



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

## *Science and Research*

# **EPA Achieved Scientific Benefits When Using Reimbursable Research Agreements, but Better Estimating of In-Kind Costs Is Needed**

Report No. 16-P-0279

August 22, 2016



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## Abbreviations

ACE	Air, Climate, and Energy
CMAQ	Community Multi-scale Air Quality
CRADA	Cooperative Research and Development Agreement
CSS	Chemical Safety for Sustainability
EPA	U.S. Environmental Protection Agency
GAO	U.S. Government Accountability Office
IA	Interagency Agreement
OAR	Office of Air and Radiation
OIG	Office of Inspector General
OMB	U.S. Office of Management and Budget
ORD	Office of Research and Development
RRA	Reimbursable Research Agreement
ToxRefDB	Toxicity Reference Database

**Cover photo:** Part of an air monitoring station along the I-15 highway corridor in Las Vegas, Nevada, used in the near-road monitoring project the EPA conducted with the U.S. Department of Transportation's Federal Highway Administration. (EPA photo)

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# At a Glance

## Why We Did This Review

We conducted this review to determine whether the U.S. Environmental Protection Agency (EPA) benefited from research under reimbursable agreements, and how those benefits supported the EPA's mission.

EPA's Office of Research and Development (ORD) provides research services to other entities—federal and state agencies, non-governmental organizations, and the public sector—using reimbursable funds provided through interagency agreements (IAs) and cooperative research and development agreements (CRADAs). These reimbursable agreements are mechanisms that allow ORD to collaborate with other entities to accomplish a shared objective and achieve efficiencies while doing business together. From October 1, 2009, through March 31, 2015, ORD received about \$42.8 million from other entities to conduct research.

**This report addresses the following EPA goal or cross-agency strategy:**

- *Embracing EPA as a high-performing organization.*

Send all inquiries to our public affairs office at (202) 566-2391 or visit [www.epa.gov/oig](http://www.epa.gov/oig).

Listing of [OIG reports](#).

## ***EPA Achieved Scientific Benefits When Using Reimbursable Research Agreements, but Better Estimating of In-Kind Costs Is Needed***

### What We Found

ORD conducted research under reimbursable agreements that provided benefits to the EPA and was consistent with the EPA's goals and mission. For example, benefits to the EPA from research included establishing and supporting regulation standards setting, increasing climate modeling capabilities, developing predictive lab toxicology testing, and improving consumer tools for environmental management.

**Partnering on research with other entities using reimbursable agreements has benefits that support the EPA mission, but developing more reliable cost estimates for in-kind contributions can better reflect the EPA's research contributions.**

ORD did not completely or consistently develop cost estimates for its in-kind contributions prior to entering into the reimbursable agreements we reviewed. In-kind contributions are a part of project costs and consist of non-monetary supplies and services, such as personnel, equipment or facilities. ORD managers said they were unaware of any specific guidance for developing in-kind contribution estimates. Neither the EPA IA manual nor EPA CRADA guidance contained detailed information for developing in-kind contribution estimates. As a result, ORD was unable to reliably estimate how much it actually spends on reimbursable research projects, costs are likely misstated, and decision makers could approve projects that are not cost effective. Also, ORD was unable to provide reliable and required financial information to other federal agencies that partner with the EPA on research projects.

### Recommendations and Planned Agency Corrective Actions

We recommended that the Director, Office of Grants and Debarment, Office of Administration and Resources Management, develop and issue guidance for estimating in-kind contributions for IAs and CRADAs. In addition, we recommended that the Assistant Administrator for Research and Development direct ORD project managers and staff to use guidance issued by the Office of Grants and Debarment for estimating in-kind contributions, and provide training.

The EPA agreed with all recommendations and provided planned corrective actions and completion dates. We made the EPA's suggested technical edits where appropriate. All recommendations are resolved and open pending completion.



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

THE INSPECTOR GENERAL

August 22, 2016

**MEMORANDUM**

**SUBJECT:** EPA Achieved Scientific Benefits When Using Reimbursable Research Agreements, but Better Estimating of In-Kind Costs Is Needed  
Report No. 16-P-0279

**FROM:** Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", is written over the printed name.

**TO:** Donna J. Vizian, Acting Assistant Administrator  
Office of Administration and Resources Management

Lek G. Kadeli, Principal Deputy Assistant Administrator for Management  
Office of Research and Development

This is our report on the subject review conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). The project number for this review was OPE-FY15-0021. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

EPA offices involved with the issues in this report include the Office of Administrative and Research Support and Office of Program Accountability and Resource Management, both within the Office of Research and Development; the Office of Grants and Debarment, within the Office of Administration and Resources Management; and the Office of the Chief Financial Officer.

**Action Required**

In accordance with EPA Manual 2750, your office provided planned corrective actions in response to the OIG recommendations. All recommendations are considered resolved. You are not required to provide a written response to this final report because you provided agreed-to corrective actions and a planned completion date for the report recommendations. Should you choose to provide a final response, we will post your response on the OIG's public website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at [www.epa.gov/oig](http://www.epa.gov/oig).

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# Chapter 1

## Introduction

### Purpose

We conducted our review to determine whether the U.S. Environmental Protection Agency (EPA) benefited from research under reimbursable agreements, and how those benefits supported the EPA's mission.

The EPA's Office of Research and Development (ORD) receives funds from other entities for conducting collaborative research and development through reimbursable research agreements (RRAs). RRAs allow ORD to collaborate with these other entities to accomplish a shared objective and achieve efficiencies while doing business together. From October 1, 2009, through March 31, 2015, ORD received about \$42.8 million in reimbursable funds from other entities under 115 interagency agreements (IAs) and 121 cooperative research and development agreements (CRADAs).

### Background

#### *Office of Research and Development*

ORD is the scientific research arm of the EPA. Science provides the foundation for credible decision making to safeguard human health and ecosystems from environmental pollutants. ORD supports six research programs that aim to identify the most pressing environmental health research needs with input from EPA offices, partners and stakeholders:

1. Air, Climate, and Energy (ACE).
2. Safe and Sustainable Water Resources.
3. Sustainable and Healthy Communities.
4. Chemical Safety for Sustainability (CSS).
5. Human Health Risk Assessment.
6. Homeland Security.

Each of these program areas has a Strategic Research Action Plan that outlines planned and ongoing research. ORD conducts needed research within its labs, centers and offices located in 14 different facilities across the country and Washington, D.C.

#### *EPA's Collaborative Research Efforts*

Collaboration can maximize EPA resources and enable participants to accomplish as a group what they could not accomplish individually. In a 2012 National

Research Council report, *Science for Environmental Protection: The Road Ahead*, the academy urged the EPA to “support interdisciplinary collaboration in and outside the agency, across the United States, and globally.” Similarly, in the EPA’s *Science for a Sustainable Future: EPA Research Program Overview 2012-2016*, February 2012, ORD noted that the environmental challenges of the 21st century cannot be met by the EPA alone and collaborations with other federal agencies, state and local governments, and other entities will help advance the environmental protection mission.

The National Research Council, in its September 2014 report, *Rethinking the Components, Coordination, and Management of the U.S. Environmental Protection Agency Laboratories*, set forth nine principles for the efficient and effective management of EPA laboratories. One of these principles stated that establishing a strong link to universities, industry, research institutions, and other federal and state government organizations would improve the EPA’s laboratory enterprise and prepare the EPA for the future. The council recommended that the EPA develop plans for partnering with other agencies, universities and the private sector. The report noted that CRADAs are one mechanism the EPA could use.

### ***Reimbursable Research Agreements***

ORD collaborates with external partners by using such RRA mechanisms as IAs and CRADAs. Reimbursable IAs and CRADAs allow ORD to perform research work and receive reimbursement from external partners for their share of research expenses. EPA policies require ORD staff to justify IAs and CRADAs to ensure that the work is consistent with the EPA’s mission and statutory authorities, and that the cost of the work is reasonable based on appropriate cost information. While IAs and CRADAs are similar, there are distinct differences. One key difference is that IAs are between the EPA and another federal agency, while CRADAs are between the EPA and a nonfederal organization. Details on each follow.

#### **Interagency Agreements**

IAs are written agreements between the EPA and another federal agency that are authorized by statute and designed to help accomplish a shared objective with a distinct scope of work. IAs may enable the EPA to accomplish its mission more effectively and efficiently, or enable another agency to benefit from the EPA’s specialized resources or expertise. IAs are governed by applicable statutory authorities, appropriations law principles, and guidance from the U.S. Office of Management and Budget (OMB) and U.S. Department of the Treasury.

IAs are categorized based on whether the EPA is receiving or providing funds. For “funds-in agreements,” which are the focus of this report, the EPA receives the funds and conducts the work. The agency providing the funds is

considered the ordering agency. Depending on the terms of the IA, both the ordering agency and the EPA may contribute (a) funds; (b) non-monetary resources, such as personnel, facilities, equipment and other services; or (c) any combination of funds and non-monetary resources. Non-monetary resources are also called “in-kind” contributions. The EPA is reimbursed, in part or in full, for its expenses to provide goods or services to another federal agency.

### Cooperative Research and Development Agreements

A CRADA is an agreement between a federal government laboratory and an external party to work together on specified research and development that is consistent with the mission of federal laboratories. A primary purpose of CRADAs is to provide opportunities for nonfederal entities to benefit from the resources and expertise of federal laboratories, or for federal laboratories to access expertise and resources available to nonfederal entities.

A CRADA partner can be a member of industry, academia, non-profit organizations, tribes, states, local governments, and international companies and governments. Under a CRADA, the external party can provide personnel, services, facilities, equipment, other resources and funds for EPA use. The EPA can provide personnel, services, facilities, equipment or other resources, but cannot provide funds directly to the joint research effort. Further, the research performed under a CRADA must be consistent with the EPA laboratory’s research mission. Funds reimbursed to the EPA through CRADAs may be used for specified purposes only and are subject to the same internal controls as appropriated funds.

Both the EPA and nonfederal partners are expected to achieve benefits through CRADAs. The private sector can work collaboratively with the EPA to develop technologies that will help protect the environment and human health. CRADAs could provide opportunities for the EPA and external partners to leverage resources and expedite research results by combining partners’ technology and expertise that is not otherwise accessible.

### ***Results of Reimbursable Research Agreements***

According to ORD, research and development activities that agencies perform under reimbursable agreements are to generate specified research products that may result in outputs and outcomes. Research products are deliverables that may include such outputs as publications, reports, databases, test results, methods, models, technical support, best practices or patents; outputs are research products translated into the format needed by the requesting research partner. Outcomes are the expected long-term benefits of the research, such as healthier children or a cleaner environment.



ORD stated in its *2014 Accomplishments* report that every research project conducted or supported by ORD has a single, overarching goal—to support the EPA’s mission of protecting human health and the environment. The scope of research work under these RRAs must be consistent with the EPA’s statutory authorities and mission. In some instances, reimbursable agreement results support external partners in carrying out a public purpose authorized by the EPA’s statutory authorities, as opposed to providing products or outputs for the direct benefit or use of the EPA. However, since the research work under reimbursable agreements must be consistent with the EPA’s authorities and mission, the results should at a minimum indirectly provide benefits to the EPA in furthering its mission.

## Responsible Offices

The EPA offices with primary responsibility over the issues discussed in this report include:

- ORD
  - The Office of Administrative and Research Support provides support and leadership in implementing the EPA’s extramural management program, including administrative support for collaborative agreements such as IAs and CRADAs.
  - The Office of Program Accountability and Resource Management provides support to ORD’s research and development efforts by focusing on sound management and financial processes, and effective extramural management.
- The Office of Grants and Debarment, within the Office of Administration and Resources Management, is responsible for establishing and providing national assistance agreement policies, training and guidance resources; and administering assistance agreements, including IAs.
- The Office of the Chief Financial Officer is responsible for developing, managing and supporting a goals-based management system for the EPA that involves strategic planning and accountability for environmental, fiscal and managerial results, including resources management and financial management functions.

## Scope and Methodology

We conducted our audit from April 2015 to May 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit

objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The time period covered by our review was October 1, 2009, through March 31, 2015 (fiscal years 2010 through 2014 and the first half of fiscal year 2015). To address our objective, we reviewed ORD’s reimbursable research activities for the 5½-year time period. Our scope included all reimbursable research projects in any status during the time period, such as initiated, open, closed/completed and suspended.

From the universe of 236 RRAs, we judgmentally selected and reviewed six RRAs in detail—three IAs and three CRADAs.

- All three IAs reviewed were cooperation authority IAs; we did not review any Economy Act IAs as they were outside the scope of our review.<sup>1</sup> For the three IAs reviewed, the funds from the external partners accounted for 11 percent of the total partner-provided funds for all 115 IAs in the universe.
- For the three CRADAs reviewed, the funds from the external partners accounted for 46 percent of the total partner-provided funds for all 121 CRADAs in the universe.

Together, the six RRAs reviewed accounted for 19 percent of the total partner-provided funds in the universe. Table 1 shows the dollar values.

**Table 1: RRAs and partner funds (dollars in millions)**

	IA	CRADA	Totals
RRA universe	115	121	236
Sampled RRAs	3	3	6
Partner funds for RRA universe (numbers are rounded)	\$32.9	\$9.8	\$42.8
Partner funds in sampled RRAs (numbers are rounded)	\$3.5	\$4.5	\$8
Percentage (numbers are rounded)	11%	46%	19%

Source: Office of Inspector General (OIG)-developed, based on ORD RRA documents and data.

We also interviewed key managers and staff from the EPA to gain an understanding of, and analyze, the processes ORD used to manage reimbursable research projects. This included how ORD monitored the benefits of the projects.

For a more detailed list of activities we conducted, see Appendix A.

<sup>1</sup> Economy Act IAs have additional requirements that do not apply to cooperation authority IAs. See Appendix A for more details on requirements specific to Economy Act IAs.

# Chapter 2

## EPA’s Reimbursable Research Provided Benefits That Supported the EPA Mission

ORD conducted research under RRAs that provided benefits to the EPA and was consistent with the EPA’s goals and mission. ORD tracked completed products, outputs and projects for required performance-reporting purposes. Performance reports included measures—such as the percentage of planned research products completed on time and the percentage of planned research outputs delivered to clients for use—agreed to by both ORD and OMB. While ORD does not track long-term outcomes, because prior efforts to do so were found to be cost prohibitive and ineffective, ORD staff identified research results that supported the EPA’s goals and mission, and provided either direct or indirect benefits to the agency. Benefits included establishing and supporting regulation standards setting, increasing climate modeling capabilities, developing predictive lab toxicology testing, and improving consumer tools for environmental management.

### ORD’s RRAs Provided Benefits for EPA Program Offices

Table 2 provides a detailed list of the six RRAs we reviewed and the projects’ benefits to EPA program offices. The table is followed by details on what we found for each RRA project.

**Table 2: Sample RRAs and their benefits**

Sample RRA / partner name	Research topic / program	Benefits of project to EPA
<b>1. CRADA</b> Natural Resources Canada	Energy Use and Greenhouse Gas Emissions / ACE	Increased participation in ENERGY STAR program that saves energy and reduces greenhouse gases and addresses climate change.
<b>2. CRADA</b> L'Oréal	Computational Toxicology / CSS	Developed predictive toxicity testing that provides EPA regulatory programs with science-based information on chemicals.
<b>3. CRADA</b> New York State Energy Research Development Agency	Hydronic Heater Emissions / ACE	Provided scientific support for New Source Performance Standards regulation revisions.
<b>4. IA</b> Department of Transportation, Federal Highway Administration	Near Road Emissions / ACE	Provided emissions data for EPA air programs and standards, air monitor siting practices, lessons learned to state and tribal entities, and information on mitigating indoor pollution in schools.
<b>5. IA</b> Department of Energy	Climate Modeling & Troposphere Emissions / ACE	Provided the first multiple decade emissions inventory, data to support EPA air program and standards, and support/data to national and international model users.
<b>6. IA</b> Consumer Product Safety Commission	Safer Products / CSS	Project not complete - Anticipated results include providing nanoparticle data to the EPA set of data for use in human health programs.

Source: OIG-generated from RRA documents.

### **Sample RRA 1 – Natural Resources Canada**

The EPA's Office of Air and Radiation (OAR)<sup>2</sup> and Natural Resources Canada collaborated under this CRADA to develop an international version of the EPA's ENERGY STAR Program online tool called Portfolio Manager. The new version enables organizations that own or operate commercial buildings in both the United States and Canada to fully participate in the ENERGY STAR buildings program, and allows users to compare their building's performance relative to similar buildings in the United States. The ENERGY STAR buildings program helps operators of commercial buildings save energy and reduce greenhouse gases. The EPA has stated in its strategic plan that to achieve domestic environmental and human health goals, international partnerships are essential. Pollution is often carried by winds and water across national boundaries, posing risks to human health and ecosystems perhaps thousands of miles away. Further, many concerns, like climate change, are global.<sup>3</sup> This research project supports the EPA's strategic plan to use international partnerships to achieve goals and EPA's objective to address climate change by reducing greenhouse gases. The project was completed in March 2016. Since this CRADA was managed by OAR staff, its outputs and products were not tracked by ORD.

### **Sample RRA 2 – L'Oréal**

ORD and L'Oréal—an international company based in France—collaborated on this CRADA to develop predictive toxicity testing of a set of chemicals for L'Oréal using the EPA's ToxCast system. L'Oréal was interested in the ToxCast testing because Europe issued the Registration, Evaluation, Authorization and Restriction of Chemicals legislation—known as REACH—that banned animal testing in Europe in 2015. The ORD testing procedures can predict toxicity hazards to humans without using animal testing. According to ORD, these hazard predictions will provide EPA regulatory programs with science-based information to help prioritize chemicals for more detailed toxicological evaluations. ORD project managers noted that other EPA offices—such as the Office of Chemical Safety and Pollution Prevention, Office of Solid Waste and Emergency Response,<sup>4</sup> and Office of Water—could also benefit from the research results. This research project supports the EPA's strategic goal to ensure chemical safety, and fulfills the EPA's strategic plan to use international partnerships. The research for this project was completed in December 2015. ORD managers provided a list of seven outputs and products issued during fiscal years 2012 through 2015 that resulted from this CRADA.

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<sup>2</sup> This CRADA was managed by OAR staff but was included in the ORD universe of RRAs because ORD's Extramural Management Division manages the Federal Technology Transfer Act program (and CRADAs).

<sup>3</sup> [Fiscal Year 2014-2018 EPA Strategic Plan](#), issued April 10, 2014.

<sup>4</sup> In 2015, the Office of Solid Waste and Emergency Response was renamed the Office of Land and Emergency Management.

### **Sample RRA 3 – New York State Energy Research Development Agency**

ORD and the New York State Energy Research Development Agency collaborated on this CRADA to conduct research for developing wood-burning hydronic heater technology to be used by private and public entities. This project included emissions studies, inhalation exposure and instillation studies, and market competitiveness evaluations to provide information on how these energy sources affect health and energy issues in New York. This project provided scientific support for the Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces. OAR’s Office of Air Quality Planning and Standards issued this final regulation in May 2015. The standards referred to the project’s results. This CRADA supported Goal 1 of the agency’s strategic plan, “Clean Air and Global Climate Change.” The research directly supported Objective 1.1 (Healthier Outdoor Air), which is focused on maintaining health-based National Ambient Air Quality Standards for particulate matter and ozone and for reducing risks from toxic air pollutants.<sup>5</sup> ORD started this project in 2008, the New York agency issued the final report in June of 2012, and journals published four articles of the research results between 2011 and 2014.



Wood-burning hydronic heater that EPA tested at its facility in Research Triangle Park, North Carolina. (EPA OIG photo)

### **Sample RRA 4 – U.S. Department of Transportation’s Federal Highway Administration**

ORD and the U.S. Department of Transportation’s Federal Highway Administration collaborated on this IA to assess the impacts of traffic emissions on air quality in close proximity to roads (“near road” monitoring) in Las Vegas, Nevada. The project, initiated by the Federal Highway Administration, also helped the Federal Highway Administration meet a legal settlement agreement with the Sierra Club to conduct research to characterize concentration levels in the ambient air near facilities like schools located by major highways. The IA focused on emissions attributable to motor vehicle emissions and mobile source air toxics. The ORD project officer and six scientists from



Air monitoring station tower along the I-15 highway corridor in Las Vegas, Nevada. (EPA photo)

<sup>5</sup> These goal references are from 2008 and equate to the current EPA strategic objectives to address climate change and improve air quality.

OAR's Office of Air Quality Planning and Standards and Office of Transportation and Air Quality cited the following benefits from this research:

- Generated peer-reviewed literature incorporated into the Risk and Exposure Assessment Planning Document that the OAR Office of Air Quality Planning and Standards developed.
- Added the results to the next Integrated Science Assessment for oxides of nitrogen for consideration in the National Ambient Air Quality Standards review process.
- Significantly contributed to ensuring that the EPA could explain how to best locate particulate matter monitors for those near road monitoring stations.
- Identified lessons learned that were provided to support state, local and tribal monitoring agencies to help them better implement their near-road nitrous oxide monitoring stations.
- Provided valuable information on mitigation of indoor air pollution in schools.

The project was authorized using the Clean Air Act, Section 103(b)(2), and supports the EPA's strategic objective to improve air quality. The project research was completed in June 2011. ORD issued the final report in November 2011, and worked with scientists in OAR to publish nine journal articles on the project's results.

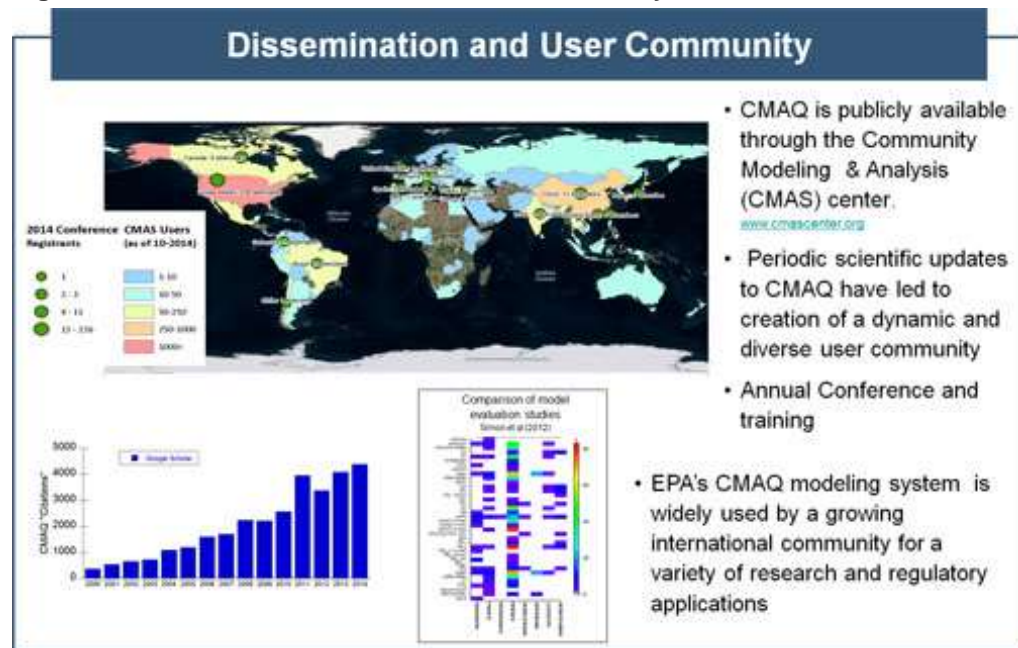
### ***Sample RRA 5 – U.S. Department of Energy***

ORD and the U.S. Department of Energy collaborated on this IA for the Community Multi-scale Air Quality (CMAQ) model to investigate the role of atmospheric chemistry—specifically, aerosols and ozone—on regional climate trends. The project looked at air pollution and how it affects changes in climate. Models present “what if” scenarios and predict the characterization of the size and composition of particulate matter in the air. ORD project managers identified the benefits from this project as:

- The first consistent multiple-decade emission inventory for the United States developed from this project is being provided to the global emissions inventory for use by the broader research community.
- Dissemination of the project results and model through numerous peer-reviewed publications and presentations at international technical conferences and workshops.

- A growing number of requests for collaborative use and analysis of research results, including:
  - ✓ OAR Office of Air Quality Planning and Standards scientists used results for supporting trends, establishing standards under the National Ambient Air Quality Standards, and defending those standards in court cases.
  - ✓ U.S. National Oceanic and Atmospheric Administration scientists used data to support trend analysis in the southeast United States.
  - ✓ ORD's National Health and Environmental Effects Research Laboratory plans to use the model results to assess how improvements in air quality over the past two decades have resulted in improvements in public health due to reduced exposures.
  - ✓ EPA Region 8 and OAR used the model to examine United States air quality in the context of the changing global environment.

**Figure 1: CMAQ dissemination and user community**

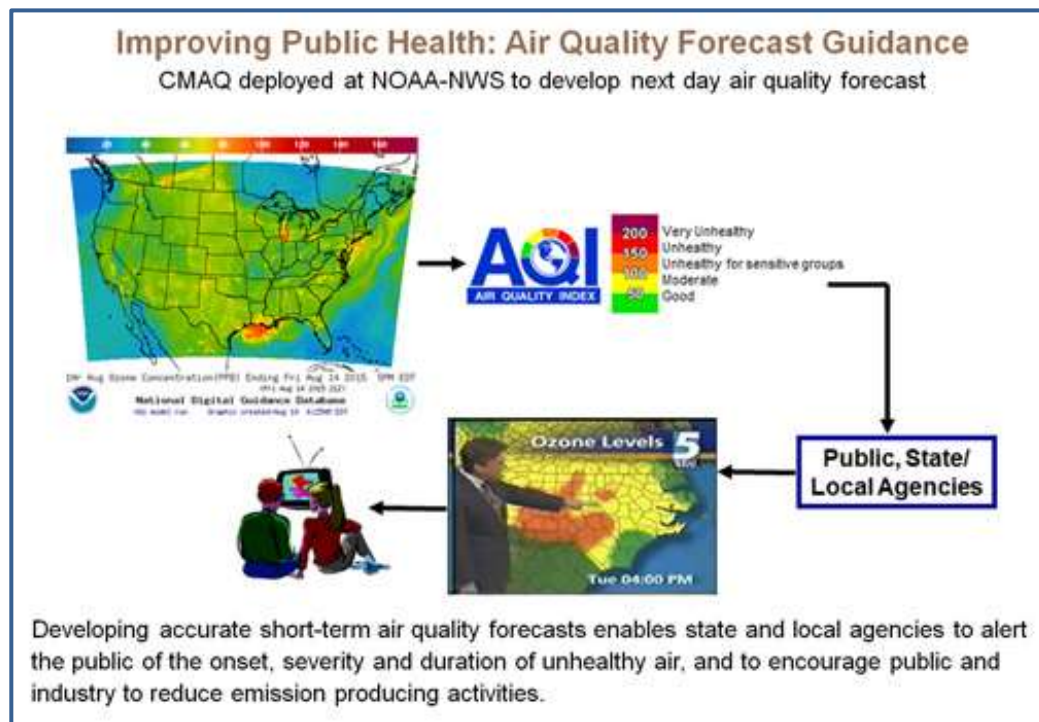


Source: ORD's National Exposure Research Laboratory.

The project was authorized using the Clean Air Act, Section 103(b)(2), and supports the EPA's strategic objectives to improve air quality and address climate change. Climate change is a global issue, and this project's results are used by the international community, which ties to the EPA's strategic plan to use international partnerships to achieve environmental improvements. The research for this project was completed in December 2015, and there are multiple products

and outputs. The CMAQ model results are also highlighted in the ORD annual achievement reports.

**Figure 2: Depiction of CMAQ’s role in air quality forecasting**



Source: ORD’s National Exposure Research Laboratory.

### **Sample RRA 6 – U.S. Consumer Product Safety Commission**

ORD used this IA to partner with the U.S. Consumer Product Safety Commission to research manufactured nanoparticles in consumer products. The research was to develop a systematic, multi-disciplinary approach for predicting potential human and environmental risks associated with the use of selected consumer products that contain nanoparticles, including from cerium dioxide found in diesel fuel additives. International partners from a college and an agency of the United Kingdom also participated in this research. Although this RRA is not complete, 13 journal articles have already been published and 10 more are expected. EPA managers anticipate that outputs and products with nanoparticle data will benefit the EPA. The ORD approving official stated that the project results would likely benefit the Human Health and Risk Assessment Program and add to the EPA nanoparticle data set. The EPA’s Office of Pollution Prevention and Toxics’ Deputy Director confirmed the potential EPA benefits, and stated that nanomaterials in manufactured products is a data-poor area, making any data on the topic helpful. The EPA authority for this IA was the Toxic Substances Control Act, and the research addressed the EPA’s strategic objective of ensuring chemical safety. The project is ongoing and scheduled to be completed in June 2016.



# Chapter 3

## ORD Did Not Consistently Estimate In-Kind Contributions for RRA Projects

ORD did not develop in-kind contribution estimates of its costs for reimbursable research projects in a complete or consistent manner. Federal and EPA policies for internal controls and appropriated funds, as well as cost accounting standards, require that managers develop reliable cost estimates and ensure proper stewardship of federal funds. ORD managers said they were unaware of any specific guidance for developing in-kind contribution estimates, and neither the EPA IA manual nor EPA CRADA guidance contain detailed information for developing in-kind contribution estimates. As a result, ORD was unable to reliably estimate how much it actually spends on reimbursable research projects, costs are likely misstated, and decision makers could approve projects that are not cost effective. Further, ORD was unable to provide reliable and required financial information to its federal research partners.

### **Federal Laws and Standards, Along With EPA Policies, Provide Guidance for Financial Management**

Congress has passed several laws, and federal agencies have issued criteria on internal controls and standards, that guide financial management, financial reporting, and the proper stewardship of federal funds. Following is a listing of key laws and their accompanying standards that apply to all federal agencies regarding financial management. Further details on each are in Appendix B.

- The Federal Managers' Financial Integrity Act of 1982.
- Government Performance and Results Act (GPRA), as amended by the GPRA Modernization Act of 2010.
- Chief Financial Officers Act of 1990.
- Federal Financial Management Improvement Act of 1996.
- The U.S. Government Accountability Office (GAO) *Standards for Internal Control in the Federal Government*.
- OMB Circular A-123, *Management's Responsibility for Internal Control*.

EPA Directive 2520, *U.S. EPA's Administrative Control of Appropriated Funds*, states that the control of funds in the federal government is governed by statutes and implemented by directives from OMB, GAO, the U.S. Treasury and Congress.

EPA Directive 2540-13, *Cost Accounting Methods*, is designed to provide reliable and timely information on the cost of EPA programs and cost information useful to both internal and external groups. The policy states that the Federal Accounting Standards Advisory Board defines cost as “the monetary value of resources used or

sacrificed or liabilities incurred to achieve an objective, such as to acquire or produce a good or to perform an activity or service.”

In addition, two other EPA policies specifically apply to the management of IAs:

- EPA’s *Interagency Agreement Policies, Procedures, and Guidance Manual* requires management to include a justification statement in IA decision memorandums that the cost of the proposed work is reasonable, considering efficiency, based on an independent estimate of cost or other appropriate cost information developed by the EPA. These memorandums must include a proposed budget with anticipated direct and associated indirect costs. All direct costs must be reasonable and allocable to the project.
- EPA Directive 2540-13-P1, *Cost Accounting Methods, Agency Indirect Cost Allocation System for Funds-In Interagency Agreements*, states that federal financial accounting standards<sup>6</sup> require agencies to report, on their financial statements, the full costs of goods and services received or provided beginning October 1, 2008. The EPA’s direct costs can be traced directly to a specific product or activity of an IA’s work. Indirect costs, such as facility or telecommunications costs, cannot be directly traced to a specific product or activity. The EPA’s indirect costs for funds-in IAs must be charged to the other agency.

## **ORD In-Kind Contribution Estimates Were Developed Inconsistently**

As a part of an RRA effort, the EPA is to first plan the work required and estimate the cost of that work. Costs such as personnel, services, facilities, equipment, or other resources that are non-monetary goods and services are known as “in-kind” contributions. In-kind contributions, shown in the budget section of RRA documents, should be considered by decision makers when reviewing a proposed RRA for approval.<sup>7</sup> Also, the EPA includes in-kind contribution costs in IA documents so that collaborating agencies have the full costs of goods and services provided by the EPA. It is important that the EPA develops sound RRA cost estimates to ensure that its financial reporting is reliable, as well as to provide reliable cost estimates to other federal agencies with which it collaborates.

All six of the RRAs we reviewed included EPA in-kind contributions. According to the ORD project managers, for four RRAs (sample items 1, 3, 4 and 5), they developed the EPA in-kind contribution using estimated time and labor costs of the EPA project staff. Sample item 6 awarded a grant funded with the collaborating agency’s funds for the third of three related research projects. The

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<sup>6</sup> Statement of Federal Financial Accounting Standard No. 30, *Inter-Entity Cost Implementation*, which amended Statement of Federal Financial Accounting Standard No. 4, *Managerial Cost Accounting Standards and Concepts*.

<sup>7</sup> In-kind contributions are one component of costs and financial management data. We reviewed in-kind contributions but did not review other financial management processes, such as budgeting, commitment and obligation of funds, and expenditures.

project manager used the costs of the first two research grants, funded by the EPA, as the EPA in-kind contribution toward the sample item 6 RRA. The project managers for sample item 2 said they estimated the EPA in-kind contribution at \$55 million using the cumulative costs for developing the EPA toxicology software programs used for the project. Details are in Table 3.

**Table 3: Sampled RRA costs**

Sample RRA	Partner's name	Partner's cash contribution	Partner's in-kind contribution	EPA's in-kind contribution	Total project costs
1	Natural Resources Canada	\$2,870,000	\$2,041,000	\$229,000	\$5,140,000
2	L'Oréal	1,200,000	1,000,000	55,000,000	57,200,000
3	New York State Energy Research Development Agency	468,884	50,000	258,540	777,424
4	Department of Transportation, Federal Highway Administration	2,109,395	-	1,232,575	3,341,970
5	Department of Energy	896,664	-	834,450	1,731,114
6	Consumer Product Safety Commission	500,000	-	1,556,300	2,056,300
<b>Totals</b>		<b>\$8,044,943</b>	<b>\$3,091,000</b>	<b>\$59,110,865</b>	<b>\$70,246,808</b>

Source: OIG analysis of ORD RRA documents and data.

RRA projects may include some or all of the possible types of costs, including personnel, services, facilities, equipment, and other resources and funds. ORD RRA project managers did not consistently include the necessary costs that comprise EPA in-kind contributions. Most project managers used labor costs for the basis of their in-kind contribution. Some used indirect costs, while others did not. For at least two of the projects (samples 2 and 5), significant amounts of data processing system computing time were used but were not included in the in-kind contribution estimates.

For example, ORD collaborated with L'Oréal for a project that used the National Center for Computational Toxicology's ToxCast system to predict the toxicity to humans of chemicals that L'Oréal might use in cosmetic products. According to ORD managers, they used the ToxCast Database and Toxicity Reference Database (ToxRefDB) development costs of \$55 million as the EPA in-kind contributions, when a more representative calculation may have included the scientists' time and system time used for testing chemicals. ORD's in-kind estimate included \$25 million for the ToxCast phase 1 and 2 data and \$30 million for the cost of data in the ToxRefDB. Phase 1 and 2 costs were to obtain data for testing of 1,000 chemicals to enter into the ToxRefDB, with testing costs initially calculated at an estimated \$25,000 per test multiplied by 1,000 chemicals, equaling \$25 million. The EPA paid for the phase 1 and 2 costs as a part of

developing the ToxCast system, and shared the information with L'Oréal.<sup>8</sup> The ToxRefDB costs were for data from 600 animal studies that were submitted to the EPA and paid for by the companies that conducted or obtained the studies. ORD estimated that the studies cost \$50,000 each multiplied by 600 studies, resulting in a total of \$30 million.

Through detailed discussions of the in-kind contribution estimate with the ORD CRADA's managers, we determined that the phase 2 costs of \$30 million were not applicable since the EPA did not pay the costs of those studies. The National Center for Computational Toxicology's Deputy Director subsequently agreed that its estimate should not have included the \$30 million, and stated that the estimate should have been about \$28 million. Using the cost information provided by the Deputy Director, we calculated a rough estimate of the EPA in-kind contribution at about \$1.3 million. L'Oréal's contributions, cash and in-kind, totaled about \$2.2 million. The disparity in values between what ORD originally estimated its contribution to be (\$55 million) compared to L'Oréal's contributions gives the appearance that the EPA invested much more heavily in this collaboration than it did.

ORD staff did not know of any guidance specific to developing in-kind contribution estimates, and had no structured or detailed guide to construct these estimates. We discussed this issue with the EPA manager in charge of the Grants and Interagency Agreements Unit of the EPA's Shared Service Center for IAs, and also the Director for the EPA's Office of Grants and Debarment. The IA manager suggested that the independent government cost estimate of the EPA's Office of Acquisition Management could be used as an in-kind contribution estimating tool. He stated that the independent government cost estimate does not specifically speak to in-kind costs, but the methodology for calculating such costs would be the same. The Office of Grants and Debarment Director stated that there is no specific EPA guidance for how to develop in-kind contribution estimates for IAs or CRADAs.

## Conclusion

In the RRAs we reviewed, ORD did not develop in-kind contribution estimates in a consistent manner, was unsure of how to prepare reliable estimates, and had no clear guidance for doing so. Incomplete or miscalculated in-kind contributions may not represent the actual EPA investment in research projects, resulting in costs being understated or overstated. Without reliable and complete cost data and estimates at the time ORD approves a project to go forward, decision makers may approve projects that commit more EPA resources than they would otherwise agree to do. Also, ORD is unable to provide reliable and required financial information for in-kind contribution estimates to other federal agencies that partner with EPA on research projects, which could result in those other federal

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<sup>8</sup> This ToxCast database and information are available to the public on ORD's [iCSS ToxCast Dashboard](#) website.

agencies not having reliable cost data for financial reporting purposes. Although the EPA is required to provide cost information only to other federal agencies, providing the same information to external parties on CRADAs would also be a sound practice consistent with ORD's focus on stakeholder involvement.

## **Recommendations**

We recommend that the Director, Office of Grants and Debarment, Office of Administration and Resources Management:

1. Develop and issue guidance for estimating in-kind contributions for interagency agreements and cooperative research and development agreements, including a discussion of why reliable cost estimates are important.

We recommend that the Assistant Administrator for Research and Development:

2. Direct Office of Research and Development project managers and staff to use guidance developed and issued by the Office of Grants and Debarment for estimating in-kind contributions, and provide training.

## **Agency Response and OIG Evaluation**

The EPA agreed with our recommendations and proposed corrective actions that we believe will address our finding. The EPA suggested technical edits, which we incorporated into this chapter.

Office of Administration and Resources Management and ORD management stated that their position is that CRADAs and cooperation authority IAs are not reimbursable agreements. They also stated that the EPA provides goods or services under Economy Act IAs, but implied it does not provide goods or services under CRADAs and cooperation authority IAs; and that for these collaborative agreements, no reimbursement relationship is established.

We disagree that the CRADAs and cooperation authority IAs reviewed are not reimbursable agreements and that no reimbursement relationship is established. The EPA received funds, in-kind contributions or both from the CRADAs' cooperators and IA partners to pay for EPA costs to perform research. We used the general term RRA to identify both of these forms of agreement, as the EPA received funds in each case. We reviewed only cooperative authority IAs and CRADAs; we did not review Economy Act IAs.

See Appendix C for further details on the EPA's comments and the OIG's evaluation of those comments.

# **Status of Recommendations and Potential Monetary Benefits**

## RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Potential Monetary Benefits (in \$000s)
1	16	Develop and issue guidance for estimating in-kind contributions for interagency agreements and cooperative research and development agreements, including a discussion of why reliable cost estimates are important.	O	Director, Office of Grants and Debarment, Office of Administration and Resources Management	12/31/17	
2	16	Direct Office of Research and Development project managers and staff to use guidance developed and issued by the Office of Grants and Debarment for estimating in-kind contributions, and provide training.	O	Assistant Administrator for Research and Development	6/30/18	

<sup>1</sup> O = Recommendation is open with agreed-to corrective actions pending.  
 C = Recommendation is closed with all agreed-to actions completed.  
 U = Recommendation is unresolved with resolution efforts in progress.

## ***Details on Scope and Methodology***

We judgmentally selected six agreements (three IAs and three CRADAs) from the RRA universe to review in detail based on high dollar value, high visibility topic, a variety of federal partners, and a mix of active and completed project status. We used the sample RRAs to assess the internal controls the EPA used while conducting the research projects. We reviewed research agreement documentation for the six projects to identify EPA goals to which the projects contributed, resources allocated to the projects, and controls and procedures to be implemented to effectively manage the projects.

As stated in Chapter 1, our three sample IAs included only cooperation authority IAs. Another type of IA is authorized by the Economy Act and has additional legal requirements, including but not limited to detailed appropriations accounting of funds and full reimbursement of all costs from the ordering or requesting agency. Economy Act requirements were outside the scope of this audit so we did not assess those criteria or the EPA's implementation of them.

We reviewed the following criteria documents:

- The Federal Managers' Financial Integrity Act of 1982.
- Government Performance and Results Act of 1993.
- Federal Technology Transfer Act, Public Law 99-502, October 20, 1986.
- GAO *Standards for Internal Control in the Federal Government*, November 1999.
- OMB Circular A-123, *Management's Responsibility for Internal Control*, December 21, 2004.
- EPA Office of the Chief Financial Officer Directives:
  - ✓ 2520, *U.S. EPA's Administrative Control of Appropriated Funds*, Release 3.2, February 4, 2008.
  - ✓ 2540-13, *Cost Accounting Methods*, January 26, 2009.
  - ✓ 2540-13-P1, *Cost Accounting Methods, Agency Indirect Cost Allocation System for Funds-In Interagency Agreements*, January 29, 2009.
- EPA Office of Research and Development policies and procedures:
  - ✓ Memorandum, *Implementing Project Planning in ORD*, September 23, 2014.
  - ✓ *Standard Operating Procedure for Federal Technology Transfer Act*, October 1, 2012.
  - ✓ *Standard Operating Procedure for the Strategic Environmental Research and Development Program*, October 1, 2012.
  - ✓ *Policies and Procedures Manual, Chapter 4, Extramural Resources Management, Section 4.35 - ORD Employees Seeking Funding from Other Federal Agencies and Participating with Non-EPA Researchers in Submitting Joint Research Applications to Other Federal Agencies*, September 21, 2012.
  - ✓ Memorandum, *Request for Exemption from the Competition Requirements of EPA Order 5700.5A1 for the Award of Cooperative Agreements Under ORD's Participation Policy*, November 5, 2007.

- EPA Office of General Counsel Ethics Advisory 2007-04, *EPA Collaboration with Parties Seeking Scientific Research Grants From Other Federal Agencies*, November 9, 2007.
- EPA Office of Grants and Debarment policies and procedures:
  - ✓ EPA Order 5700.7A1, *Environmental Results under EPA Assistance Agreements*, October 1, 2013.
  - ✓ Interagency Agreement Policy Issuance (IPI-12-01), *Mandatory Interagency Agreement Training for EPA Managers*, effective January 1, 2012.
  - ✓ Interagency Agreement Policy Issuance (IPI-11-03), *Interagency Agreement Annual Post-Award Reviews*, effective April 4, 2011.
  - ✓ Directive Clearance Final, *Interagency Agreement Policies, Procedures, and Guidance Manual*, 2008.
  - ✓ EPA Order 5700.6A2, *Policy on Compliance, Review and Monitoring*, September 24, 2007.
  - ✓ EPA Order 5700.1, *Policy for Distinguishing Between Assistance and Acquisition*, March 22, 1994.

We reviewed the following GAO reports:

- *Implementation Approaches Used to Enhance Collaboration in Interagency Groups*, GAO-14-220, February 2014.
- *Key Considerations for Implementing Interagency Collaborative Mechanisms*, GAO-12-1022, September 2012.

We reviewed the following reports related to the EPA’s collaborating and leveraging research with external partners:

- *2014 Accomplishments, Office of Research and Development*, 2015.
- *Rethinking the Components, Coordination, and Management of the U.S. Environmental Protection Agency Laboratories*, National Research Council of the National Academy of Sciences, September 2014.
- *EPA’s Science for a Sustainable Future: EPA Research Program Overview 2012–2016*, 2012.
- *Science for Environmental Protection: The Road Ahead*, National Academy of Sciences, 2012.

We reviewed ORD’s Federal Managers’ Financial Integrity Act Assurance Letters for fiscal years 2013 and 2014. We also reviewed EPA OIG Management Challenges reports for fiscal years 2011 through 2015. We identified applicable information technology systems or databases from which data for this review was obtained (only systems specific to and substantially used for processing or recording reimbursable research results), and reviewed the major information technology controls for those systems. We also assessed whether policies and procedures were in place to ensure the accuracy and completeness of the Integrated Grants Management System, Compass Financials and Compass Data Warehouse—systems that ORD uses for recording and tracking reimbursable research project activities and transactions.



We interviewed EPA project management personnel for the six selected agreements. Our interviews were conducted to understand, document and analyze the processes the EPA used to select, approve and manage the research projects, and track and report the results. To determine whether the EPA measured and valued the benefits obtained from the research projects, we also interviewed staff from:

- ORD's Office of Program Accountability and Resource Management.
- ORD's Office of Administrative and Research Support.
- ORD's ACE.
- OAR.
- Office of Chemical Safety and Pollution Prevention's Office of Pollution Prevention and Toxics.

To obtain information about practices used by other federal agencies for identifying, tracking and valuing research benefits, we reviewed documentation and interviewed personnel from the:

- U.S. Department of Agriculture's Agricultural Research Service.
- Department of Energy.
- National Institute of Environmental Health Sciences.
- National Oceanic and Atmospheric Administration.

## ***Federal Laws and Standards, and EPA Policies, for Financial Management***

### ***Federal Laws, Internal Controls and Standards***

The Federal Managers' Financial Integrity Act of 1982 requires that internal accounting and administrative controls of each executive agency shall be established in accordance with standards prescribed by the Comptroller General, and shall provide reasonable assurances that:

- Obligations and costs are in compliance with applicable law.
- Funds, property and other assets are safeguarded against waste, loss, unauthorized use or misappropriation.
- Revenues and expenditures applicable to agency operations are properly recorded and accounted for to permit the preparation of accounts and reliable financial and statistical reports, and to maintain accountability over the assets.

The Government Performance and Results Act of 1993 requires agencies to clarify their missions, set strategic and annual performance goals, and measure and report on performance toward those goals. Internal control plays a significant role in helping managers achieve those goals.

The Chief Financial Officers Act of 1990 calls for financial management systems to comply with internal control standards.

The Federal Financial Management Improvement Act of 1996 identifies internal control as an integral part of improving financial management systems.

GAO's *Standards for Internal Control in the Federal Government* state that effective internal controls provide reasonable assurance that effectiveness and efficiency of operations, reliability of financial reporting, and compliance with laws and regulations are being achieved. The standards provide the overall framework for establishing and maintaining internal control and for identifying and addressing major performance and management challenges, and areas at greatest risk of fraud, waste, abuse and mismanagement.

OMB Circular A-123, *Management's Responsibility for Internal Control*, describes internal control over financial reporting as a process designed to provide reasonable assurance regarding the reliability of financial reporting. The circular adds that the Federal Financial Management Improvement Act of 1996 requires agencies to have financial management systems that substantially comply with the federal financial management systems requirements, standards promulgated by the Federal Accounting Standards Advisory Board, and the U.S. Standard General Ledger at the transaction level. Financial management systems shall have general and application controls in place to support management decisions by providing timely and reliable data.

## ***EPA Policies***

EPA Directive 2520, *U.S. EPA's Administrative Control of Appropriated Funds*, states that the control of funds in the federal government is governed by statutes and implemented by directives from OMB, GAO, U.S. Treasury and Congress. This document presents information on the EPA's funds control principles and policies, and details their legal basis. These provisions apply to all organizations, appropriations and funds at the EPA. This policy also states that reimbursable funds may be used for specified purposes only and are subject to the same internal controls as funds directly appropriated to the EPA.

EPA Directive 2540-13, *Cost Accounting Methods*, is designed to provide reliable and timely information on the cost of EPA programs and cost information useful to both internal and external groups concerned with the way in which the organization uses, accounts for, safeguards and controls its resources to meet its objectives. This policy applies to all EPA financial events and transactions, and all EPA personnel involved in financial management activities must adhere to it. The policy states general requirements for cost accounting.

## ***Full Agency Response and OIG Comments***

June 20, 2016

### **MEMORANDUM**

**SUBJECT:** Response to Office of Inspector General Draft Report— *EPA Achieved Scientific Benefits When Using Reimbursable Research Agreements, But Better Estimating of In-Kind Costs Is Needed* — OIG Project Number OPE-FY15-0021

**FROM:** Donna J. Vizian, Acting Assistant Administrator  
Office of Administration and Resources Management

Lek G. Kadeli, Principal Deputy Assistant Administrator for Management  
Office of Research and Development

**TO:** Carolyn Copper, Assistant Inspector General  
Office of Program Evaluation  
Office of the Inspector General

Thank you for the opportunity to respond to the subject draft report. We appreciate your team's review of ORD's Cooperative Research and Development Agreements (CRADAs) and Cooperation Authority Interagency Agreements (CAIAs) to determine whether the EPA benefited from use of these mechanisms, and how those benefits support the agency's mission. We are pleased that the Office of the Inspector General acknowledges how the Office of Research and Development research under CRADAs and CAIAs provides benefits in support of the EPA's mission. Specifically, as noted in Chapter 2 of the draft report, the OIG found that:

“ORD tracked completed products, outputs and projects for required performance-reporting purposes. Performance reports included measures ... agreed to by both ORD and OMB. ... ORD staff identified research results that supported the EPA's goals and mission, and provided either direct or indirect benefits to the agency. Benefits included establishing and supporting regulation standards setting, increasing climate modeling capabilities, developing predictive lab toxicology testing, and improving consumer tools for environmental management.” Draft Report at Page 6.

We also agree with draft report's conclusion regarding the need for guidance to ensure consistent and complete in-kind contribution estimates for CRADAs and CAIAs. As described below, the agency will issue that guidance by December 31, 2017.

### **COMMENTS**

We have three areas we would like clarified in the draft report.

First, the draft report characterizes the CRADAs and CAIAs examined by the OIG as Reimbursable Research Agreements (RRAs). However, based on advice from the Office of General Counsel, the agency's position is that CRADAs and CAIAs are not RRAs.

RRAs involve interagency agreements, typically authorized under the Economy Act, where the EPA receives an "order" from another agency, conducts the work, and then is reimbursed by that agency for the costs the EPA incurs in carrying out the work. This is a classic reimbursement relationship. In contrast, CRADAs and CAIAs involve agreements built on a relationship of collaboration where each party brings something to the table to achieve a common goal. When the ORD enters into a CRADA or CAIA, the ORD is using the EPA resources to accomplish its mission, and joining with another party that is using its own resources to accomplish the same mission. No reimbursement relationship is established because each party is pursuing its own interests and sharing in the result.

**OIG Response to EPA Comment 1:** We disagree that the CRADAs and cooperation authority IAs reviewed are not reimbursable agreements and that no reimbursement relationship is established. We left the RRA references as is in the report. The EPA received funds, in-kind contributions or both from the CRADAs' cooperators and IAs' partners to pay for EPA costs to perform research. We used the general term RRAs to identify both of these forms of agreement, as the EPA received funds in each case. We reviewed only cooperative authority IAs and CRADAs; we did not review Economy Act IAs.

Reimbursable agreements are authorized by a reimbursable authority (additional budgetary authority authorized by congressional statute) and use reimbursable allowances for a federal or non-federal agreement only if the EPA is the receiving agency. EPA Directive 2520, *U.S. EPA's Administrative Control of Appropriated Funds*, identifies reimbursable IAs as "by far" the most common reimbursable situation. This arrangement occurs when other federal agencies provide funding to the EPA for services. The directive states that the authority cited for such agreements is frequently a cooperation authority for IAs, such as those found in EPA authorizing legislation (e.g., the Clean Air Act and Clean Water Act), the Clinger-Cohen Act, and the Economy Act. There are other laws that provide authority for reimbursable agreements, including the Federal Technology Transfer Act, the authority for CRADAs. Therefore, reimbursable agreements do include cooperation authority IAs, Economy Act IAs and CRADAs.

Each type of reimbursable authority has specific requirements that must be followed, and the EPA has policies, procedures and guidance to assist EPA staff in managing these reimbursable agreements. All reimbursable agreements are subject to federal requirements and EPA directives for appropriated funds and cost accounting methods. All reimbursable or funds-in IAs are subject to federal requirements and EPA directives to report the full cost (direct and indirect costs) of outputs, including the goods and services the EPA provides to other agencies, on their financial statements. Also, Economy Act IAs have an additional provision requiring the ordering agency to fully reimburse all costs of the receiving agency (the EPA).

When the EPA is providing goods and services to an outside party under an Economy Act interagency agreement or other RRA, it would be improper, from an appropriations standpoint, for the EPA to use its funds to carry out the mission of an outside entity. In those cases, the EPA must be fully reimbursed for its costs.

Conversely, when the EPA enters into a CRADA or CAIA, it is doing so to achieve its own mission. The fact that the agency is collaborating with an outside entity does not change this basic fact. To the extent another entity provides funds to the EPA, those funds are not to reimburse the EPA for providing a good or service, but to assist in covering the costs of a joint endeavor, pursuant to the negotiated terms of the CRADA or CAIA. The laws underlying CRADAs and CAIAs specifically authorize this and the EPA's standard accounting practices are sufficient to receive and use funds for the project.

The EPA recognizes that outdated agency guidance may have influenced the draft report's use of the RRA terminology. In this regard, neither the *Interagency Agreement Policies, Procedures, and Guidance Manual*, issued in 2008, nor OCFO Policy Number 2540-13-P2, *Recognizing Full Costs for Fund-In Interagency Agreements*, also issued in 2008, clearly distinguishes between reimbursable and collaboration relationships. The agency is in the process of revising those documents to reflect that distinction.

Based on the above analysis, we request that the OIG replace the RRA references in the report and *At a Glance* page with the phrase "Collaborative Research Agreements."

**OIG Response to EPA Comment 1, continued:** In the sample CRADA documents, the EPA stated that the cooperator agreed to pay the EPA or provide resources (including funds) for research. In the sample IA documents, the EPA checked the boxes for reimbursement agreement and repayment boxes in the Funding Methods and Billing Instructions section. Reimbursement agreements are the only category of agreement available for the EPA to receive funds. If the EPA does not check the reimbursement agreement box, it does not have a method to receive payment (reimbursement) from the partner agencies.

Office of Administration and Resources Management and ORD officials expressed concern that we are equating the requirement to report full costing for all funds-in IAs with the ordering agency's full reimbursement of all costs required for Economy Act IAs. In performing this review, we applied the EPA Office of the Chief Financial Officer Directives 2520, *U.S. EPA's Administrative Control of Appropriated Funds*, and 2540-13, *Cost Accounting Methods*, to review the EPA's funds management and cost accounting methods; and applied 2540-13-P1, *Cost Accounting Methods, Agency Indirect Cost Allocation System for Funds-In Interagency Agreements*, to review the EPA's cost estimates and reporting of full costing for reimbursable IAs. Again, we did not review any Economy Act IAs and did not apply the Economy Act IAs' requirement of full reimbursement of all costs to the receiving agency.

Second, the draft report uses the words *accurate* and *reliable* interchangeably. However, the words *reliable* and *accurate* are not synonyms, as they have distinct meanings. The use of the word *accurate* implies a level of precision that would be unreasonable to demand of an estimate at the onset of research planning. Therefore, the agency requests that the term *reliable* be consistently used throughout the text of the report and references to *accurate* estimates be eliminated.

**OIG Response to EPA Comment 2:** We replaced the use of the word “accurate” with the word “reliable” in the report.

Third, the discussion on pages 14-15 of the draft report regarding the collaboration with L’Oreal should be clarified. This collaboration was for a project that used an EPA toxicity forecasting system and toxicity reference database to predict the toxicity to humans of chemicals that L’Oréal might use in cosmetic products. The EPA toxicity forecasting system is referred to as “ToxCast.” This system is different from the EPA database of publicly available animal data about cancer, developmental, and reproductive toxicity, which is known as the Toxicity Reference Database (ToxRefDB). Please use the narrative in quotation marks below to replace the current narrative on Pages 14-15.

“ORD’s in-kind estimate included \$25 million for phase 1 and \$30 million for the cost of data in the ToxRefDB. Phase 1 costs were to obtain data for testing of 1,000 chemicals to enter into the ToxRefDB—with testing costs initially calculated at an estimated \$25,000 per test multiplied by 1,000 chemicals, equaling \$25 million. The EPA paid for the phase 1 costs as a part of developing the ToxCast system and shared the information with L’Oréal. The ToxRefDB costs were for data from 600 animal studies that were submitted to the EPA and paid for by the companies that conducted or obtained the studies. ORD estimated that the studies cost \$50,000 each multiplied by 600 studies, resulting in a total of \$30 million.”

**OIG Response to EPA Comment 3:** We revised the narrative on the ORD’s in-kind contribution calculation on pages 14–15 based on the EPA’s suggestion above and data in the L’Oréal CRADA documents.

AGENCY’S OVERALL POSITION ON DRAFT REPORT RECOMMENDATIONS

The agency concurs with the recommendations.

AGENCY’S RESPONSE TO DRAFT REPORT RECOMMENDATIONS

No.	OIG Recommendation	Responsible Office	EPA Actions	Estimated Completion Date
1	Develop and issue guidance for estimating in-kind contributions for CRADAs and IAs, including a discussion of why reliable cost estimates are important.	OARM/ OGD	OARM will work with ORD, OCFO, and OGC to develop and issue guidance establishing consistent procedures for in-kind contribution costs for CRADAs and IAs. This new procedure will include a discussion of why reliable cost estimates are helpful during the planning phase of the research project for decision-making purposes.	1 <sup>st</sup> quarter FY2018
2	Direct ORD project managers and staff to use guidance developed and issued by the OGD for estimating in-kind contributions, and provide training.	ORD	ORD will direct its project managers and staff to use this new procedure to estimate the costs for CRADAs and CAIAs.  In a related action, ORD will work with OGD, OCFO, and OGC to provide training to ORD staff on the new procedure.	3 <sup>rd</sup> quarter FY2018  3 <sup>rd</sup> quarter FY2018

In conclusion, we appreciate the opportunity to provide comments on the draft report. Please include this memorandum in its entirety as an appendix to the final report. Should you or your staff have any questions about this response, please contact Heather Cursio, Acting Director, Policy Administration and Management Integrity Division, ORD at (202) 566-2327.

- cc: Howard Corcoran, Director, Office of Grants and Debarment, OARM  
 Elise Packard, Associate General Counsel, Civil Rights and Finance Law Office  
 Lucille Liem, OGC  
 Stefan Silzer, Controller  
 Dr. Thomas Burke, Acting Deputy Assistant Administrator for Research and Science Advisor, ORD  
 Dr. Robert Kavlock, Deputy Assistant Administrator for Science, ORD  
 Daniel Gonzalez, Director, Office of Program Accountability Resource Management, ORD



Christiane Routt, Deputy Director, Office of Program Accountability Resource Management, ORD  
Heather Cursio, Acting Director, Policy Administration and Management Integrity Division, ORD  
Brandon McDowell, Audit Follow-Up Coordinator, OARM  
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Arthur Elkins Jr., Inspector General  
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Carolyn Copper, Assistant Inspector General for Program Evaluation  
Kevin Christensen, Assistant Inspector General for Audit  
Patrick Sullivan, Assistant Inspector General for Investigations  
Alan Larsen, Counsel to the Inspector General  
Christine El-Zoghbi, Deputy Assistant Inspector General for Program Evaluation  
Jennifer Kaplan, Deputy Assistant Inspector General for Congressional and Public Affairs  
Jeffrey Lagda, Congressional and Media Liaison, OIG

## ***Distribution***

Office of the Administrator  
Assistant Administrator for Administration and Resources Management  
Assistant Administrator for Research and Development  
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Deputy Assistant Administrator for Science, Office of Research and Development  
Principal Deputy Assistant Administrator for Management, Office of Research and Development  
Principal Deputy Assistant Administrator, Office of Administration and Resources Management  
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