were positive; however, another reviewer pointed out that he was closely associated with two of the researchers on the proposed project. Nevertheless, his review was used as part of the basis for recommending the award. If the reviewer with the potential conflict-of-interest had been made aware of this requirement and furnished a copy of the preprinted statement, as well as the accompanying instructions, he probably would have disqualified himself from reviewing the application. This disqualification would have resulted in a situation where the project application, being endorsed by only one external reviewer, may not have been awarded without an additional review.

It is our opinion that the conflict-of-interest requirement serves an important purpose in minimizing subjectivity in the process of selecting cooperative agreements. These requirements are not only a further step in ensuring objective peer reviews of cooperative agreement applications, but also a step toward avoiding unnecessary criticisms of possible favoritism in awards.

RECOMMENDATIONS

We recommend that the Acting Assistant Administrator for Research and Development:

- (1) Fully enforce existing cooperative agreement procedures or develop new procedures to ensure that project officers are removed from:
 - (a) Selecting external reviewers;
 - (b) Preparing in-house reviews; and

- (c) Preparing decision memorandums covering cooperative agreement applications with which they have been involved.
- (2) Ensure that external reviewers are selected from the approved list, issues raised by external peer reviewers are adequately resolved, and resolutions are documented.
- (3) In conjunction with our recommendation in chapter 1 (see page 27), determine the adequacy of existing and planned travel funds, and the way they are allocated, to ensure project officers can effectively monitor cooperative agreement projects.
- (4) Enforce requirements to obtain conflict-of-interest statements from external peer reviewers.

MANAGEMENT RESPONSE

The Acting Assistant Administrator for Research and Development did not provide comments on specific recommendations contained in this chapter. However, according to ORD senior management, ORD agrees with each of the above recommendations and has either already taken action or plans to fully implement them.

OIG COMMENTS

ORD agrees with the above recommendations, and indicated that it has either taken corrective action or plans to take action. Although we believe senior ORD management has seriously considered these recommendations, ORD still needs to provide us with specific actions they are taking to implement each recommendation. These actions should be contained in their final response to our report.

CHAPTER 3

RESEARCH AND DEVELOPMENT CONTRACTS

We reviewed a sample consisting of 44 active and 41 completed research and development (R&D) contracts for fiscal 1981 and the first quarter of 1982. These contracts were administered by the laboratories in RTP, North Carolina, and Cincinnati, Ohio. We found that:

- (1) Contract end products were not always received in a timely manner, and in a significant number of cases had not been received at all.
- (2) In six instances amounting to \$3,673,245 the R&D appropriation was used to fund contracts or portions of contracts that provided management and other types of services which, in our opinion, should have been funded from the S&E appropriation. The Agency Comptroller agreed that four of these six contracts amounting to \$1,313,339 should have been charged to the S&E appropriation. (See page 47). Similarly, in two other instances amounting to \$10,494,314, the R&D appropriation was used to fund contracts which, in our opinion, provided materials and a multitude of services to operate or otherwise support government-owned facilities at RTP and Cincinnati. However, because funding sources were not linked to specific contract work tasks, we were unable to determine the accuracy of charges to the R&D and other appropriations. The Acting Assistant Administrator for R&D pointed out that the ambiguities contained in the definitions of each appropriation are such that the above contracts could be charged to either the R&D or S&E appropriations (See page 46).
- (3) In 6 instances, amounting to about \$6.8 million, it appeared that program support contracts or portions of contracts were incorrectly classified as R&D contracts. This misclassification prevented an accurate comparison of actual expenditures to amounts budgeted in the Agency's resource management information system.
- (4) Financial controls over level-of-effort contracts funded by multiple program elements were not sufficient to ensure that the specific tasks performed were related to the program elements used to fund the contracts.

We discussed the results of our review with the Acting Assistant Administrator for Research and Development, ORD Headquarters office directors, and the director of the Office of Fiscal and Contracts Management and senior members of his staff. They generally agreed with the results of our review. In addition, we discussed the funding aspects with the Agency Comptroller and senior members of his staff.

As previously discussed, we are requesting the Office of Legal and Enforcement Counsel to provide us with a formal legal opinion on whether the \$1.3 million of mischarges to the R&D and Abatement and control appropriations violated 31 U.S.C. 628 and/or 665, and if so, what actions must be taken by the Agency Administrator. In general, 31 U.S.C. 628 requires that appropriated funds can only be used for the purposes appropriated, while 665 provides that obligations cannot be made in excess of the amounts appropriated.

In fiscal 1982, the Agency took a number of positive actions to ensure that (1) major procurements were better managed, (2) procurements were necessary to achieve a specific policy objective, and (3) that funding authority was available and appropriate for the intended procurement. It appears that if effectively implemented, these corrective actions should prevent or reduce future occurrences of most of the problems we noted. Specific Agency improvements are commented on in the various sections of this chapter.

SCOPE AND METHODOLOGY

We conducted our review at EPA laboratories and the Procurement and Contracts Management Division offices located at RTP, and Cincinnati, Ohio. We interviewed EPA officials, project officers, and contracting officers, and we examined contract files at both locations.

We based our review on a sample taken during fiscal 1981 and the first quarter of 1982. The sample consisted of 44 active contracts, which were selected from a universe of 144 active contracts totaling about \$60.3 million, and 41 completed contracts, which were selected from a universe of 343 completed contracts totaling about \$223.6 million. Our sample represented about 31 percent of the total number of open contracts and about 12 percent of the completed contracts.

BACKGROUND

The ORD is responsible for administering EPA's research and development activities to meet the needs of EPA's operating programs. Thus, its role is to provide important scientific and technical support in (1) developing effective standards, (2) preventing and abating pollution, and (3) monitoring pollution conditions. As previously discussed, ORD provides assistance for mission-related R&D projects through EPA Headquarters and its laboratories. A major part of such assistance is provided through R&D contracts. OMB Circular A-11, dated January 15, 1981, broadly defines R&D activities to essentially entail a systematic or intensive study directed towards fuller scientific knowledge or understanding of a subject area, as well as the use of this knowledge or understanding directed toward the production of useful outputs (e.g., materials, devices, systems or methods).

Resources assigned to ORD are from two appropriations: the R&D appropriation, which is used to fund extramural research activities, and the S&E appropriation, which is used for intramural research.

Appendix B.3 of EPA's planning and budgeting manual provides that R&D contracts are to be funded under the R&D appropriation, object class 25.32. Further, the manual requires that contracts for management and administrative services and equipment acquisition be funded under the S&E appropriation.

TIMELY RECEIPT OF FINAL RESEARCH PRODUCTS

In reviewing 41 completed contracts, we found that final products were not always delivered to EPA in a timely manner and in a significant number of instances were not received at all. In our opinion, the primary reasons for such delays were due to the (1) long lead-time required to complete the procurement process and (2) failure of individual contractors to deliver end products within the time frame prescribed in individual contracts.

EPA's failure to obtain timely end products was also pointed out by the GAO in an October 1980 report, as well as by internal EPA studies. Failure by contractors to deliver timely products, or at all, was in our opinion partially attributable to EPA project officers failure to effectively monitor the projects and alert the contracting officer so that appropriate action could be taken to protect the Agency's interests.

Timeliness of the Contract Award Process

Long lead-times required to complete the procurement process contributed to delays in receiving final research products. In our opinion, because contract end products (i.e., reports, data, etc.) are often used by the Agency in making decisions and issuing regulations, such delays have an adverse impact on meeting these responsibilities and successful completion of extramural research projects.

Our review of 37* completed contracts disclosed that about 70 percent (or 28 contracts) exceeded EPA's acquisition lead-time of 156 days for competitive contracts. Based on EPA's past experience, this is the "optimum" amount of time it should take to complete the process, and it is expected that this optimum will be met in most cases. For the 37 contracts, we compared the number of days between the procurement request date and the contract award date to determine the amount of time it took EPA to complete the award process. We then compared this amount of time to the 156-day optimum established by EPA. We found that overall, it took an average of 241 days (or 54 percent above the optimum) to complete the award process. (Appendix C shows the average days required to complete the process for the 37 contracts.)

Although we did not conduct a detailed analysis of delays, we discussed the delays with ORD project officers, contracting officers, and contracting specialists. They provided us with the following reasons for delays.

* We examined 41 contracts included on EPA's contract information system listing as being closed during fiscal 1981. We subsequently reduced the sample to 37 because 4 contracts did not have the date of initiation on the procurement request.

- (1) Procurement requests had not been evenly distributed throughout the year, resulting in heavy workloads at the end of the year. This was attributed in part to delays by Congress in approving the budget and continuous changes in the budget and annual procurement plan throughout the year.
- (2) There had not been enough personnel in the Contracts Management Division to handle the heavy workload.
- (3) Project officers have had a heavy workload, which has resulted in an inability to conduct timely technical evaluations of contractor proposals.

In addition, in an October 1980 report, the GAO concluded that research projects often have been delayed because contract awards were slow and generally took much longer than EPA anticipated. The GAO's examination of 39 competitive and 25 noncompetitive research contracts awarded during fiscal years 1978 and 1979 disclosed that the 156 day optimum lead-time was exceeded by 39 percent and the noncompetitive contract standard of 119 days was exceeded by 17 percent.

In addition, the GAO pointed out that the longest delays occurred at two stages--the presolicitation stage, during which project officers are responsible for preparing the procurement request package, and the evaluation stage, where project officers review proposals for technical merit. GAO believed that project officers caused the greatest delays in the procurement process because:

- (1) They failed to prepare adequate procurement request packages within the established time frame. The packages initially submitted to contracting offices were often vague and general, requiring substantial revision before requests for proposals could be issued to prospective contractors.
- (2) They failed to complete technical evaluations of contractors' proposals within established time frames. Project officers' busy schedules, along with the need to plan and coordinate activities, more effectively, were cited as factors causing untimely evaluations.

We recognize that EPA and ORD have taken and are taking actions to improve the procurement process. However, we believe that additional emphasis should be placed on ensuring that the contract award process is completed within the optimum lead-time established by EPA. In our opinion, such delays contribute to end products not being received in a timely manner, which in turn has an adverse impact on EPA's regulatory responsibilities and deadlines imposed by Congress.

Another factor affecting EPA's ability to obtain timely research products was the failure of contractors to deliver final reports within the contractual time frames.

Timely Receipt of Final Reports

Contractors frequently failed to deliver final reports to EPA within the contractual time frames, and in a significant number of instances, EPA had not received final reports. Part of this failure, in our opinion, can be attributed to the lack of effective on-going contract monitoring and administration. Of the 41 completed contracts included in our sample, 28 required final reports to be delivered to EPA. We found that only 11 reports (or about 39 percent) were actually received as of April 1982. For the remaining 17 contracts, reports were overdue from 1 to 37 months, or an average of 15 months for each contract. Of the 11 reports that were received, 3 were received late (two months, five months, and nine months). (See appendix D for a detailed breakdown by contract.)

The following are two examples where contract monitoring was not effective.

Example 1

A cost-plus-fixed-fee (CPFF) contract was awarded to a firm for \$663,034 to study carbon absorption technology in removing specific materials from wastewater. The initial period of performance was 24 months, which was extended by modifications to 38 months, with a corresponding contract increase to \$873,809. At the time of our review, it was 17 months past the contract period of performance, and the five final drafts had been sent back to the contractor over seven months ago, and all were still outstanding. Of the total contract award of \$873,809, there had been payments totaling \$864,113, through January 21, 1981. The project officer filled out the contractor performance evaluation on January 27, 1982, and recommended the contractor for consideration in future solicitations even though the final products had not been received.

The contracting officer stated that he normally got involved only if the project officer notified him of a problem or if the contractor encountered any problems.

Example 2

A CPFF contract was awarded to a firm for \$266,246 to develop a two-volume publication on energy aspects of municipal wastewater collection and treatment. The initial period of performance was 9 months, which was extended twice for an additional 10 months, and the contract was increased to \$284,527, which included a cost overrun. The project officer did not require the contractor to produce a final report after he received an unacceptable draft report. However, another contractor was selected by EPA to produce a final report on the same subject.

We recognize that ORD and EPA have been--and still--are taking positive steps to improve the procurement process, including improving the timeliness of research end products. These improvements are discussed in more detail on pages 53 and 54 of our report. Nevertheless, we believe ORD should take action against those contractors who are delinquent in providing final reports within the contractual time frames. EPA's ability to achieve responsive research depends, in part, on completing research as planned and receiving quality results on schedule. In our opinion, continuous and effective monitoring by both project officers and contracting officers will aid EPA in obtaining quality results within contractual time frames.

CONTRACT FUNDING

We reviewed 44 R&D contracts from a universe of 144 contracts which were active between fiscal year 1981 and the first quarter of 1982. We selected these active contracts for review to determine whether procedures and controls were adequate to ensure that the correct appropriation, object class and program elements were selected for contract funding. We found a number of instances where (1) the R&D appropriation was used to fund non-R&D contract expenditures, (2) it appeared that the wrong object class was selected, and (3) controls needed to be strengthened to provide greater assurance that level of effort (LOE) and other term form contract tasks could be related directly to the specific program elements used to fund them.

Use of the R&D and Other Appropriations

In six instances amounting to \$3,673,245 it appeared initially that the R&D and/or abatement and control (A&C) appropriations were used to fund contracts or portions of contracts that provided personnel services, materials, and other forms of support which, in our opinion, should have been funded from the S&E appropriation. Similarly, in two other instances amounting to \$10,494,314, the R&D appropriation was used to fund contracts with the Northrup Corporation and the University of Cincinnati which, in our opinion, provided a multitude of personnel services and materials to operate and/or otherwise support government-owned facilities at RTP and Cincinnati. These two contracts were also funded with the S&E and A&C appropriations. However, because specific contract tasks could not be linked to funding sources, we were unable to determine the propriety of the amounts allocated to the R&D and these other appropriations.

The Acting Assistant Administrator for Research and Development initially agreed that the above contracts should have been charged to the S&E appropriation, if today's standards and definitions for R&D were applied. He also explained that fiscal year 1980 was the first year ORD had two appropriations to use; up to that time ORD had only the R&D appropriation to fund all of ORD's work (see page 56). In a January 21, 1983 memorandum, he clarified his initial opinion on the contracts. He explained that

the contracts were properly charged and that he did not mean to imply that the contracts should have been charged to the S&E appropriation but rather that they could have been charged. He believed that ambiguities contained in the definitions of each appropriation are such that the contracts could have been charged to either the S&E or R&D appropriations. To resolve these ambiguities, he indicated that ORD staff was working with the offices of the Comptroller and Administration to put in place more precise guidance (see appendix G, page 4).

Appendix B.3 of the EPA Planning and Budgeting Manual provides that R&D contracts (as defined in section 44.2 of OMB Circular A-11) be funded under the R&D appropriation, object class 25.32. OMB Circular A-11, section 44.2, defines research and development as follows:

" . . . Research is a systematic, intensive study directed toward fuller scientific knowledge or understanding of the subject studied. Development is systematic use of knowledge and understanding gained from research, directed toward the production of useful materials, devices, systems or methods, including the design and development of prototypes and processes. Research and development excludes routine product testing, quality control, mapping, collection of general purpose statistics, experimental production, routine evaluation of an operational program, and the training of scientific and technical personnel. . . ."

The Planning and Budgeting Manual requires that contracts for management or administrative services, and equipment acquisition, be funded under the S&E appropriation. Further, chapter 5 of the manual requires in part, that:

" . . . Allowance Holders within the Research and Development appropriation and within the Research and Development portion of the Salaries and Expense appropriation may not transfer funds to or from the operating plan without Office of Policy and Resource Management's (OPRM) approval because of congressional restrictions on research and development programs. . . ."

Our opinion on the above contracts was based on (1) our reading of the definitions of R&D contained in OMB circular A-11 and the Planning and Budgeting Manual, (2) ORD's initial qualified agreement that the contracts should have been charged to the S&E appropriation, and (3) a preliminary review by an official of the Comptroller's office who agreed that some of the contracts appeared to be non R&D activities which, in his opinion, should have been funded from the S&E appropriation.

In mid-January 1983, we met with the Comptroller and members of his staff to discuss the contracts in question. During this meeting, the Comptroller expressed general disagreement with us on the contracts and requested additional time to review them. We requested the Comptroller to provide us with a final written opinion on the appropriateness of charges to the R&D appropriation after he completed his review. To facilitate the Comptroller's review, we met with his staff, provided them with additional information, and made our workpapers available.

On February 1, 1983, the Comptroller provided us with his final written opinion on the contracts in question, and the criteria followed by the Agency in charging the R&D appropriation. (See appendix I.) The Comptroller agreed that four of the six contracts amounting to \$1,313,339 (from R&D and/or A&C appropriations) should have been charged to the S&E appropriation because they essentially involved automatic data processing, repair and maintenance of equipment, or equipment purchases. In contrast, the Comptroller believed that the remaining two contracts were properly charged. For the other two facility support contracts (Northrup and University of Cincinnati), the Comptroller believed that although these contracts involved a multitude of S&E related activities, they were either predominately or entirely comprised of R&D activities. The Office of the Comptroller did agree with us, however, that because these two contracts were also funded from the S&E and A&C appropriations, and tasks were not linked to funding sources (program elements), the validity of the amounts charged to the three appropriations could not be determined.

The following illustrates the Comptroller's agreement or disagreement with us on the six contracts:

<u>Contract</u>	<u>Amount of R&D Funds</u>	<u>Agreement with OIG</u>	<u>Disagreement with OIG</u>
68-02-2832	\$ 693,679 *	X	
68-02-3296	254,660	X	
68-02-3482	310,000	X	
68-02-3199	55,000	X	
Subtotal	<u>\$1,313,339</u>		
68-03-2672	\$ 793,405		X
68-03-2765	1,566,501		X
Subtotal	<u>\$2,359,906</u>		
Total	<u>\$3,673,245</u>		

* This amount also includes funding from the A&C appropriation for \$416,679.

The following generally describes two of the four contracts which the Comptroller agreed should have been funded from the S&E appropriation.

Rockwell International Corporation (68-02-3482)

A time-and-materials contract was awarded to a firm for the calibration, inspection, repair, and fabrication of equipment. The contract was funded for \$310,000 from ORD's R&D appropriation instead of the S&E appropriation. The project officer indicated that this was done because funds were not available from the S&E appropriation.

SDC Integrated Services, Inc. (68-02-2832)

R&D funds of \$277,000 were used to fund a contract for management, personnel, services, supplies, and equipment necessary to operate and maintain the national computer center in RTP, North Carolina.

In contrast, the Comptroller believed two of the six contracts were properly charged because they (a) involved "development activities" as defined by OMB Circular A-11 (as previously discussed) and (b) involved "quality assurance" services which is consistent with the definition of R&D in the Agency's Planning and Budgeting Manual. The following is a brief discussion of the basic scope of these two contracts, the Comptroller's opinion on them and our views on each contract.

Centec Consultants, Inc. (68-03-2672)

This contract was awarded for \$468,924 to support the Environmental Research Information Center, Cincinnati. Contract tasks include, reviewing research documents, evaluating technical outputs of environmental pollution control research laboratories, and field stations, preparing, revising and updating manuals and handbooks for pollution control, conducting seminars and workshops (developing the program, arranging for space and equipment, lining up speakers, etc.), assembling, editing and preparing seminar and workshop publications, producing capsule reports and executive briefings, organizing national symposia, and preparing newsletters and audiovisual materials. The contract was funded from the R&D (\$793,405), S&E (\$90,579) and A&C (\$321,850) appropriations. The Comptroller believed that the contract was charged correctly to the R&D appropriation because most of the above tasks were considered by him to be "development activities" as defined by OMB Circular A-11. In contrast, however, we believe most of these tasks appear to be administrative, technical and management support which should have been funded from the S&E and/or A&C appropriations. However, because specific tasks are not linked to funding sources, we were unable to determine the propriety of charges to the individual appropriations.

Radian Corporation (68-03-2765)

This contract was awarded to provide repository services to Federal, state and commercial laboratories engaged in water and wastewater analyses. Tasks include classifying chemicals, replenishing the repository, operating a program to review chemicals for the repository, and developing a system for cataloging, indexing, and compiling information on repository materials. The contract was funded from the R&D (\$1,566,501) and A&C (\$90,000) appropriations. The Comptroller believed the contract was to provide quality assurance services and as such was properly charged to the R&D appropriation consistent with the definition of the R&D appropriation in the Planning and Budgeting Manual.

In a February 1, 1983 memorandum to the Inspector General, the Comptroller pointed out that the Agency's definition of R&D follows OMB Circular A-11, but is modified by definitions incorporated in the Agency's Planning and Budgeting Manual and the appendix to the President's budget. The Comptroller also explained that it is important to note that R&D activities as defined by Circular A-11 may be charged to either S&E or R&D appropriations; if the activities involve in-house staff and intramural object classes (PC&B, travel, ADP services, etc.) they should be charged to the S&E appropriation; and if the activities involve extramural services and object classes (contracts, grants, etc.) they should be charged to the R&D appropriation. Regarding the above two contracts the Comptroller stated that:

" . . . Quality assurance is a research and development activity as defined in the Agency's Planning Manual. . .

" . . . Monitoring is a research and development activity and is specifically mentioned in the appendix to the President's budget as one of the activities for which the funds will be used. Activities encompass research on . . . the development of new and improved sampling and analytical methods and instruments for measuring pollutant. . . ."

Finally, in discussing development activities in the two contracts, the Comptroller stated that:

"These activities [reviewing research documents, evaluating technical outputs, preparing manuals and handbooks, conducting seminars] are appropriately charged to the research and development appropriation as defined in OMB Circular A-11 as long as they involve the systematic use of knowledge gained from research directed toward the production of useful materials. This is the case for contracts under review. . . ."

Initially, we did not consider these two contracts to be R&D, based on the definition contained in OMB Circular A-11 (A-11). However, we agree with the Office of the Comptroller that the definition in A-11 is broad and somewhat ambiguous, and as the Acting Assistant Administrator for R&D pointed out, the ambiguities were such that these contracts could have been charged to either the R&D or S&E appropriation. In addition, as the Comptroller further pointed out, these activities have historically been included in the budget and approved by Congress as R&D. In view of this fact, and because the contracts were charged in the same manner they were budgeted, we have concluded that only the four contracts amounting to \$1.3 million were mischarged.

We believe the Comptroller should conduct or direct a review of the remaining contracts not included in our review, to determine the full extent of any incorrect charges and prepare a formal report to the Administrator on their findings. Subsequent to the completion of this review, the Comptroller's office should determine the effect, if any, that correction of any incorrect charges would have on the obligation balances for the years in question.

Classification of R&D Versus Program Contracts

We found 6 instances amounting to about \$6.8 million where it appeared contracts, or portions of contracts, were classified as R&D contracts (object class 25.32) rather than program contracts (object class 25.35; see appendix E). Improper classification distorts the actual amount being spent for R&D as defined by OMB Circular A-11 and precludes a valid comparison to budgeted amounts in the Agency's resource management information system. The planning and budgeting manual, appendix B.3, defines program contracts as:

Planned obligations for contracts which support program operations. Included in this category are contracts for the preparation of Environmental Impact Statements, for the development of regulations, standards, guidelines and criteria, for monitoring, for surveillance and analysis, for pesticides certification, for regional laboratory analysis, and for special studies and analyses of programs. Management, administrative, and research contracts are not included in this category.

We recognize that in some cases the dividing line between R&D and program contracts may not be completely clear and that judgment may be involved in making the classification. However, it appeared in some cases that the two were used almost interchangeably, possibly to avoid submission of reprogramming requests to the Office of Comptroller if sufficient funding was not available in an object class. Two examples are presented below which illustrate this condition.

Example 1

A \$4.1 million contract was awarded to conduct a continuing program of review, evaluation, and development in support of EPA's responsibility for providing policies, guidelines, and technical support for the quality assurance program for State and local air monitoring stations (SLAMS). This support was to be provided in six technical service areas. The areas are listed below along with an estimated percent of the work effort.

- (1) Performance audits of SLAMS--50 percent
- (2) Quality assurance guideline development--5 percent
- (3) Audit workshop development and presentations--5 percent
- (4) Audit system verification program--10 percent
- (5) Audit materials analysis and traceability service--15 percent
- (6) Quality assurance technical assistance--15 percent

Example 2

A contract was initially awarded for \$500,000 (and has a current value of \$2.9 million) to conduct a continuing program of review, evaluation, and development in support of EPA's functional responsibility for providing EPA policies, guidelines, and technical support for quality assurance programs to support the Office of Air Quality Planning and Standards, regional offices, ORD laboratories, and the Office of Enforcement.

Quality assurance technical support was to be provided for environmental pollutants in air, water, biological tissue, soil, and manufacturing raw materials and products. An estimated 80 to 90 percent of the technical support was to be in the air program.

In commenting on our draft report, the Comptroller believed the above examples of misclassified contracts are "Quality Assurance" contracts which is an R&D activity as defined by the Agency's planning manual, and thus they were charged to the proper object class. As stated previously, the dividing line between R&D and program contracts is not always clear and judgement may be involved in making the classification. In our opinion, both of the examples cited appear to be providing program related support of EPA's, as well as States quality assurance program for air monitoring. Furthermore, these contract examples, like other contracts we believe were misclassified, involve a number of technical tasks which appear to be consistent with the Agency's definition of a program contract. We were not alone in our opinion. The Acting Assistant Administrator for Research and Development briefly reviewed the above examples, as well as other contracts we believed were misclassified. He believed the above examples and some of the other contracts or portions thereof appeared to be program support.

According to a senior official in the Office of Monitoring and Quality Assurance, the present object class definitions for R&D and program contracts are too broad to ensure that contracts are properly classified. He also stated that without more refined guidance, it will continue to be left up to an individual's judgement as to whether a contract should be classified as R&D or program.

CONTROL OF LEVEL-OF-EFFORT CONTRACT FUNDING

Of the 44 active contracts we reviewed, 23 (or 52 percent) were LOE contracts. We found that these contracts were usually funded on a multi-media basis. However, funds obligated for these contracts were not identified to specific tasks or work assignments. Thus, we could not relate the funds to tasks or work assignments to determine if the funds were being used for the specific program elements from which they were provided. We believe this lack of control existed because (1) contract task or work assignments were merely added by project officers when needed instead of being made part of the contract by modification; (2) hours were not assigned directly to the task or work assignments by modification; and (3) the funding source (program element) was not identified to tasks or work assignments. Without this information, we could not determine if the funding under these types of contracts was being used appropriately.

Program elements represent distinct subsets of budget activities and are an essential mechanism to ensure proper use of funds consistent with the Agency's operating plan. However, without being able to identify such program elements to specific contract tasks, the control mechanism built into the process is not effective in ensuring the proper use of funds.

The following are two brief examples of selected contracts where we could not determine how the funds were used or whether the effort for a program element was comparable to the amount funded:

Example 1

A LOE contract was awarded on September 30, 1981, for \$2,287,757. The contract had multiple tasks for R&D of remedial measures for uncontrolled hazardous waste sites. It was funded from various program elements in the superfund, hazardous waste, and water programs. It was not possible to link the funds supporting this contract by program element to the work task being performed.

Example 2

Another contract was awarded on September 28, 1979, for \$6,284,140. The contract was for multidisciplinary technical services in support of demonstration programs and the Industrial Environmental Research Laboratory (IERL), RTP. It was funded from various program elements under the energy, hazardous waste, radiation, air, solid waste, interdisciplinary, and toxics programs. Similar to the example above, funds by program element could not be directly related to work tasks.

The above examples, along with some other examples, were discussed with the Acting Assistant Administrator for Research and Development. He stated that he generally understood the problems and added that ORD was presently reviewing such contracts to determine how ORD would fund them in the future.

Although our review was of R&D contracts, the Agency makes extensive use of LOE contracting in other programs as well, and controls should be in place to ensure contracts are funded from the proper program element by more directly relating the source of funds to the work being performed. To resolve this problem on an agencywide basis, the Procurement and Contracts Management Division (PCMD) drafted a procurement information notice (PIN), "Revised Policy for Cost Reimbursement Term Form Contracts Utilizing Work Assignments," and requested us on September 22, 1982, to review and comment upon the draft. In commenting on the draft, we stated that it appeared to provide further assurance that funding sources (program elements) were more directly related to specific contract work tasks. However, in late January 1983, a PCMD official informed us that the draft PIN was not going to be issued because it was not approved by Agency procurement offices who argued (1) that it limited funding on tasks for each funding source instead of on a contract total, and (2) it was a program office problem and not a contract problem.

In late January 1983, we met with officials of PCMD, FMD, and the Comptroller's office to discuss contemplated actions to develop and issue a new PIN that addresses the problem identified in our report. Although a number of alternatives were discussed during this and subsequent meetings, a decision had not been reached. However, we did request that PCMD provide us with a copy of the revised PIN once it is circulated for comment.

IMPROVEMENTS UNDERWAY FOR PROCUREMENT AND MANAGEMENT OF CONTRACTS

In fiscal 1982, the Agency took a number of positive actions to (1) ensure better management of major procurements, (2) avoid unnecessary procurements, and (3) eliminate potentially wasteful procurements. Important actions included:

- (1) Procurement Information Notice (PIN) No. 82-09, dated November 11, 1981, Contract Planning and Procurement Request Approval Requirements. These procedures provide for continuous management oversight to ensure efficient and economical procurements. They include provisions for:
 - (a) Strengthening the contracting planning system;
 - (b) Approving procurement requests by requiring specific certifications;
 - (c) Revalidating procurement requests prior to final award; and
 - (d) Approving the competitive range on contract awards.

- (2) On March 3, 1982, the Assistant Administrator for Administration placed more stringent requirements regarding contract signoff.

On March 18, 1982, the Acting Assistant Administrator for Research and Development, in turn, required that the certification document include a statement that:

- (a) The procurement is necessary for statutory or regulatory compliance to achieve a specific policy objective;
 - (b) The contract product will be delivered in time to accomplish its purpose and the product will be used by a specified program office in specific ways;
 - (c) Adequate staff are available to monitor the contractor and use the resulting product;
 - (d) Work will be completed in a timely manner that will support, not impede, policy considerations;
 - (e) Specified sources have been checked to determine whether the information or resources are available; and the existing information or resources are adequate; and
 - (f) Funds proposed to be used are available, committed, and appropriate (i.e., appropriation and program element) for this work.
- (3) A contract project officer certification course is being initiated by the Office of Administration to ensure that only qualified program personnel are assigned to perform as project officers on Agency contracts.

In addition, the Office of Administration initiated a major study in July 1982 to investigate ways to streamline the procurement process. This study included representatives from almost every Agency program; three individuals were from ORD.

- (4) EPA's Administrator issued a memorandum to Agency personnel on November 19, 1981, concerning unauthorized reprogramming of funds between program elements.
- (5) The Assistant Administrator for Administration has undertaken an in-depth analysis of active contracts in excess of \$100,000.

We believe these actions are appropriate and, if effectively implemented or complied with, should help further to improve management control over procurement actions and avoid or reduce future occurrences of the problems we noted.

RECOMMENDATIONS

- (1) We recommend that the Acting Assistant Administrator for Research and Development:
 - (a) Direct project officers to alert contracting officers to initiate action against contractors who are delinquent in providing final reports;
 - (b) Coordinate closely with the Procurement and Contracts Management Division in taking necessary action to prevent inordinate delays in the procurement process;
 - (c) Issue guidance to ensure that R&D contracts are funded from the proper appropriation and are properly classified to describe work efforts accurately;
 - (d) Ensure proper control over the use of funds under LOE contracts, including modifications.
- (2) We recommend that the Office of the Comptroller:
 - (a) Conduct or direct a review of the remaining contracts for fiscal 1980, 1981, and the first quarter of 1982, which were not included in our sample, to determine whether any other contracts were improperly charged.
 - (b) Conduct a review to determine the effect, if any, that mischarges would have on the obligation balances for fiscal 1980, 1981, and 1982, and make all appropriate adjustments of Agency records.
 - (c) Prepare a report to the Administrator and provide a copy to the Office of Inspector General on the results of the reviews conducted under (a) and (b) above.
 - (d) Coordinate with ORD and issue any necessary additional guidance to ensure that all contracts are correctly classified in terms of the correct appropriation and as either R&D or Program contracts.

- (3) We recommend that the Assistant Administrator for Administration direct the Office of Fiscal and Contracts Management to review and strengthen controls over level-of-effort and other term form contracts to provide a direct link between funding and work tasks performed.

MANAGEMENT RESPONSE

The Acting Assistant Administrator for Research and Development did not provide comments on specific recommendations contained in this chapter. However, in a memorandum dated November 5, 1982, he initially agreed that by using today's standards and definitions the subject contracts (see pages 45 through 47) should have been charged to the S&E appropriation. However, after a further review of the matter, he clarified his initial opinion by stating that he did not mean to imply that the contracts should have been charged to the S&E appropriation. He also believed the ambiguities contained in the definitions of each appropriation are such that these contracts could have been charged to either the S&E or R&D appropriations. Finally, he stated that since fiscal 1980, ORD had gained increased experience in using the multi-appropriation structure and that ORD has been working with the Office of the Comptroller and the Financial Management Division to develop guidance and controls to ensure proper charges in the future.

In a memorandum dated March 24, 1983, the Comptroller agreed that there may be continuing problems with contract funding and that the Agency should examine all R&D contracts for fiscal 1983 to ensure that there are no mischarges. He disagreed, however, with our recommendation that his office conduct or direct a review of the remaining contracts for fiscal 1980, 1981 and the first quarter of 1982. The Comptroller believed such a review would not be fruitful for a number of reasons, including: (1) the magnitude of the mischarging indicated in our report is not large enough to warrant such a review; (2) although four contracts were incorrectly charged, no one is suggesting that the funds were not used to support ORD's major missions; and (3) the Comptroller's office would be more productive by ensuring that such mischarging does not occur in the future.

The Comptroller also disagreed that there are significant ambiguities in the definitions of the R&D and S&E appropriations. He stated that although the report does not indicate what these ambiguities are, the Comptroller's office will work with ORD and provide additional guidance, if ORD believes it is necessary. With respect to misclassification of contracts, the Comptroller believed the two examples used in our report were properly charged to the R&D object class because these were "quality assurance" contracts as defined by the Agency's planning manual. Finally, the Comptroller agreed with our recommendation that the Agency review and strengthen controls over level-of-effort and other term form contracts to ensure that funding sources are linked to specific work tasks.

The Assistant Administrator for Administration, in response to the recommendation regarding the need to review and strengthen controls over level-of-effort contracts, stated that the Office of Administration has been aware of this problem for some time and the Procurement and Contract Management Division (PCMD) has been working with the Financial Management Division to devise a solution. He stated that PCMD has developed a draft procurement information notice (PIN) incorporating policies and procedures designed to address this problem. He also offered some comments to help clarify findings contained in the chapter. He stated that when a contract is awarded, it contains a schedule of deliverables (generally final reports) which the program office has determined will meet its project requirements. He stated that delay in the receipt of deliverables, as called for in the contract, can certainly adversely impact project completion (as the report points out happens in too many instances); however, it is unclear how the procurement process leading to the award of the contract causes this effect. Further, he stated that the report references lead-times of 156 days for competitive procurements and 119 days for noncompetitive procurement as "standard lead-times." He pointed out these lead-times have never been established as standards, but rather are defined as optimum and each individual procurement is analyzed to determine the lead-time necessary to award that particular contract.

OIG COMMENTS

Although we agree with the Comptroller that emphasis should be placed on ensuring that such mischarging does not occur in the future, we disagree that a review of the remaining contracts should not be conducted for fiscal 1980, 1981, and the first quarter of 1982. We believe that such a review is necessary because over \$1 million was charged to the wrong appropriations, which is potentially a violation of Federal statutes, and any other similar mischarges should be identified and Agency records corrected accordingly. We also agree with the Comptroller that the Agency should review all R&D contracts for fiscal 1983, to ensure there are no mischarges.

As we pointed out in our report, the Acting Assistant Administrator for Research and Development believed that ambiguities contained in the definitions of each appropriation are such that contracts could be charged to either the S&E or R&D appropriations. In light of ORD's concerns and the fact that mischarges to the R&D appropriation have already taken place, we believe our recommendation to resolve any ambiguities is still valid and agree with the Comptroller that he should work closely with ORD to resolve ambiguities related to contract funding.

With respect to the Comptroller's opinion regarding the two contracts used as examples of misclassified contracts, we believe there is reasonable doubt that they are classified properly as R&D contracts. As we previously stated, both of the contracts we used as examples appeared to be providing program related support of EPA's, as well as States "quality assurance" programs for air monitoring. Furthermore, the Acting Assistant Administrator for Research and Development believed portions of these contract tasks appeared to involve program support.

We agree with action being taken by the Acting Assistant Administrator for Research and Development to develop guidance and controls to ensure proper appropriation charges in the future.

We also understand management's comments regarding the timeliness of the contract award process and its effect on receipt of end products. We clarified our report to reflect that the 156 day lead-time is the optimum amount of time to complete the competitive procurement process. Our position remains, however, that long lead-times required to complete the procurement process contributed, in part, to delays in receiving end products. It follows logically that the longer it takes to get a firm under contract the longer it will take to ultimately start and complete the work and thus receive an end product.

CHAPTER 4

MANAGEMENT OF INTERAGENCY AGREEMENTS

In the past, due generally to limited involvement by EPA in monitoring interagency agreements (IAGs) and the apparent lack of guidance and training for ORD project officers, there was little assurance that such agreements were always effectively controlled and thus benefited EPA's high-priority needs. In the last few years, however, EPA has taken some positive actions to improve the overall administration and management of IAGs. Nevertheless, our review disclosed that project management and administrative controls still need to be improved. We found that:

- (1) Neither existing IAG procedures, nor the Financial Management Division's draft procedures, were completely sufficient.
- (2) Although Federal agencies are required by the terms of the IAGs to provide EPA with itemized costs, by research project, on reimbursement vouchers (form 1081), some project officers have not been ensuring compliance with this requirement.
- (3) Due to the lack of detailed cost data on the reimbursement vouchers, EPA's accounting system did not identify funding for individual IAG projects or track project disbursements against authorized project funding levels.
- (4) Some project officers had not received adequate guidance and training and were unaware of their responsibilities for administering and monitoring IAG projects. In addition, lack of staff and travel funds were cited by some ORD officials as having an adverse impact on project management. The problem of limited travel funds was pointed out in previous chapters of our report.

We discussed the above matters with officials of the Office of Administration, including the director of the Office of Fiscal and Contracts Management, the director of the Grants Administration Division (GAD), and a senior representative of the Financial Management Division (FMD). These officials agreed, in general, with our review results and advised us of some recent actions that had been taken to improve IAG management, including a recent transfer of responsibilities for IAG administration from the FMD to the GAD. We included, where appropriate, a discussion of these actions and the officials' comments below.

SCOPE AND METHODOLOGY

During fiscal 1981, ORD funded 155 IAGs for a total of about \$43.2 million. We selected 26 of these IAGs valued at over \$100,000 each which totaled about \$32.4 million. Of the above 26 IAGs, we reviewed 9 umbrella agreements and 17 conventional agreements. Umbrella IAGs are agreements under which EPA is mandated by OMB or Congress to enter into agreements with several other Federal agencies. Under conventional agreements, EPA determines whether another Federal agency should perform research-related activities and then selects the appropriate agency.

We also reviewed applicable EPA orders, ORD procedures and manuals, and IAG project files. We interviewed officials at ORD Headquarters and laboratories at RTP and Cincinnati. We focused our review on administrative and financial controls. In addition, we reviewed only those IAGs between EPA and other Federal agencies whereby EPA purchased goods or services in exchange for monetary reimbursement.

BACKGROUND

An IAG is a written agreement between EPA and other Federal agencies or a State or local government. Through these agreements, EPA can provide or receive goods from another agency in exchange for monetary reimbursement; services can be provided with or without monetary reimbursement.

EPA's statutory authority to enter into such agreements is provided in the Economy Act of 1932 [31 U.S.C 686(a)]. Further, under individual congressional acts such as the Clean Air Act and Solid Waste Disposal Act, EPA is authorized to enter into joint projects with other Federal agencies where the services of private contractors can be obtained by either agency.

The bulk of total IAG funding was concentrated in a relatively few IAGs. In fiscal 1981, ORD's Office of Environmental Processes and Effects Research (OEPER) funded 11 umbrella IAGs amounting to about \$26.7 million (or 62 percent of the previously discussed \$43.2 million). Of these 11 IAGs, 10, totaling about \$9.6 million, were in support of ORD's Interagency Energy and Environment Research and Development program (IEEP), and the remaining one, which totaled about \$17.1 million, supported the Department of Energy (DOE) transfer program.

IEEP

The IEEP was initiated in 1974 to achieve independence from foreign oil. To fund the program, EPA was mandated by both OMB and Congress to provide research funds to the participating Federal agencies. The IEEP was originally designed to allow these agencies the flexibility of being responsible for their own resources and implementing specific legislative responsibilities with limited EPA involvement and control. However, recognizing that this program was not as responsive to EPA's legislative mandates as it could have been and that project activities needed more effective monitoring, EPA increased its involvement in fiscal 1979.

The director of the Office of Research Program Management stated that EPA has funded a total of about \$163.6 million from fiscal years 1974 through 1981 for the IEEP. He also stated that ORD expected to fund \$8.7 million and \$2.3 million for this program in fiscal 1982 and 1983, respectively.

DOE Transfer Program

In 1979 OMB directed that DOE transfer research projects totaling about \$14 million to EPA. These projects pertained to conventional technology, health, and environmental effects research. In addition, the OMB directive required EPA to transfer to DOE projects pertaining to energy-related control technology for synthetic fuels. According to ORD officials, although projects were transferred to DOE, OMB directed EPA to support research projects being performed at DOE's national laboratories through fiscal 1980.

The director of the Program Operations Staff, OEPER, stated that EPA funded a total of about \$44.9 million from fiscal years 1974 through 1981 for the DOE transfer program. She also stated that ORD expected to fund \$9.9 million and \$1.6 million for this program in fiscal years 1982 and 1983.

ACTIONS NEEDED TO FINALIZE AND IMPROVE IAG PROCEDURES

Although in draft stages since July 1980, procedures governing the administration of IAGs had not been finalized by the Office of Administration at the time of our review. In addition, we found that the draft procedures could be further strengthened to ensure that IAG projects are more effectively administered and managed. In our opinion, aggressive action needs to be taken to improve, finalize, and disseminate these procedures to all project officers so that they are made fully aware of their IAG responsibilities.

The FMD assumed responsibilities for administering IAGs from the Procurement and Contracts Management Division in April 1980. The Cincinnati Financial Management Office (CFMO) was designated by FMD to be the lead financial management center for IAGs and was given responsibility for implementing IAG policies and procedures. In July 1980, CFMO prepared the initial draft of the proposed IAG policies and procedures. Although these draft procedures were further refined on February 11, 1982, they have not been finalized.

These procedures were updated in June 1982 to further clarify IAG policies and procedures. However, our preliminary examination of them revealed that they were essentially the same as the February 1982 draft. We were also informed by an official of FMD that responsibilities for administering IAGs, including finalizing IAG procedures, were transferred to the Grants Administration Division (GAD) in November 1982. According to a GAD memorandum dated July 9, 1982, since administering IAGs was quite similar to administering grants, the transfer was intended to improve the overall management and control of IAGs. The director of GAD also advised us that his office was reviewing all existing and proposed IAG procedures and expected to issue final IAG procedures by the end of fiscal 1982.

We compared FMD's February 11, 1982, draft procedures with (1) existing IAG procedures contained in the Contracts Management Manual (CMM) dated February 19, 1980, and (2) EPA Order 1610.1A, Interagency Activities--Interagency Agreements, dated October 1, 1973. (The EPA order was superseded by the CMM.) Our comparison revealed that the draft FMD procedures did not include some important provisions which were included in the CMM and EPA Order 1610.1A.

We found that the draft FMD procedures require project officers to notify the servicing Financial Management Office that work has been performed or services or goods have been received. In contrast, the CMM procedures [paragraphs 5.c.(3) and 7.b.(2)] are more detailed and require project officers to review and certify reimbursement vouchers from other Federal agencies to ensure that work was performed in accordance with the terms of the agreement. In addition, we noted that neither the draft FMD procedures nor the CMM procedures required that the terms of IAG's include the provision that other Federal agencies must submit such vouchers with itemized costs by research project. However, EPA Order 1610.1A contained billing instructions for agreements which were to be paid through an advance of funds or on a reimbursement basis and required that all bills be itemized. Finally, none of these procedures (1) addressed program office responsibilities for receiving and reviewing detailed project cost information during the course of project performance or (2) provided guidance to program offices to enable them to provide EPA accounting offices with sufficient accounting data to enable EPA's accounting system to identify and track disbursements for individual projects.

RECEIPT AND REVIEW OF FINANCIAL INFORMATION
BY PROJECT OFFICERS AND ACCOUNTING FOR IAG COSTS

IAG terms require that EPA receive detailed cost information by project (either on vouchers paid on a reimbursement basis or from quarterly financial status reports for IAGs paid through an advance of funds). Our review disclosed that (1) ORD project officers had not always been ensuring that such information was submitted on reimbursement vouchers and (2) project officers in Cincinnati and Headquarters were not receiving or reviewing quarterly financial status reports available from the CFMO. We reviewed vouchers submitted under 13 IAGs and determined they only provided lump sum amounts without any detailed cost information. During our discussions with project officers at Headquarters and the laboratories, we found that project officers certified reimbursement vouchers authorizing EPA accounting offices to disburse funds even though these vouchers did not provide detailed cost information by project. As a result of not receiving detailed cost information, ORD project officers did not have sufficient financial information to provide reasonable assurance that the other agencies complied with IAG terms. Nor were the project officers able to use EPA's accounting system to identify project funding or track disbursements against authorized project funding.

At Cincinnati, we found that quarterly financial status reports were received by the Financial Management Office, but not forwarded to the project officers for use in monitoring. The quarterly financial status reports provided detailed project cost information and, at the time of our review, were required by the terms of IAGs receiving an advance of funds. Generally, project officers advised us that they were required to certify only the technical aspects of projects and were not required to review or certify the financial aspects. The following example illustrates the need for project officers to more effectively review detailed project cost information and for EPA's accounting system to track disbursements for each project funded.

In fiscal 1981, the OEPER funded an umbrella agreement with the DOE for about \$17.2 million. This amount represented about 40 percent of the \$43.2 million which ORD funded for the above 155 IAGs in fiscal 1981. Article X of this agreement required that requests for reimbursement be itemized by research project and amounts to be reimbursed for operating costs and capital equipment be shown separately. The agreement also required that individual project costs could not exceed authorized funding by more than 10 percent.

We selected a subagreement under this IAG with DOE, Oak Ridge National Laboratory (ORNL), for review. This subagreement funded 17 research projects valued at \$2.9 million, ranging from a low of \$52,000 to a high of \$726,000. Our review of ORNL vouchers submitted to EPA disclosed that these vouchers did not identify the costs of each project for which reimbursement was requested. At the present time, such vouchers show only a lump sum amount without itemization of the costs incurred by project or by object class (salaries, travel, supplies, equipment, etc.). However, in late July 1982, we were informed by the Acting Director, Energy and Air Division, OEPER, that a memorandum was prepared requesting other Federal agencies to provide itemized information in support of requests for reimbursements.

The lack of detailed project cost information precluded use of EPA's accounting system to track disbursements for each of the 17 projects funded under this subagreement. The 17 projects were funded by 5 program elements (a program element is a 6-digit number which represents a distinct program activity, including the appropriation, budget activity and program area) and were identified in the accounting system under five document control numbers. Although the accounting system did track disbursements against total authorized subagreement funding, it did not identify individual project funding (e.g., 5 document control numbers were identified but the 17 projects being funded were not), or track disbursements against these authorized projects. At the time of our review the CFMO was disbursing funds from each account number until the total authorized subagreement funding was reached. (Appendix F illustrates the funding of projects under this subagreement.) Consequently, project officers were unable to determine whether reimbursement to ORNL had exceeded authorized project funding levels by more than the 10 percent limitation.

The director of CFMO, stated that EPA program offices were responsible for providing sufficient accounting data to track project costs. However, he stated that the director of OEPER informed him that OEPER was only interested in tracking total subagreement disbursements. A senior representative in FMD agreed with the need to track individual project costs to ensure compliance with the terms of the agreement. He also stated that the tracking could easily be performed by program offices if Federal agencies provided detailed cost information in support of vouchers. The acting director of FMD informed us that it was not a standard practice for other agencies to provide detailed cost information on vouchers requesting reimbursements because there are no clear requirements. However, he stated that such information may be requested in the future.

We believe that project management and internal controls over expenditure of EPA funds could be improved if Federal agencies were required to submit detailed project cost information. Additionally, we believe EPA's accounting system should track disbursements for individual projects to provide project officers and other EPA officials with reasonable assurance that authorized funding for these projects will not be exceeded. By requiring full disclosure of project costs expended, the project officer, as well as other EPA officials, could compare costs expended against the itemized list of major object classes included in the project budget. In turn, this comparison could provide EPA officials with reasonable assurance that the other Federal agencies incurred costs in the same manner as originally budgeted and complied with IAG terms. Unless detailed project cost information is reviewed at the beginning and during the entire project period, we believe that: (1) excessive funds could be obligated by EPA, (2) funds authorized for one project could be used on other projects and as a result the technical progress of some projects could be adversely affected, and (3) EPA could be put in a position of having to reimburse another agency for unauthorized work. ✓

PROJECT MONITORING AND ADMINISTRATION

Some project officers we interviewed were not fully aware of their responsibilities for monitoring and administering IAG projects. ORD officials also cited lack of staff and limited travel funds as adversely affecting project management. In addition, our review of several IAG project files at ORD Headquarters and laboratories located at RTP and Cincinnati, as well as discussions with personnel at these locations, disclosed that the files have not been adequately maintained as required by EPA procedures. ✓

In our opinion, part of the above problems stem from ORD project officers not always receiving written guidance regarding their project management responsibilities. As discussed in chapter 1 of this report, ORD needs to institute a more effective mechanism for disseminating policies and procedures. In addition, as discussed in some of the preceding chapters, various ORD officials have expressed concern that limited travel funds have adversely impacted project monitoring.

In February 1982 the Office of Administration established a program to ensure that only qualified program personnel are assigned to perform as project officers under contracts. We believe all project officers, including those responsible for IAGs, should be required to attend this course to further ensure that project officers are fully qualified to effectively discharge their responsibilities. ✓

Project Monitoring

Three Headquarters project officers responsible for projects under umbrella IAGs were uncertain about their responsibilities concerning managing and monitoring their projects. One of these project officers said that he had not received training or guidance as a project officer and was not aware of all the documentation requirements to support his projects. In addition, the acting director of the Energy and Air Division, OEPEP, told us that project officers were not able to conduct intensive project monitoring due to insufficient staff and file space. ✓

The director of the Office of Research Program Management informed us that OMB had approved only eight positions to manage and monitor the IEEP and the DOE transfer programs. He also informed us that the lack of adequate staff positions, coupled with travel fund limitations, resulted in varying degrees of success in ensuring that all research conducted under these two programs continued to be relevant to EPA needs. He further advised us that in fiscal 1981 ORD changed these two programs by (1) transferring most of the day-to-day project management responsibilities to ORD laboratories and (2) starting a program planning and evaluation process aimed at redirecting these programs so that they can be more responsive to EPA's regulatory needs. In his opinion, as a result of these changes and decisions within EPA and OMB, these programs were better focused and were probably more effectively managed and monitored.

As previously discussed, we believe the Office of Administration's project officer certification course should help to ensure that project officers more fully understand and effectively discharge their responsibilities concerning project management and monitoring. Although this course is intended for program personnel assigned as project officers, under contracts, we believe this course would benefit all project officers including those responsible for IAG projects. We recognize that some persons may be assigned as project officers under contracts as well as IAGs and therefore will be required to be certified as project officers. However, we believe that ORD should still take the necessary actions to ensure that all ORD project officers are adequately trained and fully understand their responsibilities for project monitoring. In this regard, ORD management should ensure that all of its project officers attend the project officer certification course. ✓

Project File Documentation

We found that ORD laboratory project officers generally maintain complete, specific, and required documentation in their project files. In contrast, project officers in the ORD Energy and Air Division (OEPEP) generally did not. They cited lack of staff or insufficient filing space as the primary reasons. We believe files should be adequately maintained by all ORD project officers to further ensure sound project management and compliance with IAG terms.

The CMM places responsibilities on project officers for certifying billings, negotiating proposed IAGs and maintaining official IAG files. According to the manual, the EPA originating office responsible for the IAG is to develop and retain as part of the official IAG file, documentation to support: (1) the agreement's purpose, justification, and duration; (2) an estimated project cost, itemized by major cost element, including any future funding; and (3) justification for selecting the performing agency including a statement explaining why the work should not be accomplished with a private firm in accordance with OMB Circular No. A-76.

In addition, project officers are required by the CMM to retain, as part of their official IAG files, substantive correspondence and reports or other project deliverables (e.g., progress reports). However, our review of files maintained by project officers in OEPR disclosed that the following information was not always maintained in project files:

- ° An itemized list of major cost elements by project, such as direct labor, supplies, materials, equipment, and indirect expenses.
- ° A statement which justifies the selection of the performing agency and explains why the work should not be accomplished by direct contract between EPA and a private firm as required by OMB Circular No. A-76.
- ° Trip reports to document results of project officers' site visits.

According to the acting director of the OEPR, a project officer's main responsibility is to ensure, among other things, that another Federal agency's products are scientifically acceptable and commensurate with EPA program office needs. He advised us that project officers in his division usually maintained current IAG files. However, such files were not centrally located and did not contain all required documentation due to insufficient staff and office space. He stated, however, that files generally contained documentation relative to the IAG subagreements, reports or outputs, and other relevant correspondence. In contrast, two OEPR project officers told us that due to lack of guidance they developed their own methodology for filing. One project officer said he maintained a file that contained the IAG, laboratory operating plans, and status reports, while another project officer said he did not, because he believed such documentation should be maintained elsewhere in the division.

Finally, project officers have not always been required to prepare trip reports after making project site visits. As a result, such reports have not been available as part of official IAG files. According to one project officer at the Cincinnati Industrial Environmental Research Laboratory (IERL), one project officer in the ORD Headquarters Office of Environmental Engineering and Technology (OEET) and two project officers in OEER, trip reports are not required after making site visits. These officials stated that trip reports are prepared only if problems are noted or the project needs management's attention. In contrast, discussions with project officers from other offices disclosed that trip reports are prepared regardless of problems. Although such reports are not required, ORD management should encourage ORD project officers to prepare and maintain them in project files to further enhance monitoring and management's ability to evaluate individual IAG projects.

RECOMMENDATIONS

- (1) We recommend that the Acting Assistant Administrator for Research and Development:
 - (a) Disseminate to all project officers and other officials responsible for project management and monitoring, guidance regarding receipt and review of detailed project cost information submitted by other Federal agencies.
 - (b) Ensure that ORD project officers submit sufficient accounting information to the Financial Management Office to enable it to effectively monitor the projects and to ensure that EPA's accounting system tracks obligations and disbursements by project.
 - (c) Initiate a review of all ORD-funded IAGs and, where appropriate, request other Federal agencies to submit itemized vouchers broken down by research project with details of cost expended by object class.
 - (d) Establish an ORD policy for standardizing official IAG files, and issue instructions to all project officers on proper file maintenance, including documentation.
 - (e) Ensure that all program personnel assigned as project officers under IAGs attend the project officer certification course.
 - (f) In conjunction with recommendations in chapters 1 and 2, evaluate the impact that limited travel funds have on the effectiveness of IAG project monitoring.

(2) We recommend that the Assistant Administrator for Administration:

- (a) Finalize and disseminate new procedures governing the administration of IAGs as expeditiously as possible.
- (b) Incorporate a requirement in draft and final IAG policies and procedures to ensure that:
 - ° Project officers review and certify reimbursement vouchers to ensure that there is a proper expenditure of project funds and that work has been performed in accordance with the terms of the agreement;
 - ° The terms of IAGs include a clear requirement to provide EPA with detailed project cost information;
 - ° EPA program offices clearly understand their responsibilities regarding receipt and review of detailed project cost information submitted by other Federal agencies; and
 - ° Program offices provide sufficient accounting information to FMD to enable EPA's accounting system to track obligations and disbursements by project.

MANAGEMENT RESPONSE

The Acting Assistant Administrator for Research and Development did not offer comments on the above recommendations. The Assistant Administrator for Administration stated that he generally concurred with the recommendations contained in the chapter. He stated that audit concerns have been addressed in the reorganization of the interagency agreement management functions into OA's Grants Administration Division. He stated that the Grants Administration Division will have responsibility for legal and administrative management of interagency agreements, including maintenance of official files, execution of agreements, and management as the action office. In his opinion, these responsibilities will enhance ORD's use of interagency agreements and he stated that OA's draft interagency agreement procedures are being discussed with ORD to ensure that their respective technical, legal and administrative management responsibilities are properly integrated. He also stated that OA expected to issue final reviewed and approved procedures by November 1, 1982. However, according to a senior official of the Grants Administration Division, interim IAG procedures were issued in January 1983 with finalized IAG procedures expected to be effective on May 31, 1983.

The Assistant Administrator for Administration also stated that historical difficulties in tracking individual projects have occurred because other Federal agencies billed EPA in one lump sum and did not identify specific project costs. Further, he commented that the draft procedures will require that an interagency agreement be separately prepared for each specific proposed project. He stated that these individual cost estimates will be available to project officers, and the project officers will review and approve vouchers. He also stated that these changes should remedy the difficulties highlighted in the draft recommendations 2a, b, and d, and that detailed guidance regarding OA responsibilities will be made available to all ORD officials who need to be involved in the initiation, negotiation, development, monitoring and determination of interagency agreements. Finally, he stated that this guidance would be available before the end of this calendar year, and that general training can be provided to all lab coordinators and pertinent Headquarters, ORD staff to ensure that the procedures effected (May 31, 1983), are used correctly.

OIG COMMENTS

We encourage the Assistant Administrator for Administration to finalize IAG draft procedures as soon as possible. We believe the draft procedures and other improvements OA has taken are positive steps in increasing controls over IAGs. However, we also believe OA must ensure that once these procedures and changes are in place, that they effectively address problems we have identified, and are enforced on an agency-wide basis.

CHAPTER 5

COMPETITIVE GRANTS PROCESS AND ACTIVITIES

The Office of Research Grants and Centers' (ORGC's) process for administering competitive research grants generally appeared adequate. Our examination of the scoring, ranking, and resulting funding decisions of four peer review panels during fiscal 1981 disclosed that the most highly ranked grant applications were usually funded. However, we also noted some areas which we believe ORD needs to address to further improve ORGC operations:

- (1) Requiring ORGC science review administrators (SRAs) should be required to maintain readily available documentation to support grant application funding decisions;
- (2) Adoption of a formal ORD-wide mechanism should be considered to track by project, congressionally mandated long-term research and development funding; and
- (3) The existing workload of SRAs and its impact on their ability to effectively monitor grant projects should be evaluated.

We discussed the above areas in August 1982 with the director of the Office of Exploratory Research (OER). He agreed, in general, with the above improvements and advised us that OER was initiating a review of ORGC and that the results of our review would be helpful. OER's review is discussed below.

We also explained to the director of OER that because SRAs did not always maintain readily available documentation to support decisions on funding grant applications, we were unable to determine the accuracy or appropriateness of some decisions. Therefore, we requested that the director review selected grant and funding decisions we had noted during our review of peer panel activities for fiscal 1981. We also requested that upon completion of this review, the director advise us of the appropriateness of such decisions, along with any available supporting documentation. In late October 1982, the director of OER provided an explanation of the above funding decisions along with additional supporting documentation. Based on our review of this information and follow-up discussions with the director of OER, it appeared that these decisions were appropriate.

In addition, as part of our overall objectives, we initially planned to assess grant results. However, because ORGC had only been in existence since January 1980, and consequently very few (only four) grants had been completed during our review, we were unable to assess, overall, whether research administered by ORGC benefited ORD or EPA program offices in meeting their responsibilities. Projects being funded through these grants are generally of a long-range nature (generally more than 2 years).

Furthermore, our review disclosed that there had been great concern expressed by some EPA officials, including ORD laboratory directors, in the last couple of years about (1) the perceived lack of relevancy and usefulness of competitive grants administered by ORGC; (2) the adequacy of grant solicitation packages; (3) the lack of a defined research grants program; and (4) weaknesses in the ORD office director's relevancy review. Although we discuss these concerns in general below, an evaluation of their validity would have been outside the scope of our review. Some of these concerns were being addressed by the Acting Assistant Administrator for Research and Development.

We met with the Acting Assistant Administrator for Research and Development in late August 1982. He informed us that he recognized the need to evaluate ORGC's current operations and that the previously discussed review by the director of OER would focus on such areas as administrative controls over the peer review process, including the selection of peer panel chairpersons; SRA responsibilities and the adequacy of controls governing their responsibilities; effectiveness of grant monitoring; and adequacy of the relevancy review by ORD office directors. According to a senior OER official, this review which is still on-going is expected to be completed in March 1983.

We believe that the above review is a positive step and we encourage ORD management to pursue it aggressively. In our opinion, the review should assist ORD in isolating the causes of concerns brought to our attention so that effective solutions can be offered. As part of the solutions, we believe ORD should take steps to correct the deficiencies noted on page 81.

SCOPE AND METHODOLOGY

We conducted our review primarily at the ORD Headquarters ORGC. We interviewed various ORD officials including the directors of the OER and the ORGC.

We reviewed a sample of grant projects out of a universe of 102 new grants awarded in fiscal 1981 which totaled about \$15.6 million. We selected 20 of these grants which totaled about \$5.3 million, or about 34 percent of the dollar value of the universe. We did not select any completed grants because, as previously stated, ORGC has only been in existence since January 1980, and only four grants awarded since then had been completed. We focused our review efforts on the controls and the administration of the grants process. We examined the scoring and ranking of the fiscal 1981 grants reviewed by three peer review panels (1) environmental biology, (2) environmental engineering and pollution control processes, and (3) health effects.

We verified the scores received by ORGC from all three reviews (peer, relevancy, and long-term significance) in our sample to the source documentation. We also verified to the Grants Information System (GICS) those grants that were recommended for award. However, we did not interview panel chairpersons or review records which they personally maintained because these individuals were at geographically dispersed locations.

BACKGROUND

The ORGC's competitive grants program was established, in part, as a result of the congressional mandate in November 1977 (Public Law 95-155) which required EPA to "...establish a separate program to conduct continuing long-term environmental research and development...." This Act also required that at least 15 percent of ORD's appropriated research funds be allocated for long-term environmental research and development.

The ORGC, which became operational in January 1980, is a part of the OER. These offices were established by the ORD in response to recommendations made by an internal ORD review group to improve the process for evaluating competitive grant applications. The OER's primary responsibilities include administering the research grants and centers program, the minority institutions research support program, and the scientific assessment program.

In general, the objective of ORGC's competitive research grants program is to encourage highly qualified scientists to initiate research projects which will provide a long-range scientific base for EPA's regulatory responsibilities.

Description of the Competitive Grants Review Process

A grant is awarded when no substantial involvement is anticipated between EPA and the State or local government or any other recipients during the performance of the contemplated activity.

Applications received by EPA are considered for a research grant provided: (1) the project is for research (as compared with development, demonstration, survey, or preparation of material and documents); (2) the project is of a long-range nature; (3) the project is germane to EPA's mission; and (4) the grantee is eligible to apply under the various Federal laws which authorize EPA to award research grants.

Before a decision is made to fund a grant application, it is presently subjected to two types of reviews: a peer review and a relevancy review by ORD office directors.

Peer Review

Each grant application received by ORGC is sent to one of five peer review panels, where at least two panelists perform a detailed review of the grant application for scientific merit and quality. Each panel meets three times a year and is headed by a chairperson. These panels and areas of responsibility include:

- (1) Health Research: reviews grant applications that provide a scientific basis upon which the Agency can make regulatory decisions concerning the protection of human health from environmental pollutants.
- (2) Environmental Engineering and Pollution Control Processes: reviews grant applications that supplement ORD's activities by stimulating scientific and technical research fundamental to pollution control advances.
- (3) Environmental Chemistry and Physics--Air: reviews grant applications that develop the scientific tools and information generally needed to guide EPA and the States in making regulatory decisions.
- (4) Environmental Chemistry and Physics--Water: same as Environmental Chemistry and Physics--Air, but the grants relate to water.
- (5) Environmental Biology: reviews grant applications involving the examination of ecological effects of pollutants and abatement practices.

According to ORGC, these panels are composed of leading scientists from both academia and various EPA research facilities. However, no more than 20 percent of each panel's membership can be from EPA laboratories. Each panel chairperson (who is not employed by EPA) is nominated by the Director, ORGC, and approved by EPA's Science Advisory Board. Final selection, however, is made by the Acting Assistant Administrator for Research and Development.

When the detailed review is completed by the individual panelists, the review results are presented to the entire peer review panel for a decision on the application's merit. In making this decision, the panelist gives the application a score between 0 and 100. Applications with a score of 60 percent or lower are rejected by the panel. Approved applications are forwarded to the appropriate ORD office director for a relevancy review.

Office Directors' Relevancy Review

ORD Office Directors review grant applications to ensure that they are relevant to EPA's mission and program area (air, water, toxic substances, etc.) responsibilities. Upon completion of their review, the directors assign each approved grant application a score between 0 and 100. This score denotes the degree of relevance.

Ranking of Grant Applications

ORGC ranks each application according to the results of the above reviews. Based on percentage weights, ORGC then gives each application an overall score not to exceed 100 percent. After being scored, applications were ranked in descending order. Based on their overall numeric ranking, ORGC then makes a recommendation to the Assistant Administrator for Research and Development to fund individual grants.

GRANT APPLICATION REVIEWS AND FUNDING DECISIONS

Our review of the results of three peer review panels disclosed that ORGC SRA's have not always maintained readily available documentation to support grant funding decisions. However, we found that grant applications receiving the highest scores from the peer review panels, ORD office directors, and director of OER were ranked accordingly and usually funded according to rank. However, several grant applications, although ranked higher than some other applications which were funded, had to be recompeted in a subsequent panel cycle due to lack of funds in various program elements. Because supporting documentation was not readily available, we were unable to reach a conclusion on the appropriateness of such decisions. However, as previously discussed, the director of OER has reviewed certain decisions and provided us with additional supporting documentation. Based on our review of the information, and followup discussions with the director of OER, these decisions appeared appropriate.

We examined the scoring, ranking, and resulting funding decisions for three peer review panels during three cycles in fiscal 1981: environmental biology, environmental engineering and pollution control or processes, and health effects. The following table describes activities over the three cycles.

Environmental Biology

A total of 96 grant applications were reviewed by this panel during the three cycles. Of these, 26 were funded, 42 were recompeted, and 28 were rejected. Overall, grant applications which ranked the highest were generally funded in all three cycles. We noted, however, that six applications in cycle 2 and three applications in cycle 3 were either recompeted in the next peer review panel cycle or were rejected even though 8 grant

applications with lower scores were funded. Grant applications were recompeteted generally because there were no funds in various program elements in this cycle. Except for footnotes to summary ORGC worksheets, however, there was no readily available documentation to support these funding decisions.

Environmental Engineering and Pollution Control Processes

A total of 45 grant applications were reviewed by this panel during the three cycles. Of these, 19 were funded, 4 were recompeteted, and 10 were rejected. Overall, grant applications which were ranked the highest were generally funded. However, we noted that one grant application in cycle 1 was rejected, but had a higher score than 2 other applications which were funded. Again, other than footnotes on the ORGC summary worksheets, there was no readily available documentation to support funding decisions, including the need to recompetete applications.

Health Effects

A total of 120 grant applications were reviewed by this panel during the three cycles. Of these, 52 were funded, 18 were recompeteted, and 50 were rejected. Overall, we found that the highest ranked grant applications were generally funded. However, we also noted that there were three applications in cycle 1 that were not funded, although three other applications with lower rankings than these applications were funded. Of the three which were not funded initially, one was under the radiation program, for which no funds were budgeted, one was funded in the third cycle, and the final application was recompeteted in the second cycle, but was subsequently rejected due to a lack of funds. In cycle 2, two grant applications were not funded even though they had higher scores than two other applications that were funded. Again, there was no readily available documentation to support these decisions.

We believe that SRAs should maintain readily available documentation to fully support funding decisions and actions. Although SRA worksheets sometimes explained through footnotes why grant applications have been recompeteted or rejected, we were unable to fully verify such decisions. We believe such documentation will not only assist in an independent verification of such decisions and provide a necessary "audit trail," but also enhance the objectivity of the peer panel process.

SRA WORKLOAD AND GRANT MONITORING

Our review disclosed that some SRAs' project workload appeared to be too heavy to ensure effective monitoring. However, the Acting Assistant Administrator for Research and Development planned to transfer responsibility for monitoring new grant awards to ORD laboratories, effective October 1, 1982. At the time of our review, this decision was being held in abeyance pending completion of the previously discussed review by the director of OER.

During our review, ORGC had seven SRAs assigned to the five peer review panels. As part of this responsibility, SRAs serve as project officers over each grant awarded by the panels. During fiscal 1981, these SRAs were responsible for about 250 grants. In addition, SRAs assist the panel chairpersons in operating the panel and are responsible for a number of other duties, including: (1) assisting in the preparation of the grant solicitation package; (2) screening and forwarding grant applications to appropriate peer review panels; (3) monitoring peer review panels for compliance with policies and procedures established by ORGC; (4) recommending grant applications for funding (based on peer review and available funding); (5) monitoring the progress of grants (by serving as project officers); (6) recommending grants for continued funding; (7) recommending grants to be closed out; and (8) providing a means to disseminate grants results.

SRAs are required to monitor the progress of grants as a part of their project management responsibilities. The Grant and Cooperative Agreement Act of 1977, section 5(2), provides SRAs with general guidance concerning their monitoring responsibilities. According to two SRAs, there are no written instructions regarding their monitoring responsibilities. They told us that they do, however, ensure compliance with the grant conditions.

Because research grants do not require substantial involvement on the part of EPA, such monitoring is normally done by reviewing semiannual progress reports submitted by grantees as well as through discussions with principal investigators at periodic ORGC seminars. Based on our August 1982 examination of various documents and worksheets, as well as interviews with two of these SRAs, we found that SRAs appeared to be adequately tracking progress reports. However, we noted that the number of grants being monitored by these four SRAs varied. The following table shows the number of grants being monitored.

<u>SRA</u>	<u>Panel</u>	<u>Time Period</u>	<u>Number of Grants Monitored</u>	<u>Percent of Total</u>
1	Health Effects	FY 1980-81	62 ^{1/}	34
2	Environmental Engineering and Pollution Control Processes	FY 1980-81	55	29
3	Environmental Chemistry And Physics -Air	FY 1980-81	29	15
4	Environmental Biology	FY 1980	42 ^{2/}	22
Total			<u>188</u>	<u>100</u>

Note: Number of Grants monitored $\frac{188}{4} = 47$ Average
Number of SRA's

^{1/} As of August 1982, this SRA and his assistant were monitoring 90 grants.

^{2/} Information was available for fiscal 1980 only.

As shown in the above examples, these four SRAs monitored an average of 47 projects during fiscal 1980 and 1981. The number of grants monitored by these SRAs ranged from 29 to 62. In addition, one SRA told us that he was responsible for about 90 projects as of August 1982.

In a memo dated April 20, 1982, the Acting Assistant Administrator for Research and Development outlined a decision to transfer responsibilities for monitoring new grant awards to ORD laboratories, effective October 1, 1982. His reasons were that (1) the process would reduce the number of people needed in Headquarters to monitor grant research projects, thus reducing the need to employ Intergovernmental Personnel Act (IPA) staff; and (2) laboratory project officers would benefit by closer association to more basic long-term research as well as to the applied research which they currently direct.

The Director of ORGC disagreed with this decision. In a memorandum dated May 11, 1982, he stated that by their nature, grants require minimal involvement by the Agency during the course of research, and more intimate association by project officers would be contrary to the intent of the Grant and Cooperative Agreement Act of 1977. He further stated that, while all ORGC research is monitored through progress reports, as well as the principal investigator's attendance at ORGC seminars, the project officer intervenes only when it is apparent that contact is necessary or the principal investigator needs guidance, possibly through a site visit.

In late August 1982, the Acting Assistant Administrator told us that his decision to transfer new grant monitoring to ORD laboratories was being held in abeyance pending the results of the previously discussed review by the director of OER. He also stated that his primary reason for wanting the laboratories to monitor grants was to get laboratories involved because of the amount of research being performed at the laboratory level.

In our opinion, ORD's plan to transfer new grant monitoring responsibilities to various laboratories is plausible. However, we believe that before a final decision is made, the concerns raised by the Director of ORGC need to be effectively addressed. In addition, this decision should ensure that SRAs will be effectively utilized after the transfer takes place.

TRACKING LONG-TERM RESEARCH FUNDING

The ORD does not have a formal mechanism to track congressionally mandated long-term environmental research and development funding by project. However, the director of the ORPM stated that in his opinion such a mechanism was really not necessary because ORGC accounted for most of these funds through the grants and centers program.

In a memorandum dated June 2, 1982, the director of the ORPM stated that "the Office of Exploratory Research Grants and Centers of Excellence were funded through a percentage set aside (15 percent) as stipulated in the Environmental Research, Development, and Demonstration Authorization Act of 1981. The percentage was applied against EPA's extramural research programs and the funds were used to support the competitive grants program (universities and colleges). The funds also provided operational support for eight centers of excellence."

The director of the ORPM also provided us with a breakdown of extramural funding directed at long-term environmental research and development activities. The following chart shows funding to meet the congressional mandate.

<u>Fiscal</u>	<u>R&D Appropriation (In Millions)</u> (1)	<u>Funding for Long-Term R&D</u> 4/ (In Millions) (2)	<u>Percent of Funding to R&D Appropriation</u> (2 ÷ 1)
1981	\$234.9 1/	\$26.4	11.3
1982	\$154.3 2/	\$20.3	13.2
1983	\$108.7 3/	\$13.5	12.4

1/ Based on ORD's final operating plan.

2/ Based on ORD's initial operating plan.

3/ Estimate based on 1983 President's budget.

4/ Extramural research funding - grants and centers.

The above chart shows that the amount of funds provided in each fiscal year for long-term environmental research and development was slightly less than the mandated 15 percent. However, the director of ORPM stated that the percent of total funding directed at long-term research is significantly greater than 15 percent, because ORD also provides funding for in-house long-term research and some cooperative agreements which are long-term in nature. In support of this, he provided us with estimates that showed total long-term environmental research (including the extramural funding in the chart above) to be 33.1 percent (or \$51.1 million) in fiscal 1982 and 36.4 percent (or \$39.6 million) in fiscal 1983.

The Environmental Research, Development, and Demonstration Authorization Act of 1981 provides that the Administrator must establish a separately identified program of continuing long-term environmental research and development for each activity in subsection (a) of H.R. bill 3115. The Act requires that, unless otherwise specified by law, at least 15 percent of funds appropriated to the Administrator for environmental research and development for each activity listed in this subsection shall be obligated and expended for such long-term environmental research and development under this subsection (42 U.S.C. § 4363). Subsection (a) of H.R. bill 3115 identified the total funds appropriated to the ORD, including the extramural funds.

The Director of ORPM told us that he interpreted the congressional mandate to mean that 15 percent of the extramural funds appropriated to the Administrator shall be used for long-term environmental research rather than 15 percent of the amounts identified in subsection (a) of H.R. bill 3115. He also stated that the ORD's extramural funds were identified in the budget as research and development funds. Therefore, he interpreted the wording of "environmental research and development" in the mandate to mean extramural funds.

We requested a legal opinion from the Office of General Counsel regarding whether the 15 percent set aside applied only to extramural research funds or to both extramural and intramural research. In a memorandum dated May 11, 1982, the Associate General Counsel stated, that: "Neither the Acts, nor their legislative histories, place any restrictions on the use of the 15 percent set-aside other than that it is to be used exclusively for long-term environmental research and development. The legislative histories behind this provision emphasize the importance of long-term studies, analyses and research which seek to advance the basic understanding of environmental matters."

We believe that ORD should consider adopting a formal mechanism to track congressionally mandated long-term research and development funding by project. Although we recognize that ORD has the means to estimate long-term funding, such a "tracking" system in our opinion should be seriously considered to provide a more reliable source of information on such funding. We discussed this matter in August 1982, with the director of OER. He stated that such a tracking system was necessary and would provide a more reliable source of information to account for the mandated 15 percent funding.

Concerns over the Quality and
Usefulness of Competitive Grants

During our review, concerns were expressed about the quality and usefulness of the research grants and centers program. In summary, these concerns included:

- (1) The grant solicitation package was too broad and general. Some EPA officials believed that a more precisely worded and highly specific solicitation package should be prepared. They believed this would result in better prepared packages, which would lead to more relevant research.
- (2) The purpose, scope, and objectives of the research grants program were not well defined.
 - (a) The relevancy review by ORD office directors was weak.
 - (b) Laboratories and research committees were providing limited input to the relevancy review.

As stated previously, we believe these concerns are important and that the Acting Assistant Administrator for Research and Development has taken action to correct some problems. However, we still believe that such concerns must be comprehensively addressed by ORD management to ensure that ORGC continues to serve the Agency in an effective manner.

RECOMMENDATIONS

We recommend that the Acting Assistant Administrator for Research and Development:

- (1) Ensure that SRAs maintain adequate supporting documentation regarding peer panel funding decisions;
- (2) Consider adopting a formal mechanism to accurately track, by project, long-term environmental research and development funding. (Implementing a system to track grants that have been awarded may require coordination with the Grants Administration Division to determine what additional data elements would be required in the grants information and control system.
- (3) Review the project workload of SRAs to ensure that, to the extent possible, projects are evenly distributed to ensure proper and continuous monitoring.
- (4) Consider all of the concerns and criticisms directed at ORGC as part of the review being conducted by the director of OER.

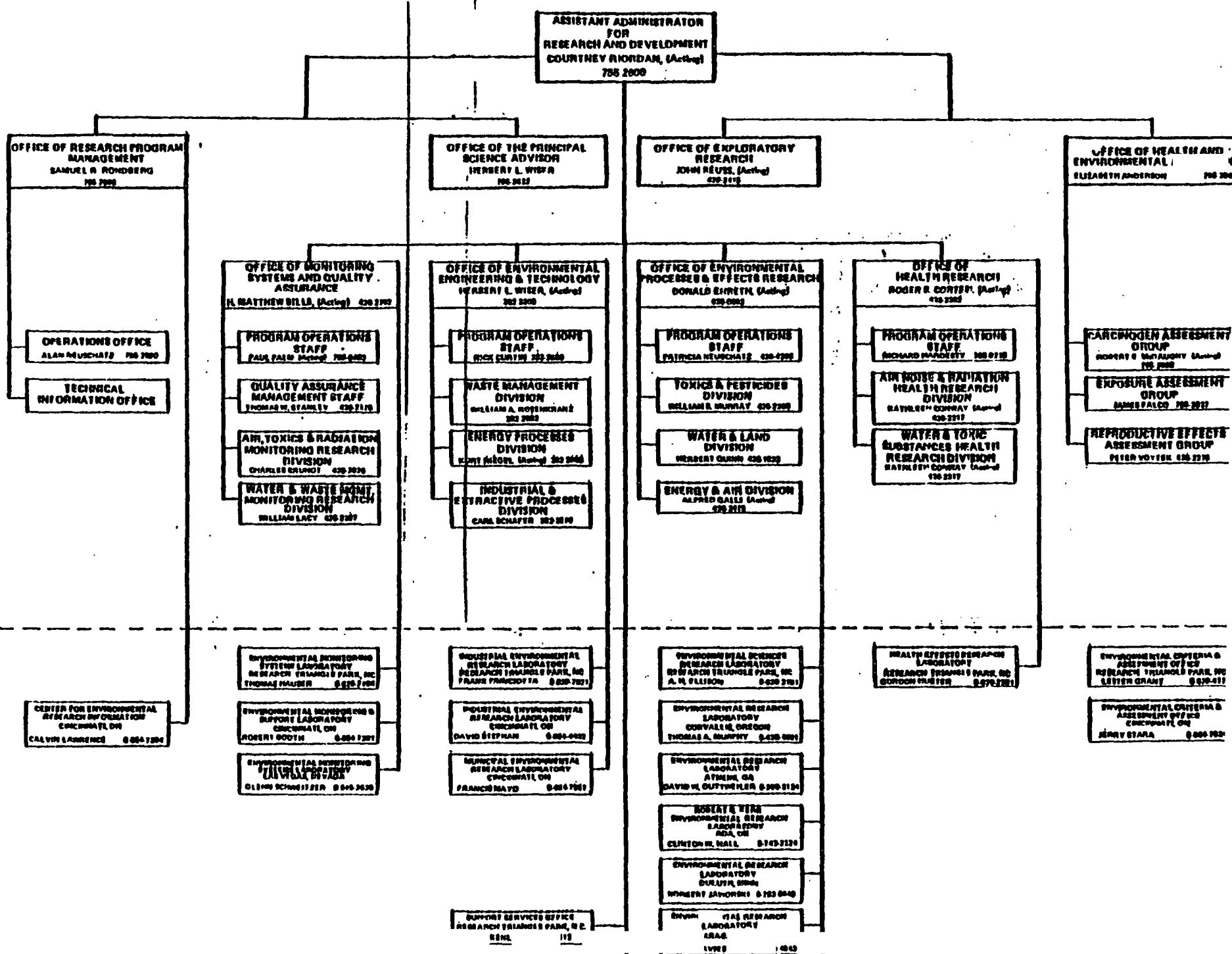
MANAGEMENT RESPONSE

The Acting Assistant Administrator for Research and Development did not offer comments on the above recommendations. However, the Assistant Administrator for Administration agreed that post-award project officer and SRA responsibilities cannot be adequately managed given present resource allocations. Further, he encouraged the transfer of project officer monitoring responsibilities after award from ORGC to the laboratories. He also stated that with respect to our recommendation regarding the 15 percent congressional set-aside, the Office of Administration interpreted this recommendation to mean an accounting system that will track information on applications prior to award, and assumed that the report is not proposing financial accounting for these funds outside the Agency's central financial management (accounting) system. In this regard, he also stated that pre-award tracking could be accomplished through modification to ORD's existing system or, once funding decisions are made, through additional data elements in the grants information and control system.

OIG COMMENTS

We revised our report to more fully clarify the recommendation regarding ORD's need to track congressionally mandated long-term research and development funding. In this regard, we have not proposed a separate ORD accounting system, but rather a more formal ORD-wide means of tracking and reporting on such funding by research project. We agree that ORD should consider developing a system to track projects by amending its information system. We also agree that ORD may have to coordinate its efforts with GAD.

6. OFFICE OF RESEARCH AND DEVELOPMENT



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RESEARCH COMMITTEES

1. Chemical Testing and Assessment
2. Pesticides
3. Radiation
4. Mobile Sources
5. Oxidants
6. Gases and Particles
7. Hazardous Air Pollutants
8. Municipal Wastewater
9. Water Quality
10. Drinking Water
11. Solid and Hazardous Waste
12. Energy
13. Hazardous Emergency Response

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DAYS REQUIRED TO COMPLETE CONTRACT AWARD PROCESS

<u>Contract</u>	<u>Days Required</u>	<u>Optimum *</u>	<u>Days in Excess of or below optimum</u>
68-02-2137	270	156	+ 114
68-02-2631	90	156	- 66
68-02-2296	360	156	+ 204
68-02-2703	330	156	+ 174
68-02-2811	360	156	+ 204
68-02-3101	15	156	- 141
68-02-3199	60	156	- 96
68-02-3162	120	156	- 36
68-02-3275	270	156	+ 114
68-02-2993	180	156	+ 24
68-02-3467	180	156	+ 24
68-02-3461	150	156	- 6
68-03-2855	82	156	- 74
68-03-2936	187	156	+ 31
68-03-6189	202	156	+ 46
68-03-2993	142	156	- 14
68-03-2795	360	156	+ 204
68-03-3004	127	156	- 29
68-03-2791	345	156	+ 189
68-03-2501	375	156	+ 219
68-03-2610	255	156	+ 99
68-03-2762	517	156	+ 361
68-03-2523	472	156	+ 316
68-03-2751	120	156	- 36
68-03-2984	180	156	+ 24
68-03-2880	225	156	+ 69
68-03-2803	465	156	+ 309
68-03-2633	195	156	+ 39
68-03-2711	165	156	+ 9
68-03-2718	255	156	+ 99
68-03-2800	300	156	+ 144
68-03-2686	172	156	+ 16
68-03-2578	660	156	+ 504
68-03-2587	105	156	- 51
68-03-2945	75	156	- 81
68-03-2483	217	156	+ 61
68-03-2567	360	156	+ 204
Total days <u>8,943</u>			

Average Number Of Days Required

Total Days Required 8943Number of Contracts = $\frac{8943}{37} = 241.7$ average

* This refers to EPA's optimum acquisition lead time of 156 days. This is the optimal amount of time it should usually take to complete the award process.

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AMOUNT OF TIME TAKEN TO OBTAIN FINAL REPORTS

<u>Contract</u>	<u>Contract Completion Date</u>	<u>Final Report Received</u>	<u>Date Received</u>	<u>Months Since Completion</u> ^{1/}
68-02-2137	01-05-80	NO	---	27
68-02-2631	07-26-81	NO	---	9
68-02-2296	07-17-81	NO	---	9
68-02-3101	06-30-81	YES	06-81	---
68-02-3287	05-18-81	NO	---	11
68-02-3162	12-05-79	NO	---	28
68-02-3275	11-30-80	YES	08-81	9
68-02-2993	01-29-81	NO	---	15
68-02-3461	06-29-81	YES	01-82	7
68-03-2855	12-21-80	NO	---	16
68-03-2936	07-23-80	NO	---	21
68-03-2795	05-01-81	NO	---	11
68-03-3004	09-22-81	YES	11-25-81	2
68-03-2501	03-03-79	NO	---	37
68-03-2610	11-30-80	NO	---	17
68-03-2984	09-12-81	NO	---	7
68-03-2880	04-07-82	NO	---	1
68-03-2803	11-14-81	NO	---	5
68-03-2633	02-25-82	YES	N/A ^{2/}	---
68-03-2711	12-14-81	YES	N/A ^{2/}	---
68-03-2718	09-30-81	YES	N/A ^{2/}	---
68-03-2800	09-25-81	YES	N/A ^{2/}	---
68-03-2686	04-21-80	YES	N/A ^{2/}	---
68-03-2578	03-15-81	YES	N/A ^{2/}	---
68-03-2587	02-25-81	NO	---	14
68-03-2945	07-31-81	YES	N/A ^{2/}	---
68-03-2483	12-24-80	NO	---	16
68-03-2567	04-16-81	NO	---	12

^{1/} As of April 1982.^{2/} Date received not available.Summary

Number of contracts requiring final reports	28
Number of final reports received	11
Range of months 17 reports not received were overdue	1-37
Average number of months 17 reports not received were overdue:	
<u>Months since completion</u>	<u>256</u>
<u>Final reports not received</u>	<u>17</u> = 15 average

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CONTRACTS AND AMOUNTS CHARGED TO
OBJECT CLASS 25.32 (RESEARCH AND DEVELOPMENT CONTRACTS)
INSTEAD OF TO OBJECT CLASS 25.35 (PROGRAM CONTRACTS)

<u>Contract</u>	<u>Laboratory Location</u>	<u>Obligated Amount</u>
68-02-3262	EMSL/RTP	\$1,666,000
68-02-3405	EMSL/RTP	340,950
68-02-3431	EMSL/RTP	2,296,295
68-02-3487	EMSL/RTP	976,244
68-02-3496	EMSL/RTP	930,140
68-02-3226	HERL/RTP	566,710
	Total	<u>\$6,776,339</u>

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ILLUSTRATION OF FISCAL YEAR 1981 FUNDING OF
SUBAGREEMENT WITH OAK RIDGE NATIONAL LABORATORY
UNDER IAG NUMBER EPAIAG0533

Information Contained in EPA Financial Management System		Information Extracted by Auditors From Project Files for Illustration			
Document Control and Account		Distribution of Project Funding by Account Number		Authorized Funding by Project	
Number	Amount ^{1/}	Project Number ^{2/}	Amount	Number	Amount
EX4503 1C9J63W001	<u>\$419,000</u>	1	\$ 94,000	1	\$ 94,000
		2	83,000		
		3	90,000	2	83,000
		4	69,000		
		17	83,000	3	90,000
			<u>\$ 419,000</u>	4	108,000
EX4303 1C9A63W001	<u>\$108,000</u>	4	\$ 39,000	5	211,000
		6	69,000	6	94,000
			<u>\$ 108,000</u>		
EX4204 1C0U63W001	<u>\$ 25,000</u>			7	100,000
		6	\$ 25,000	8	200,000
		5	\$ 211,000	9	94,000
		7	100,000		
		8	200,000	10	125,000
		9	94,000		
		10	125,000	11	200,000
		11	200,000		
		12	92,000	12	200,000
		17	102,000		
				13	80,000
EX3607 1CCK63W001	<u>\$1,124,000</u>		<u>\$1,124,000</u>	14	52,000
		12	108,000	15	210,000
		13	80,000		
		14	52,000	16	200,000
		15	210,000		
		16	200,000	17	<u>726,000</u>
		17	<u>541,000</u>		
EX3904 1CCY63W001	<u>\$1,191,000</u>		<u>\$1,191,000</u>		
Totals	<u>\$2,867,000</u>		<u>\$2,867,000</u>		<u>\$2,867,000</u>

- 1/ As shown, there were five document control and account numbers which provided a total of \$2,867,000 for 17 projects. EPA's accounting system identified only the five numbers and not the 17 individual projects under this subagreement. Senior representatives from the Cincinnati Financial Management Office advised us that, upon receiving a voucher from Oak Ridge National Laboratory requesting reimbursement (as previously discussed, these vouchers are based on lump sum amounts and did not identify projects), EPA disbursed funds from each account number in the order listed until EPA reached the total subagreement funding of \$2,867,000. For example, if EPA received a voucher requesting \$700,000, the disbursement would be \$419,000 from account number 1C9J63W001, \$108,000 from account number 1C9A63W001, etc., until EPA disbursed the full \$700,000.

Accordingly, the accounting system did not track disbursements for each project, and there was no assurance provided by the accounting system that EPA disbursements did not exceed authorized project funding.

- 2/ Each account number provided partial or total funding for numerous projects. Projects 4, 6, 12, and 17 received partial funding from two or more program elements.

EXECUTIVE CORRESPONDENCE

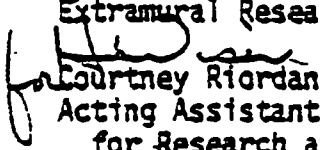


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 18 1982

OFFICE OF
RESEARCH AND DEVELOPMENT

SUBJECT: Draft Audit Report E7g182-11-0019
Report of Review of the Office of Research and Development
Extramural Research Activities

FROM:  Courtney Riordan
Acting Assistant Administrator
for Research and Development (RD-672)

TO: Steven A. McNamara, Chief
Internal Audits Staff
Office of the Inspector General (PM-208)

We have reviewed your draft report evaluating the conduct and management of ORD's extramural research activities. I have four general observations regarding the report.

1) It is balanced and fair. The report takes note of both the strengths and weaknesses of the Office of Research and Development (ORD) and, where it is not possible to offer an opinion at present, it notes that fact. In short, the report is objective. —

2) It is well researched and detailed. Perhaps reflecting the very large dedication of man-power, the report displays ample evidence of basing its conclusions on facts and not impressions.

3) It is useful and specific. The facts developed are discussed in a professional manner and comments and suggestions rationally flow from the discourse. The recommendations are sensible and achievable.

4) It is somewhat too long and repetitive. Our only substantial criticism is that the report bears evidence of "stapling together" the work of many investigators and therefore its length and repetitive quality can be disconcerting. Substantial editing would markedly improve the quality of the document. We encourage this activity.

The report offers four recommendations to the Assistant Administrator (AA) for R&D as well as recommending that the Administrator appoint a permanent AA for ORD as soon as possible "... to give necessary stability...". Allow me to point out that, at least in the recent past, ORD has operated

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in a professional manner and continued to plan for its future even in the absence of permanent leadership. This is a tribute to the cooperativeness and professionalism of ORD career staff, and it should be recognized.

Allow me to offer my comments on the four recommendations to the AA, ORD:

- 1) "adopt improved uniform, consistent procedures for disseminating and maintaining policies and procedures governing ORD operations." In the past ORD had such a system embodied in a "Policy and Procedures Manual." We agree that such a device (or something similar) is necessary and we will devote attention to preparing and issuing it.
- 2) "continue to pursue with vigor, implementation of improvements and changes in the computerized management information system (ORDIS) and work to gain the support of all ORD parties involved to enhance chances of its success." We agree that ORDIS is a high priority activity and we are expending all efforts to insure its success.
- 3) "reemphasize the need for effective communication between ORD and media program offices, and other ORD clients to further enhance research planning and management." Effective communication with our clients is one of our highest priorities. We have taken steps this past year to strengthen the dialogue by starting the planning process with a "Mega-strategy" signed by both the AA for ORD and the client AA. This strategy then serves as the policy guidance document to the research committees charged with crafting the actual budget decision units. We share your concern and continue to seek new ways to enhance our communication with clients.
- 4) "conduct a comprehensive evaluation of (1) the adequacy of existing and planned travel funds, as well as (2) the manner in which such funds are allocated within ORD, and (3) upon completion, present the results of this evaluation to the Administrator for budgetary considerations." We are sensitive to the need for adequate travel funds and we have already conducted the sort of analysis you suggest for part of FY-82. We are now updating the study to include all of FY-82. We will determine if any reallocations are indicated based on the results of our study.

In summary, either we are already working to achieve the report's recommendations (i.e., ORDIS, communications, travel analysis) or we are committed to proceed (i.e., policy and procedures dissemination). Further,

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we are pleased to note that the report finds that our proposed reorganization seems reasonable and promises further improvement. We share that optimism although we must agree that final judgment as to the efficacy of the reorganization only can be delivered in the future. Nevertheless, we appreciate your confidence, we share your expressed concerns and we applaud the balance and objectivity of the report.

Thank you for the opportunity of reviewing the report in draft and providing these comments.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APPENDIX G
Page 4 of 4

JAN 21 1983

OFFICE OF
RESEARCH AND DEVELOPMENT

SUBJECT: Contract Appropriation Charges

FROM: Courtney Riordan
Acting Assistant Administrator
for Research and Development (RD-672)

TO: Matthew N. Novick
Inspector General (A-109)

A handwritten signature in cursive script, appearing to read "Courtney Riordan", written over the typed name and title.

My previous memo to you regarding the nine questioned contracts which were charged to the Research and Development appropriation advised that the ORD agreed that the contracts could have been charged to the Salaries and Expenses appropriation. I did not mean to imply that the charges should be so charged. The ambiguities contained in the definitions of each appropriation are such that the contracts could have been charged to either one of the two accounts.

The revised audit report just received by my staff has been reviewed and I cannot agree with your recommendations that the charges be moved to the Salaries and Expenses appropriation. I wish to go on record as stating that I consider that the nine referenced contracts charged to the Research and Development appropriation were, by any reasonable interpretation, valid and should remain as charged.

I also want to reiterate that I consider the object class definitions presently available to be sufficiently imprecise so that many contracts could be correctly charged to either appropriation. My staff is working with the Comptroller and with the Office of Administration to resolve these ambiguities and put in place more precise guidance. We have provided draft object class definitions as a basis for discussion to resolve this issue. We would be pleased to share these with you or have you join us in seeking a more precise set of definitions to avoid future confusion.

cc: Morgan Kinghorn



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 15 1982

OFFICE OF
ADMINISTRATION

MEMORANDUM

TO: Steven A. McNamara, Chief
Internal Audits Staff

FROM: John P. Horton, Assistant Administrator
for Administration

SUBJECT: Comments on Draft Audit Report Elg1B2-11-0019

I appreciate the opportunity to review and comment on the subject report. Many OA offices spent considerable time in providing the background information used to prepare the report, and I share your disappointment that the review could not fully answer all of the questions posed. We have summarized below our comments on the two draft recommendations addressed to OA. I have also included a number of comments and editorial suggestions you may find useful in preparing the final report.

Draft Recommendation: We recommend that the Director of the Office of Fiscal and Contracts Management review and strengthen controls over level-of-effort contracts to provide a direct link between the funding and work tasks performed. (P.52 B.)

Comment: We have been aware of this problem for some time and the Procurement and Contracts Management Division (PCMD) has been working with the Financial Management Division to devise a solution. PCMD has developed a draft Procurement Information Notice (PIN) incorporating policies and procedures designed to address this problem. The draft PIN is currently being circulated for comment and I have attached a copy for your information.

Draft Recommendation: We recommend that the Assistant Administrator for Administration: 1. finalize and disseminate new procedures governing the administration of IGAs as expeditiously as possible. 2. incorporate a requirement in draft and final IGA policies and procedures to ensure that: (a.) project officers review and certify reimbursement vouchers to ensure that there is a proper expenditure of project funds and that work has been performed in accordance with the terms of the agreement; (b.) the terms of IGAs include a clear requirement to provide EPA with detailed project cost information; (c.) EPA media program offices clearly understand their responsibilities regarding receipt and review of detailed project cost information submitted by other Federal agencies;

and that (d.) media program offices provide sufficient accounting information to FMD to enable EPA's accounting system to track obligations and disbursements by project. (P.63 B.)

Comments: We generally concur with the recommendations but find that most of these concerns have been addressed in the reorganization of the interagency agreement management functions into OA's Grants Administration Division. The Grants Administration Division will have responsibility for legal and administrative management of interagency agreements, including maintenance of the official file, execution of agreements and management as the action office. These responsibilities will enhance ORD's use of interagency agreements. Specifically, our draft interagency agreement procedures are being discussed with ORD to ensure that our respective responsibilities with regard to technical, legal and administrative management responsibilities are properly integrated. OA expects to issue final reviewed and approved procedures by November 1, 1982. Historical difficulties in tracking individual project costs have occurred because other Federal agencies billed EPA in one lump sum and did not identify specific project costs. The draft procedures will require that an interagency agreement be separately prepared for each specific proposed project. These individual cost estimates will be available to the project officers, and the project officer will review and approve vouchers. These changes should remedy the difficulties highlighted in the draft recommendations 2a, b, and d. Detailed guidance regarding OA responsibilities will be made available to all ORD officials who need to be involved in the initiation, negotiation, development, monitoring, and determination of interagency agreements. This guidance will be available before the end of this calendar year. Additionally, we believe that general training can be provided to all the lab coordinators and pertinent Headquarters ORD staff to ensure that the procedures effected December 1, 1982 are used correctly.

Generally, we concur with many of the recommendations and findings appearing elsewhere in the report. Because cooperative agreements and research grants are viewed as assistance rather than contractual arrangements, we do suggest, however, that Chapters 2 and 5 appear sequentially in the report. Our comments on Chapter 1 are limited to editorial suggestions to delete excess commas on line 1 of page 12, line 2 of paragraph 3 on page 13 and clarify the reference to EPA Order 2200.4 on page 20. We generally concur with the findings and recommendations addressed to ORD in Chapter 2. We note that the reference to Office Directors on page 32 should perhaps be revised in light of the pending reorganization.

Our comments on Chapter 3 primarily concern the discussion on pages 41 through 45. We take issue with the report's apparent conclusions that alleged delays in the award of procurements are impacting timely completion of contracted work. When a contract is awarded, it contains a schedule of deliverables (generally final reports) which the program office has determined will meet its

project requirements. Delay in the receipt of deliverables, as called for in the contract, can certainly adversely impact project completion (as the report points out happens in too many instances); however, it is unclear how the procurement process leading to the award of the contract causes this effect. We also point out that the report and Appendix C reference leadtimes of 156 days for competitive procurements and 119 days for non-competitive procurement as "standard leadtimes". These leadtimes have never been established as standards but rather are defined as optimum. Each individual procurement is analyzed to determine the leadtime necessary to award that particular contract; there is no standard leadtime. We also note a typo on the 10th line of paragraph 3 on page 41 (last word). Finally, the review referenced in point 5 on page 51 has been completed.

In addition to our previous comments on the recommendations contained in Chapter 4, we point out that the term intergovernmental agreement is limited to only one kind of agreement, an agreement between EPA and the State or local government authorized to enter into agreement under the Intergovernmental Cooperation Act. The report, in places, inappropriately uses the term to apply to all types of agreements. For the purposes of discussing all types of agreements, the term "interagency agreement" is more appropriate and preferred.

While Chapter 5 address no recommendations to OA, we have several comments on the findings contained therein. We do not believe that the post-award project officer and SRA responsibilities can be adequately managed given present resource allocations. Given resource constraints, we would encourage the transfer of project officer monitoring responsibilities after award from ORGC to the laboratories. Finally, we note the auditor's recommendations that ORD develop and utilize an accounting system to track the 15% of ORD funds which Congress mandated for long term environmental research and development. We interpret this recommendation to mean an accounting system that will track information on applications prior to award, and assume that the report is not proposing financial accounting for these funds outside the Agency's central financial management (accounting) system. This distinction should perhaps be clarified in the report. Preaward tracking could be accomplished through modifications to ORD's existing system or, once funding decisions are made, through additional data elements in the grants information and control system (GICS).

I suggest you contact the Divisions in OFCM to review any final changes proposed to the report and to answer any questions that these comments occasion.

Attachment

U.S. Environmental Protection Agency

PROCUREMENT INFORMATION NOTICE

DRAFT

Subject: Revised Policy for Cost Reimbursement Term Form Contracts
Utilizing Work Assignments

Reference: Chapter 24 of the Contracts Management Manual

Purpose & Scope: This policy is designed to ensure that the correct allowance holder and program element appropriations are charged for work done by work assignments on any cost reimbursable term form contracts.

Discussion: Cost reimbursable term form contracts are being awarded by this Agency that allow work assignments to be issued by any program office having need for the service provided by the contract. The Financial Management Division has been experiencing difficulty in determining which allowance holder account to charge as contractors are submitting vouchers for the completed work assignments. This problem becomes particularly acute when the contract contains funding by more than one allowance holder and work assignments are issued in support of more than one program office.

To obviate this situation the following policy shall be followed:

1. Program funding must be obligated in a contract before that program office may issue work assignments against the contract.
2. In contracts that have multiple allowance holder funding, the program office may issue work assignments only against the funds in the contract that support the program office requesting the work assignment.
3. Each work assignment requested by a program office shall identify the program account (by number) whose funds in the contract will be charged for the work assignment.
4. For work assignments that are requested by more than one program office, the program offices must determine and state in the work assignment the percentage of the costs to be charged to each of their respective accounts.
5. In contracts that contain multiple funding, a statement shall be included in the Special Instructions of the contract that the Limitation of Cost clause applies to each program line of funding in the contract against which work assignments are being issued.
6. The work assignment when issued to the contractor shall contain a statement that a separate voucher will be issued for costs incurred against that work assignment. The work assignment shall contain and the voucher shall identify the account number(s) to be charged and in the case when more than one account is to be charged, the percentage of the costs to be applied to each program account.

The following article shall be used in all cost reimbursable term form contracts utilizing work assignments.

"ARTICLE - WORK ASSIGNMENTS

(a) The (a portion of the) work to be performed under this contract will be defined in Work Assignments issued by the Contracting Officer. The Work Assignments will be within the limits of the Statement of Work of this contract and will be in writing. As a minimum, each Work Assignment will include: (1) the numerical designation of the Work Assignment; (2) the Government's estimate of required manhours (and labor categories); (3) the required period of performance of the Work Assignment (schedule of deliverables); (4) the Statement of Work of the Work Assignment; (5) the program(s) account to be charged, and (6) the percentage to be used when more than one account is to be charged for a single Work Assignment.

(b) The Contractor shall acknowledge receipt of the Work Assignment by signing the Assignment. The signed Work Assignment shall be returned to the Contracting Officer within (number) working days following the Contractor's receipt of the Work Assignment.

(c) This Article in no way modifies or affects the provisions and requirements of the Article entitled (name the applicable level of effort Article) and the clause entitled "Limitation of Cost" or "Limitation of Funds," whichever is prevailing."

EFFECTIVE DATE: This PIN is effective upon issuance.,

ACTION OFFICER: Larry Sawler (PM-214), telephone 382-5132

Paul A. Martin
Acting Director
Procurement and Contracts
Management Division (PM-214)



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APPENDIX I
Page 1 of 7

FEB 1 1983

OFFICE OF
POLICY AND RESOURCE MANAGEMENT

MEMORANDUM

Subject: Appropriation Charges for ORD Contracts

From : 
C. Morgan Kinghorn
Comptroller (PM-225)

To : Matthew N. Novick
Inspector General (A-109)

As per your request we have reviewed the nine Office of Research and Development contracts which you have questioned to determine the appropriate funding source. The results of our analysis are outlined below:

1. Contract No. 68-02-2566, Northrup, \$8,966,262

This contract contains both research and development and salaries and expenses activities, however, the majority of activities are research and development. The following sections of the contract are primarily research and development: 2.0 to 3.8.1, 4.3 to 4.7. The following sections are primarily salaries and expenses: 3.9.1 to 3.9.3, 4.1, 4.2, 5.0, 5.1. Your auditors have informed us that approximately 60% of the contract was charged to the R & D appropriation and 40% to salaries and expenses. As far as we, or anyone else at this stage can tell, the distribution of charges was appropriate.

2. Contract No. 68-02-2832, SDC Integrated Services, \$277,000

This is an ADP contract as defined by the Agency's Planning Manual and therefore should have been charged to the salaries and expenses appropriation as indicated in Appendix B pages 6-8 of the Planning Manual.

3. Contract No. 68-02-3296, Systems Research & Development, \$25,600

This is an ADP contract and should have been charged to the salaries and expenses appropriation.

4. Contract No. 68-02-3482, Rockwell International, \$310,000

This is a contract to repair and maintain equipment and should have been classified as an Other Contractual Service contract and charged to the salaries and expense appropriation in accordance with Appendix B of the Planning Manual.

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5. Contract No. 68-02-3199, Spectron Development Laboratories, \$55,000

This is a contract to purchase scientific equipment and should have been classified as Equipment and charged to the salaries and expense appropriation in accordance with Appendix B of the Planning Manual.

6. Contract No. 68-03-2672, Centec Consultants, Inc., \$793,405

This is a research and development contract and has been charged appropriately to the R & D appropriation. Items A through H in the scope of work are "development activities" as defined by OMB Circular A-11.

7. Contract No. 68-03-2913, Mathtech, \$239,108

This is a research and development contract and has been charged appropriately to the R & D appropriation. Items 1 through 3 in the scope of work are "development activities" as defined by OMB Circular A-11.

8. Contract No. 68-03-2765, Radian Corp., \$1,566,501

This is a contract to provide quality assurance services and has been charged appropriately to the R & D appropriation in accordance with the definition of research and development in the Planning Manual.

9. Contract No. 68-03-2846, University of Cincinnati, \$1,522,585

This is a contract to assist EPA in the operation and design of research experiments and has been charged appropriately to the research and development appropriation consistent with the definition of "research" provided in OMB Circular A-11.

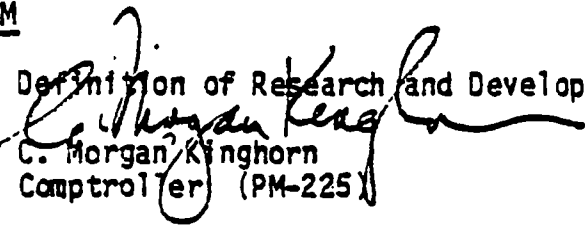
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 1 1983

OFFICE OF
POLICY AND RESOURCE MANAGEMENT

MEMORANDUM

Subject: Definition of Research and Development Appropriation

From: 
C. Morgan Kinghorn
Comptroller (PM-225)

To: Matthew N. Novick
Inspector General (A-109)

In talking to your staff it has become clear that there is some confusion in their minds as to what definition of the research and development appropriation the Agency is using in budgeting and charging obligations and expenditures. The definition which the Agency uses for the research and development appropriation is the one provided in OMB Circular A-11 section 44.2 as modified by the definitions incorporated in the Agency's Planning Manual and the Appendix to the President's Budget. I have attached the relevant portions of these documents.

It is important to note that R&D activities as defined by Circular A-11 may be charged to either the salaries and expenses or research and development appropriations. If the activities involve in-house staff and intramural object classes (P.C.&B, travel, ADP contracts, etc.) they should be charged to the salaries and expenses appropriation. If the activities involve extramural services and object classes (contracts, grants etc.) they should be charged to the research and development appropriation.

There were several specific activities itemized in the contracts which your auditors felt should not have been charged to the research and development appropriation. These activities are research and development as defined by the documents noted above. The areas are as follows:

1. Quality Assurance

Quality assurance is a research and development activity as defined in the Agency Planning Manual. "This appropriation (R&D) provides
.....standardized methods to measure and assure quality control,
....."

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2. Monitoring

Monitoring is a research and development activity and is specifically mentioned in the Appendix to the President's Budget as one of the activities for which the funds will be used. "Activities encompass research onthe development of new and improved sampling and analytical methods and instruments for measuring pollutants;....."

3. Review of Research Documents, Evaluation of Technical Outputs, Preparation of Manuals/Handbooks, Conduction of Seminars/Workshops

These activities are appropriately charged to the research and development appropriation as defined by OMB Circular A-11 as long as they involve the systematic use of knowledge gained from research directed toward the production of useful materials. This is the case for the contracts under review. Circular A-11 defines development as the; "systematic use of the knowledge and understanding gained from research, directed toward the production of useful materials, devices, systems or methods, including the design and development of prototypes and processes."

4. ADP Services

ADP services within contracts which primarily involve research and development activities should be charged to the research and development appropriation. Contracts which include only ADP activities should be charged to the salaries and expenses appropriation. This information on ADP charging is provided in the Planning Manual.

Attachments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APPENDIX I
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MAR 24 1983

OFFICE OF
POLICY AND RESOURCE MANAGEMENT

MEMORANDUM

Subject: Comments on Inspector General's Audit Report
on ORD's Extramural Research Activities

From: *C. Morgan Kinghorn*
C. Morgan Kinghorn, Comptroller

To: Charles Dempsey, Acting Inspector General
Office of Inspector General

As per your request outlined below are our comments on the
ORD audit report.

IG Statement: "Conduct or direct a review of the remaining con-
tracts for fiscal 1980, 1981, and the first quarter of 1982,
which were not included in our sample, to determine whether any
other contracts were improperly charged." p. 55.

Comptroller's Comments: We do not feel that such a review would
be fruitful for the following reasons;

- o The magnitude of the mischarging indicated in the report is
not large enough to warrant such a review. The IG's sample
of contracts revealed that only 4% or \$896,600 out of a total
\$20.1 million was incorrectly charged to the Research and
Development appropriation.
- o Although the four contracts were incorrectly charged, no one
is suggesting that the funds were not used to support ORD's
major missions.
- o We feel that our time would be more productively spent on
ensuring that such mischarging does not occur in the future.
Your report mentions a number of actions which the Agency is
taking to improve the management of extramural research
activities. We have long supported those efforts.
- o We do believe EPA should examine all R&D contracts for FY 1983
to ensure there are no mischarges. We agree that there maybe
continuing problems.

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IG Statement: "We believe the Office of the Comptroller, PCMD and ORD need to effectively resolve these ambiguities (in the definitions of the R&D and S&E appropriations) and take appropriate steps to ensure that contracts are correctly classified and charged to proper appropriations." p. 49.

Comptroller's Comments: We do not agree that there are significant ambiguities in the definitions. The IG's report does not indicate what these ambiguities are. However, as the report recommends on p. 55 we will work with ORD and provide them with additional guidance if they feel it is necessary.

IG Statement: "We found 6 instances amounting to about \$6.8 million where it appeared contracts were classified as R&D contracts (object class 25.32) rather than program contracts (object class 25.35)."

Comptroller's Comments: The two contracts used as examples of misclassified contracts are R&D contracts as defined in the Comptroller's memo to the IG. The two contracts in question are quality assurance contracts. Quality assurance is a research and development activity as defined in the Agency Planning Manual. Thus ORD charged the appropriate object class, "research contracts".

The "program contracts" object class was designed to be used mainly by the program offices and OPRM. We would expect most of ORD's contracts within the R&D appropriation to be R&D contracts.

IG Statement: "Comprehensively evaluate (1) the adequacy of existing and planned travel funds and (2) the manner in which such funds are allocated within ORD." p. 27

Comptroller's Comments: The Comptroller's Office feels that ORD's total travel funds are adequate. Since 1981 their travel ceiling has increased from \$2.2 million to \$2.7 million in 1983 while their extramural resources have declined by approximately 50%. In FY 1982, ORD lapsed \$230 thousand in travel funds or 9% of their ceiling. We agree that the Assistant Administrator for Research and Development should examine the allocation of travel funds within ORD and if appropriate, re-allocate some to support monitoring of extramural resources.

IG Statement: "Contractors frequently failed to deliver final reports to EPA within the contractual time frames, and in a significant number of instances, EPA had not received final reports.reports were overdue from 1 to 37 months, or an average of 15 months for each contract." p. 44.

Comptroller's Comments: Given the constant criticism of the timeliness of ORD's products we feel that this is a significant finding. The report should recommend that ORD review the list of 41 completed contracts and provide an explanation as to why the final reports were so late.

IG Statement: "We recommend that the Assistant Administrator for Administration direct the Office of Fiscal and Contracts Management to review and strengthen controls over level-of-effort and other term form contracts to provide a direct link between funding and work tasks performed" p. 55.

Comptroller's Comments: We agree that the Agency needs to strengthen its procedures to ensure that funding sources are linked to specific work tasks.