

# Scientific Integrity

*Annual Report – FY 2014*





**Scientific Integrity at EPA**  
*Annual Report — Fiscal Year 2014*



**The U.S. Environmental Protection Agency** is charged by Congress with protecting the Nation's land, air, and water resources. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. To meet this mandate, EPA programs provide data and technical support for solving environmental problems today and building a science knowledge base necessary to manage our ecological resources wisely, understand how pollutants affect our health, and prevent or reduce environmental risks in the future.

**EPA's Scientific Integrity Official (ScIO)** champions scientific integrity throughout the Agency. The ScIO chairs the Scientific Integrity Committee comprised of Deputy Scientific Integrity Officials who represent each EPA program office and region. Science is the backbone of EPA's decision-making. The Agency's ability to pursue its mission to protect human health and the environment depends upon the integrity of the science on which it relies.

The full text of this report is available on EPA's website at:  
[www2.epa.gov/osa/2014-annual-report-scientific-integrity](http://www2.epa.gov/osa/2014-annual-report-scientific-integrity)

Cover Design by Armando Valentino Chagolla, October 2014.

**About the Cover:** The cover is adapted from a new Scientific Integrity poster. The poster will be printed and distributed throughout the Agency to increase awareness of Scientific Integrity. The poster also will be made available to internal and external groups at conferences and other outreach events.

EPA Publication number 601R14008

Printed on 100% Postconsumer, Process Chlorine Free Recycled Paper

# Contributors & Acknowledgments

## Acknowledgments

### **The contributors wish to acknowledge:**

The Scientific Integrity Committee, for their role in championing Scientific Integrity throughout the Agency, their assistance in gathering the information needed for this report, and their helpful review of an earlier draft.

Barbara Martinez, Ph.D., for her contributions to the design of the Scientific Integrity Policy Evaluation process and the related figures.

Armando Valentino Chagolla, for his assistance formatting the figures, layout and overall design of this report.

## Contributors

### **Francesca T. Grifo**

Francesca is the Scientific Integrity Official at the U.S. Environmental Protection Agency. Previously she was the Director of the Scientific Integrity Program at the Union of Concerned Scientists. She holds a BA in biology from Smith College and a Ph.D. in plant systematics from Cornell University.

### **Martha Otto**

Martha is the Scientific Integrity Program Lead in the Office of the Science Advisor. Martha has over 25 years of experience in hazardous waste site remediation, innovative treatment technologies, and policy, regulation, and guidance development. She holds a BS in biology and an MS in environmental science and engineering from Virginia Tech.

### **Valerie Askinazi**

Valerie is a student services contractor in the Office of the Science Advisor. She holds a BS in science of natural and environmental systems from Cornell University and an MPA in environmental science and policy from Columbia University.

# Table of Contents

|  |            |
|--|------------|
| <b>Contributors and Acknowledgments</b> .....  | <b>iii</b> |
| <b>Figures and Boxes</b> .....   | <b>vi</b>  |
| <b>Acronyms</b> .....  | <b>vii</b> |
| <b>Executive Summary</b> .....   | <b>1</b>   |
| <b>1. Introduction</b> .....   | <b>3</b>   |
| <b>EPA Scientific Integrity Milestones</b> .....   | <b>3</b>   |
| <b>What is Scientific Integrity?</b> .....   | <b>4</b>   |
| <b>EPA’s Scientific Integrity Policy</b> .....   | <b>6</b>   |
| Promoting a Culture of Scientific Integrity at EPA .....                                   | 6          |
| Releasing Information to the Public .....  | 7          |
| Peer Review and the Use of Federal Advisory Committees .....                               | 7          |
| Professional Development of Government Scientists and Engineers .....                      | 7          |
| <b>2. Scientific Integrity in FY 2014</b> .....  | <b>8</b>   |
| <b>Ongoing Scientific Integrity Activities</b> .....                                       | <b>8</b>   |
| The Scientific Integrity Committee .....   | 8          |
| The Annual Report on Scientific Integrity .....  | 8          |
| Annual Meeting/Conversation with the Scientific Integrity Official.....                    | 8          |
| Scientific Integrity Training .....  | 9          |
| Strengthening Contractor-Managed Peer Review.....  | 9          |
| Quarterly Coordination Meetings with the Office of Inspector General.....                  | 10         |
| <b>New Scientific Integrity Initiatives</b> .....  | <b>10</b>  |
| Procedures for Reporting and Resolving Allegations of a Loss of Scientific Integrity ..... | 10         |
| FMFIA: The Federal Managers Financial Integrity Act.....                                   | 12         |
| Policy Evaluation.....   | 12         |
| Peer Review Handbook .....   | 15         |
| Scientific Integrity Outreach .....  | 16         |
| Quarterly Meetings of the Union Working Group .....  | 16         |
| Ethics Training Module.....  | 16         |

|   |           |
|---|-----------|
| <b>Scientific Integrity Accomplishments .....</b>                               | <b>17</b> |
| Promoting a Culture of Scientific Integrity .....                               | 17        |
| Release of Information to the Public .....                                      | 18        |
| Peer Review and Federal Advisory Committees .....                               | 19        |
| Professional Development.....   | 20        |
| <b>3. Opportunities for Improvement.....</b>                                    | <b>22</b> |
| <b>Reporting and Resolving Allegations of a Loss of Scientific Integrity ..</b> | <b>22</b> |
| <b>Reducing Confusion about Designating Publication Authorship .....</b>        | <b>24</b> |
| <b>Increasing Transparency .....</b>  | <b>25</b> |
| Media Access to EPA Scientists .....  | 25        |
| Decision Making .....   | 25        |
| Public Access .....   | 25        |
| <b>Addressing Constraints to Full Implementation of the Policy .....</b>        | <b>25</b> |
| Maintaining Scientific Expertise in a Time of Reduced Workforce .....           | 25        |
| Outreach and Training.....  | 26        |
| <b>Defining the Timely Release of Agency Science and Scientific Products .</b>  | <b>26</b> |
| <b>Enhancing Peer Review .....</b>  | <b>26</b> |
| <b>4. Areas for Future Investment.....</b>                                      | <b>28</b> |
| <b>Annual Activities and Requirements .....</b>                                 | <b>28</b> |
| <b>Ongoing Projects .....</b>   | <b>28</b> |
| <b>New Initiatives .....</b>  | <b>28</b> |
| Transparency and the Public Trust.....  | 28        |
| Nurturing a Culture of Robust Scientific Discourse .....                        | 29        |
| Extending EPA’s Culture of Scientific Integrity .....                           | 29        |
| <b>5. Conclusions.....</b>  | <b>30</b> |
| <b>Sources and End Notes.....</b>   | <b>32</b> |
| <b>Appendix 1. ....</b>   | <b>34</b> |
| <b>Appendix 2. ....</b>   | <b>38</b> |
| <b>Members of the Scientific Integrity Committee .....</b>                      | <b>39</b> |

# Figures and Boxes

## Figures and Boxes

### Figures

|   |    |
|---|----|
| Figure 1. Timeline of Scientific Integrity at EPA .....                       | 2  |
| Figure 2. Scientific Integrity at EPA .....                                   | 6  |
| Figure 3. The Annual Cycle of Ongoing Scientific Integrity Activities .....   | 9  |
| Figure 4. Procedures for Reporting and Resolving Allegations (Draft) .....    | 11 |
| Figure 5. The Evaluation of the Scientific Integrity Policy .....             | 14 |
| Figure 6. An Example of One Logic Model Activity .....                        | 14 |
| Figure 7. Logic Model Conditions EPA is Striving to Achieve .....             | 15 |
| Figure 8. Total Allegations Received by FY Quarter/Year (as of 9/30/14) ..... | 22 |
| Figure 9. Informal and Formal Allegations Received in Fiscal Year 2014 .....  | 23 |
| Figure 10. Allegations by Quarter, FY14 .....                                 | 23 |

### Boxes

|   |    |
|---|----|
| Box 1. EPA's Principles of Scientific Integrity ..... | 5  |
| Box 2. Case Summary .....                             | 13 |



# Acronyms

## Acronyms

|              |  |
|--------------|--|
| <b>AA</b>    | Assistant Administrator                            |
| <b>DScIO</b> | Deputy Scientific Integrity Official               |
| <b>EPA</b>   | U.S. Environmental Protection Agency               |
| <b>FMFIA</b> | Federal Managers Financial Integrity Act           |
| <b>HISA</b>  | Highly Influential Scientific Assessment           |
| <b>IRIS</b>  | Integrated Risk Information System                 |
| <b>ISI</b>   | Influential Scientific Information                 |
| <b>OAR</b>   | Office of Air and Radiation                        |
| <b>OCSP</b>  | Office of Chemical Safety and Pollution Prevention |
| <b>OECA</b>  | Office of Enforcement and Compliance Assurance     |
| <b>OGC</b>   | Office of General Counsel                          |
| <b>OIG</b>   | Office of Inspector General                        |
| <b>ORD</b>   | Office of Research and Development                 |
| <b>OSA</b>   | Office of the Science Advisor                      |
| <b>QMP</b>   | Quality Management Plan                            |
| <b>RA</b>    | Regional Administrator                             |
| <b>RFAC</b>  | Regional Field Advisory Council                    |
| <b>RSSC</b>  | Regional Science Steering Council                  |
| <b>ScIC</b>  | Scientific Integrity Committee                     |
| <b>ScIO</b>  | Scientific Integrity Official                      |
| <b>ScIP</b>  | Scientific Integrity Policy                        |
| <b>SGE</b>   | Special Government Employee                        |
| <b>SOP</b>   | Standard Operating Procedures                      |
| <b>TSA</b>   | Technical Systems Audit                            |







# Executive Summary

The Annual Report chronicles the implementation of EPA's Scientific Integrity Policy in fiscal year (FY) 2014. Since February 2012, EPA's Scientific Integrity Policy has provided both a vision and a roadmap for ensuring scientific integrity at the Agency. The Policy lists the components of a culture of scientific integrity and offers a framework for ensuring Agency-wide participation in that culture. Although scientific integrity is treated as a single issue in the Policy, maintaining scientific integrity requires investment from and the collaboration of many parts of EPA. This report documents the investments made across EPA in FY2014 and identifies areas of focus for future initiatives.

The 2014 Annual Report on Scientific Integrity represents a model for future years by using the Federal Managers Financial Integrity Act (FMFIA) process to assess the state of scientific integrity across the Agency. Each program and regional office submitted a checklist to the Office of the Chief Financial Officer, highlighting successes that exemplify a culture of scientific integrity, transparency of EPA research, proper peer review of scientific documents and the professional development of EPA's scientific staff.

Several of EPA's scientific integrity activities were first implemented prior to FY2014. These activities provide ongoing support for scientific integrity activities at EPA. These include quarterly meetings of the Scientific Integrity Committee (ScIC), production of an annual report, the Annual Meeting/Conversation with the Scientific Integrity Official (ScIO), training in scientific integrity, oversight of contractor-led peer review and coordination with the Office of Inspector General.

The Scientific Integrity Committee made significant strides creating new scientific integrity initiatives across the Agency in FY2014. New draft procedures were written for reporting and resolving allegations of a loss of scientific integrity at the Agency. The Scientific Integrity Committee has also begun evaluating the Scientific Integrity Policy, a process that will identify the effectiveness of the Policy in meeting its goals. The Scientific Integrity Committee has used a variety of outlets to reach EPA employees who supervise, manage, perform, communicate or are engaged in scientific research. These activities will continue to make scientific integrity a visible component of EPA culture. New outreach activities included internal presentations at Headquarters and regional offices for EPA employees, and convening quarterly meetings of a scientific integrity Union Working Group.

In 2014, EPA program and regional offices have taken a variety of approaches to enhance a culture of scientific integrity at EPA. Research-focused offices have made advances in the public release of large data sets, dashboards

and other mechanisms that lead to greater transparency and accessibility of Agency science. Other offices have revised procedures to assure the quality of Agency science, such as those for reviewing and approving scientific products and for conducting peer review. The FMFIA program review also provided an opportunity for offices to highlight activities to support the professional development of EPA scientists and engineers so that they may engage with their scientific community and be recognized as leaders in their fields.

Scientific integrity is an ongoing priority for EPA. While we have made progress in 2014, we must continue to build on our successes to fully ensure a robust culture of scientific integrity at EPA. The Annual Report shares several highlights from the last year, but also acknowledges areas for improvement in FY2015.

**Looking forward to fiscal year 2015 and beyond, six priority issues present opportunities for ongoing investment:**

1. Reporting and resolving allegations of a loss of scientific integrity.
2. Reducing confusion about designating publication authorship.
3. Increasing transparency.
4. Addressing constraints to full implementation of the Policy.
5. Defining the timely release of Agency science and scientific products.
6. Enhancing peer review.

Agency investments in these activities ensure the credibility of, and maintain the public trust in, Agency science.

Science at EPA is robust and ready to meet the task of guiding our work, protecting human health and the environment. Our investment in enhancing scientific integrity is part of embracing EPA as a high-performing organization. From the earliest formation of a scientific question to the application of research results, scientific integrity creates protections for science from inappropriate interference, manipulation and suppression. These protections ensure that EPA decisions are informed by the best science the Agency, its contractors, grantees and collaborators have to offer. The Scientific Integrity Official and the Scientific Integrity Committee will continue to work with the Senior Counsel for Ethics, the Office of Inspector General and the rest of the Agency to safeguard our science and keep the public's trust in the quality and integrity of our work every day. Scientific integrity gets us there.

**Figure 1**  
Timeline of  
Scientific  
Integrity  
at EPA

**1983**  
*William Ruckelshaus promises that EPA employees will "Conduct themselves with the openness and integrity which alone can ensure public trust in the Agency" in his "fishbowl memo"*

**1999**  
*National Partnership Council releases EPA's Principles of Scientific Integrity*

**January 2009**  
*President Obama promises to "restore science to its rightful place" in his inaugural address*

**March 2009**  
*President Obama issues a Scientific Integrity Memorandum giving OSTP 120 days to "develop a plan aimed at ensuring the integrity of federal science"*

**May 2009**  
*EPA Administrator Lisa Jackson issues her "compass memo" pledging a culture of scientific integrity at EPA*


# 1. Introduction

## Introduction

Continuing the tradition first articulated in 1983 by former EPA administrator William Ruckelshaus “that EPA would operate in a fishbowl,”<sup>1</sup> this report is part of the Agency’s ongoing commitment to transparency. EPA released its Scientific Integrity Policy in February 2012 and its first annual report in November 2013. EPA’s Scientific Integrity Policy provides both a vision and a roadmap for ensuring high standards of scientific integrity at the Agency. The Policy lists the components of a culture of scientific integrity and offers a framework for ensuring Agency-wide compliance. EPA assesses the overall implementation of the Policy at the end of each fiscal year during a review of all the scientific integrity activities at the Agency. The annual review for FY2014 culminated in the publication of this Annual Report. The Annual Report provides an opportunity to highlight scientific integrity accomplishments and identify areas for future improvement and action.

### EPA Scientific Integrity Milestones

In 1999, EPA unions and managers came together to write the Agency’s scientific integrity principles,<sup>2</sup> which were developed by the National Partnership Council. They are a call for employees to ensure that their scientific work is of the highest integrity, to represent it fairly, acknowledge the intellectual contributions of others and avoid financial conflicts (Box 1. EPA’s Principles of Scientific Integrity). In his inaugural address in 2009, President Obama pledged to “...restore science to its rightful place...” A few months later, he issued a Scientific Integrity Memorandum in which he asked the White House Office of Science and Technology Policy (OSTP) to create a plan to establish strong scientific integrity standards.<sup>3</sup> The resulting OSTP Guidance Memorandum required agencies and departments to create or improve policies related to foundations of scientific integrity in government; public communications; use of federal advisory committees; and professional



**December 2010**  
OSTP issues guidance requiring agencies and departments to create or improve policies related to scientific integrity

**August 2011**  
EPA releases a draft scientific integrity policy and opens a public comment period through which EPA receives thousands of comments

**February 2012**  
EPA releases its final Scientific Integrity Policy

**November 2013**  
EPA hires its first full-time SciO

**April 2014**  
EPA Administrator Gina McCarthy addresses The National Academy of Sciences

development of scientists and engineers. It acknowledged the differences in structure and degree of regulatory responsibility in agencies and departments and gave them some latitude on developing their policies.<sup>4</sup> EPA was among a few agencies to put its draft policy out for public comment and was one of the first agencies to release a final Scientific Integrity Policy in February 2012 (Figure 1).

### What is Scientific Integrity?

Scientific integrity is the adherence to professional values and practices when conducting, communicating and applying the results of science and scholarship. Scientific integrity ensures objectivity, clarity, reproducibility and utility. It provides insulation from bias, fabrication, falsification, plagiarism, outside interference and censorship. For example, if Agency end-users directed research and results, or manipulated, suppressed or delayed science or scientific reports, those actions could represent a loss of scientific integrity. It would also be seen if there were a lack of transparency around an Agency decision, a lack of impartiality, or a conflict of interest in peer review or advisory committees. A lack of scientific integrity may also manifest itself as inappropriate discouragement of professional development or a culture unwelcoming to differing scientific opinions.

“The work we do together to preserve the integrity of our science is as critical as ever...With science as our North Star – EPA has steered America away from health risks, and toward healthier communities and a higher overall quality of life.”

— *Gina McCarthy • April 28, 2014*

The Agency may make final decisions that weigh other factors besides science and be consistent with EPA's governing statutes. Such decisions, even if they are not consistent with the science, do not in and of themselves constitute scientific integrity issues. In addition, a denial of travel or training due to budget constraints or concerns about an employee's ability to handle workload is also not a scientific integrity issue. It also is not a denial of permission to publish when the research is flawed nor is it a lack of freedom over one's research topics. Although scientific integrity is treated as a single issue in the Scientific Integrity Policy, implementing scientific integrity requires inputs from a wide variety of sources toward that common goal (Figure 2).

# Box 1: EPA's Principles of Scientific Integrity

## **National Partnership Council Agency Labor Unions and Management in Partnership Fostering Scientific Integrity**

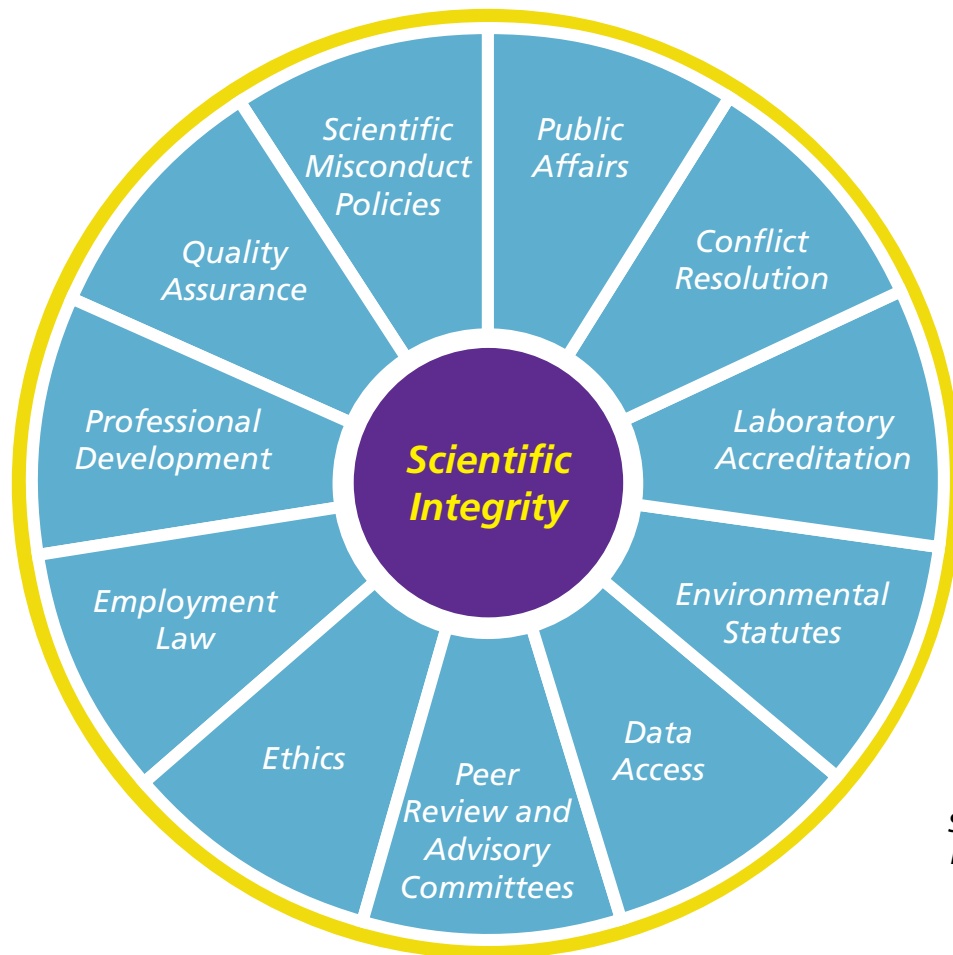
### **EPA's Principles of Scientific Integrity**

It is essential that EPA's scientific and technical activities be of the highest quality and credibility if EPA is to carry out its responsibilities to protect human health and the environment. Honesty and integrity in its activities and decision-making processes are vital if the American public is to have trust and confidence in EPA's decisions. EPA adheres to these Principles of Scientific Integrity listed below.

### **EPA employees, whatever their grade level, job or duties must:**

- Ensure that their work is of the highest integrity. This means that their work is to be performed objectively, without predetermined outcomes using the most appropriate techniques. Employees are responsible and accountable for the integrity and validity of their own work. Fabrication or falsification of work results are direct assaults on the integrity of EPA and will not be tolerated.
- Represent their work fairly and accurately. When representing the work of others, employees must seek to understand the results and the implication of the work and also represent it fairly and accurately.
- Represent and acknowledge the intellectual contributions of others in representing their work to others or in published writings such as journal articles or technical reports. To do otherwise is plagiarism. Employees should also refrain from taking credit for work with which they were not materially involved.
- Avoid financial conflicts of interest and ensure impartiality in the performance of their duties by respecting and adhering to the principles of ethical conduct and implementing standards contained in Standards of Ethical Conduct for Employees of the Executive Branch and in supplemental Agency regulations.
- Be cognizant of and understand the specific programmatic statutes that guide the employee's work.
- Accept the affirmative responsibility to report any breach of these principles.
- Welcome differing views and opinions on scientific and technical matters as a legitimate and necessary part of the process to provide the best possible information to regulatory and policy decision-makers.

Scientific Integrity 2014  
2014 Scientific Integrity



**Figure 2**  
Scientific Integrity at EPA

### **EPA's Scientific Integrity Policy**

EPA's Scientific Integrity Policy outlines five specific goals to ensure scientific integrity throughout the Agency. Engaging in these activities strengthens the credentials of Agency scientists and the credibility of future Agency research.

1. EPA environmental policies, decisions, guidance and regulations grounded in robust, high quality science.
2. Transparency within Agency scientific processes.
3. Scientific research and results communicated openly and with integrity, accuracy and timeliness.
4. Appropriate use of peer review and federal advisory committees.
5. Professional development of the Agency's scientists, engineers and other technical staff.

To address these goals, the Policy is divided into four sections:

1. Promoting a culture of scientific integrity at EPA.
2. Releasing information to the public.
3. Peer review and the use of federal advisory committees.
4. Professional development of government scientists and engineers.

### **Promoting a Culture of Scientific Integrity at EPA**

This section of the Policy establishes an expectation that scientific research is generated in a timely manner, characterized appropriately for Agency policy-



making and communicated clearly to the public. Honesty, transparency and a commitment to producing high-quality scientific data are key components of a culture of scientific integrity. All EPA employees, contractors, grantees and volunteers are explicitly forbidden to suppress, manipulate or otherwise alter scientific data. This assures that EPA decisions are informed by the best science the Agency, its contractors, grantees and collaborators have to offer. A culture of scientific integrity is also one that protects employees who report allegations of suspected misconduct. Similarly, employees who express differing scientific opinions should neither fear nor experience retaliation.

### **Releasing Information to the Public**

The Policy aims to foster a culture of transparency regarding the results of research, scientific activities and technical findings. EPA encourages open communication, free from political or other interference. Communication activities may include news releases, Web postings, responses to Congressional inquiries and publication in peer-reviewed journals. The clear and timely release of science facilitates a free flow of information and increases public confidence in the Agency.

“Science must be the compass guiding our environmental protection decisions.... While the laws that EPA implements leave room for policy judgments, the scientific findings on which these judgments are based should be arrived at independently using well-established scientific methods, including peer review, to assure rigor, accuracy, and impartiality. “

— *Lisa Jackson • May 9<sup>th</sup>, 2009*

### **Peer Review and the Use of Federal Advisory Committees**

Independent peer review is a necessary component of quality control in science and a crucial aspect of scientific integrity. EPA’s review process is outlined in the Agency Peer Review Handbook<sup>5</sup> which is currently under revision. External Federal Advisory Committees offer additional opportunities for review of scientific activities and provide additional scientific expertise.

### **Professional Development of Government Scientists and Engineers**

EPA employees are encouraged to participate in professional development activities to fully engage with their scientific communities and become leaders in their fields. Professional development activities may include presenting at scientific meetings or conferences, participating in professional societies, or serving on editorial boards of peer-reviewed journals.

## 2. Scientific Integrity in FY 2014

### Ongoing Scientific Integrity Activities

Several of EPA's scientific integrity activities were first implemented prior to FY2014. These activities provide ongoing support for the evolving scientific integrity activities at EPA. These annual activities are illustrated in Figure 3 and described in this section.

#### **The Scientific Integrity Committee**

The Scientific Integrity Policy established a Scientific Integrity Committee, chaired by the Scientific Integrity Official. The Committee consists of senior program office and regional officials who are designated Deputy Scientific Integrity Officials (DScIOs). They provide leadership for the Agency on scientific integrity, jointly assist in the implementation of the Policy and promote Agency compliance with the Policy. The Committee meets quarterly. The ScIO communicates regularly with Committee members to discuss approaches to emerging issues and work together to resolve allegations. The Committee's participation ensures that a variety of experiences and viewpoints are considered. The members are listed in a table located inside the back cover with their email addresses.

#### **The Annual Report on Scientific Integrity**

The ScIO, with input from the DScIOs, is responsible for generating an annual report to the Science Advisor on the status of scientific integrity at the Agency. This report is also publicly available online<sup>6</sup> and in print form. The report highlights successes, identifies areas for improvement and includes plans for addressing critical weaknesses if any are reported. For the first time in 2014, the annual report used information gathered under the auspices of the Federal Managers Financial Integrity Act.

#### **Annual Meeting/Conversation with the ScIO**

The Annual Meeting/Conversation with the ScIO provides an opportunity for EPA employees to learn about scientific integrity at EPA and ask questions. The ScIO, Dr. Francesca Grifo, presented to a live audience at Headquarters and to the rest of the Agency through a well-attended webinar in July 2014. The conversation improved the visibility of the Scientific Integrity Policy and increased awareness among EPA employees and other stakeholder groups. The sessions emphasized the broad applications of the Policy across EPA and encouraged employees to recognize and bring forward any concerns they might have. A summary of this meeting is included in Appendix 2.

# Scientific Integrity Annual Calendar

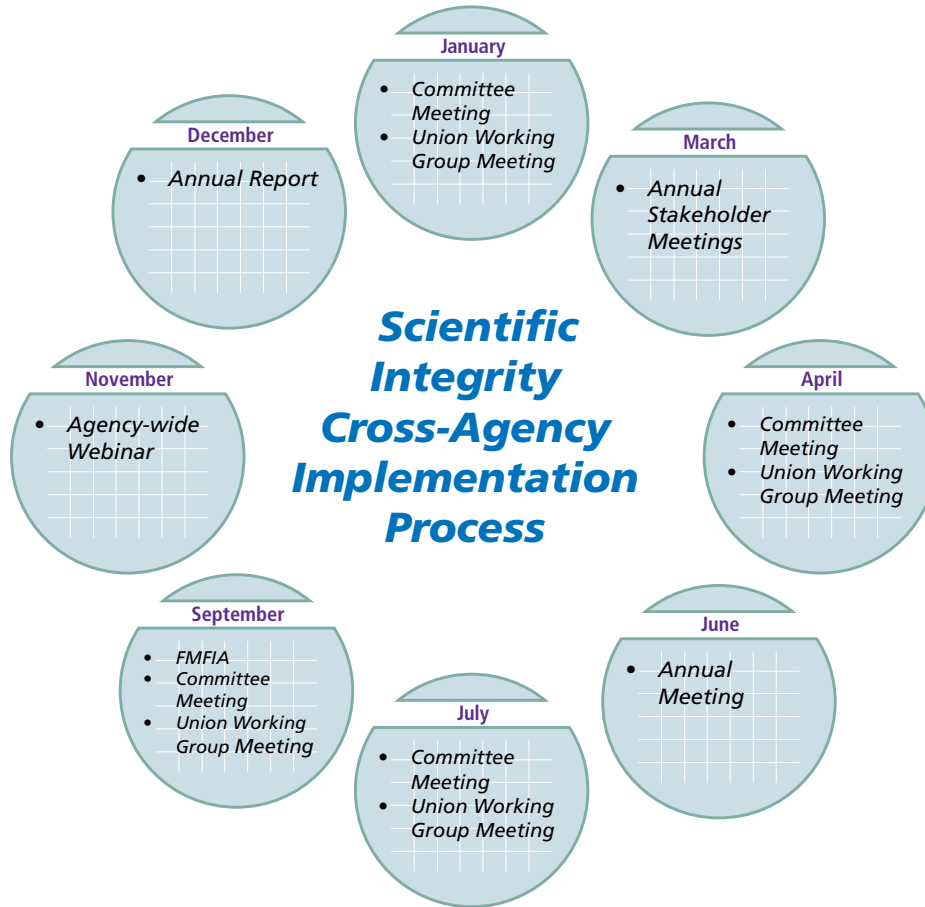


Figure 3 The Annual Cycle of Ongoing Scientific Integrity Activities

## Scientific Integrity Training

An initial training on the Scientific Integrity Policy was deployed in November 2013. The training was mandatory for supervisors and other employees designated by each Deputy Scientific Integrity Official. More than 5,700 employees, one-third of all employees, have taken the online course. All 24 members of the Scientific Integrity Committee have certified that the designated employees in their program, office or region have taken the training. The training module is also an ongoing resource for current and new EPA employees to learn about scientific integrity and its applicability to EPA activities.<sup>7</sup>

## Strengthening Contractor-Managed Peer Review

In FY2013, EPA strengthened the Agency's oversight of contractor-led peer review panels by developing a new Conflict-of-Interest Review Process for Contractor-Managed Peer Reviews.<sup>8</sup> The new process includes two new opportunities for public involvement for identifying and selecting panel members. The new process is designed to enhance the transparency of contractor-led peer reviews, increase internal oversight of these peer reviews and reduce the potential for organizational or personal conflict-of-interest concerns through greater public participation and more rigorous internal

review. The process was used to improve three contractor-managed peer reviews in 2014.

### **Quarterly Coordination Meetings with the Office of Inspector General**

The Scientific Integrity Official (ScIO) and the Office of Inspector General (OIG) have maintained regular communication through quarterly meetings in which they discuss the status of current allegations of a loss of scientific integrity under review and anticipated courses of action.<sup>9</sup> Coordination between the two offices exemplifies the Agency-wide nature of the Scientific Integrity Policy implementation.

The handling of scientific misconduct, which includes fabrication, falsification, plagiarism or misrepresentation in proposing, performing or reviewing scientific or research activities, is governed by EPA's Scientific Misconduct Policy<sup>10</sup> and overseen by the OIG. In 2014, five allegations were received through the OIG hotline and referred to the ScIO and three allegations of scientific misconduct came to the ScIO and were referred to the OIG.

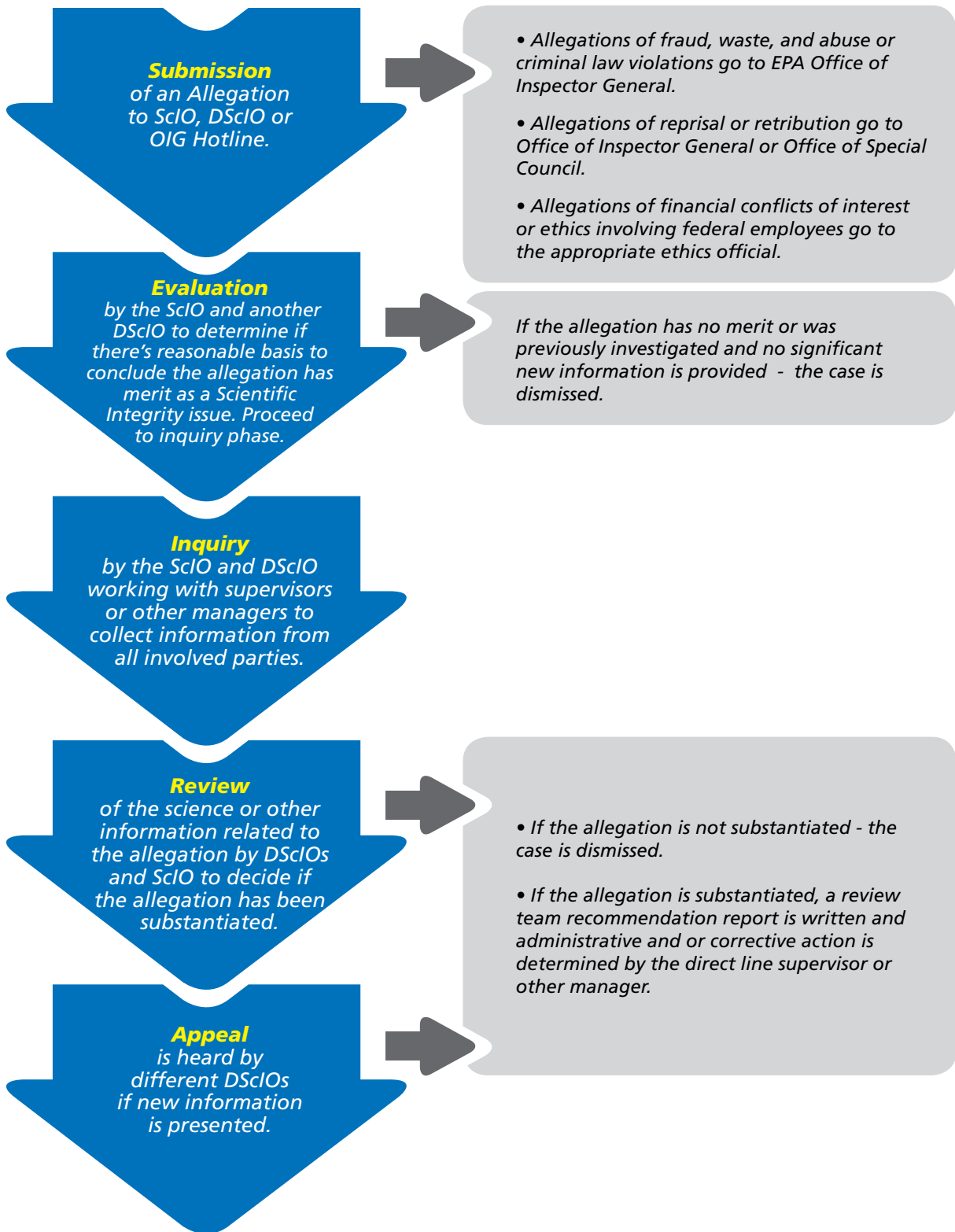
### **New Scientific Integrity Initiatives**

New work in 2014 focused on developing procedures to implement the Scientific Integrity Policy; initiating an evaluation of the content, implementation and impact of the Policy; consulting with the EPA unions and other outreach; and updating the EPA Peer Review Handbook.

### **Procedures for Reporting and Resolving Allegations of a Loss of Scientific Integrity**

There are no formal processes for receiving or resolving allegations included in the Policy. In 2014, the Scientific Integrity Committee developed draft procedures for reporting and resolving allegations of lapses of scientific integrity at the Agency. The goal was to create a procedure that honored transparency, confidentiality, consistency, timeliness and fairness. Figure 4 illustrates the resulting draft procedures. The following is a summary of the draft procedures that are currently being used and finalized with the input of the Scientific Integrity Committee.

Allegations of misconduct may be received by the Scientific Integrity Official, any Deputy Scientific Integrity Official or the Office of Inspector General. Once an allegation has been received, the process begins with the question: Is there a reasonable basis to believe the allegation of a lapse in scientific integrity has merit? In other words, if everything the complainant alleges were found to be true, would the allegation be a lapse in scientific integrity or is it a different kind of problem? If the allegation concerns waste, fraud, or abuse or other criminal violations, the allegation would be referred to the OIG. If the allegation involves reprisal, it would be referred to the OIG or the Office of Special Counsel.<sup>11</sup> If the allegation concerns a financial conflict of interest or other ethics issue involving federal employees it would go to the appropriate Deputy Ethics Official or Office of General Counsel/Ethics, or Human Subjects Research Review Official, as appropriate. If the allegation has been submitted previously and provides no new information, or if it has no merit, it would be dismissed and all parties informed of this action.



**Figure 4** Procedures for Reporting and Resolving Allegations (Draft)

If the claim is identified as a potential loss of scientific integrity, then the inquiry phase begins and information is collected from the subject of the allegation, the complainant and other relevant sources. The information is reviewed by the ScIO, the relevant DScIO and a second DScIO who may have expertise in the field of inquiry. The second question in the flow chart asks if the allegations have been substantiated. If the evidence is insufficient, the case is dismissed. One appeal is permitted for a dismissed case, if additional evidence can be provided. If a case is substantiated, the ScIO is responsible for drafting a case summary and recommendations for corrective actions to safeguard the involved science. Other actions may be deemed necessary by the supervisor or other manager. The Scientific Integrity Committee will check in periodically to be sure the scientific recommendations are carried out. In addition, the resolved allegations are summarized in the annual report and on the Internet in a way that protects the identity of the parties involved. A summary of a case closed in August 2014 is in Box 2. Additional information on allegations and their disposition can be found in section 3 (page 22).

### **FMFIA: The Federal Managers Financial Integrity Act**

The Federal Managers Financial Integrity Act requires that federal agencies assess the effectiveness of programmatic and financial internal controls. EPA Assistant Administrators (AAs) and Regional Administrators (RAs) must certify that their programs comply each year through an assurance letter to the EPA Administrator, who delivers an overall statement of assurance to the President and Congress. FY2014 marks the first year that AAs and RAs were required to submit an attachment certifying internal controls for scientific integrity.

The Office of the Science Advisor (OSA)<sup>12</sup> worked closely with the Office of the Chief Financial Officer (OCFO) to develop a process for management certification of compliance with the Scientific Integrity Policy. Based on the requirements outlined in the Scientific Integrity Policy, the template probed for accomplishments, potential weaknesses and overall progress in implementing the Agency's Scientific Integrity Policy. Each office assessed the status of scientific integrity in its processes for generating, managing, using, communicating or otherwise working with scientific information.

The FY2014 FMFIA process provided a structured assessment of EPA's scientific integrity activities across the Agency. Although several opportunities for improvement emerged, senior managers did not identify any material weaknesses in their offices' implementation activities and they identified a number of successes.

### **Policy Evaluation**

The Scientific Integrity Policy requires that the Scientific Integrity Committee review the Policy every two years to ensure its effectiveness and adherence with applicable rules and regulations. In 2014, the Committee began a formal evaluation of the Policy including a systematic investigation of the merit, worth and significance of the Agency's scientific integrity efforts.



The evaluation, which will extend into Fiscal Year 2015, will examine the content, implementation and impacts of the Policy. It is designed to be a practical, ongoing assessment that involves the Scientific Integrity Committee and other stakeholders. The evaluation process will identify criteria to assess performance, standards that must be reached to consider the program successful, and evidence needed to indicate performance relative to the standards. A logic model will synthesize the main program elements into a picture of how the program is supposed to work and make explicit the sequence of events that are presumed to bring about change (Figure 6). Logic models articulate available resources, activities, outputs and outcomes, including changes in awareness, behavior and condition. The scientific integrity logic model is illustrated in Figures 5, 6 and 7.

## Box 2: Case Summary

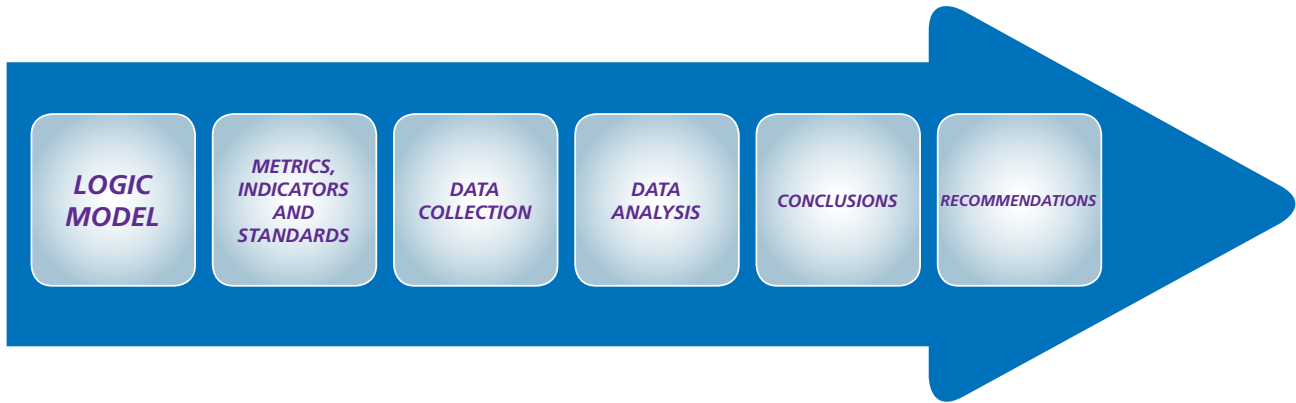
**Case Number:** EPA-00005

**Report Issued:** Aug 15, 2014

**Allegation:** The complainant, a laboratory equipment provider, alleged that an EPA employee with a conflict of interest sabotaged approval of a new analytical method.

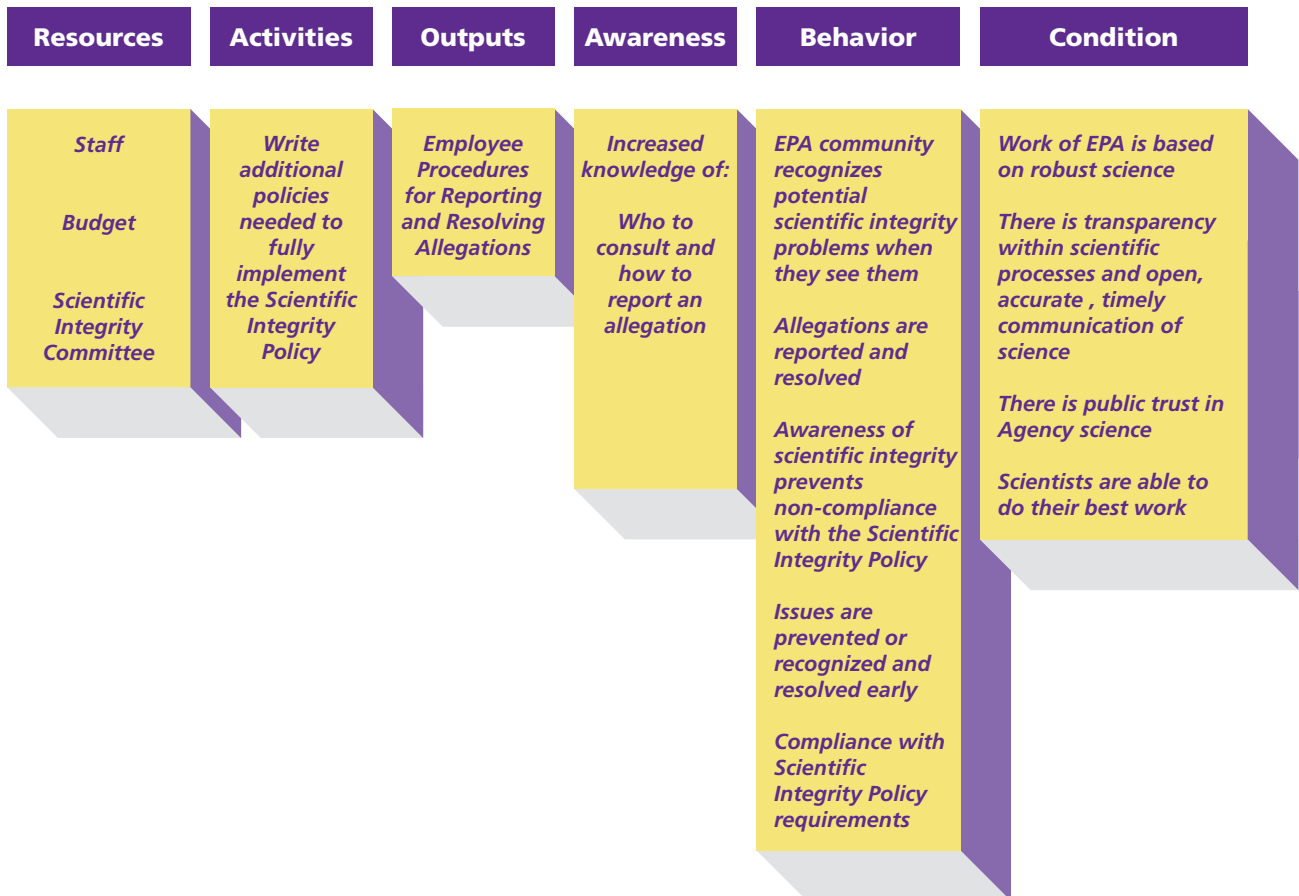
**Summary:** The charges were found to lack merit and were not substantiated. The EPA employee did not have a conflict of interest with competitors of the complainant, nor was the employee in a position to make decisions for EPA to approve or disapprove of the analytical method in question. The review of the method was done in accordance with applicable laws, regulations, policies, procedures and guidance. The Scientific Integrity Official concluded that the allegation had no basis and it was, therefore, dismissed.





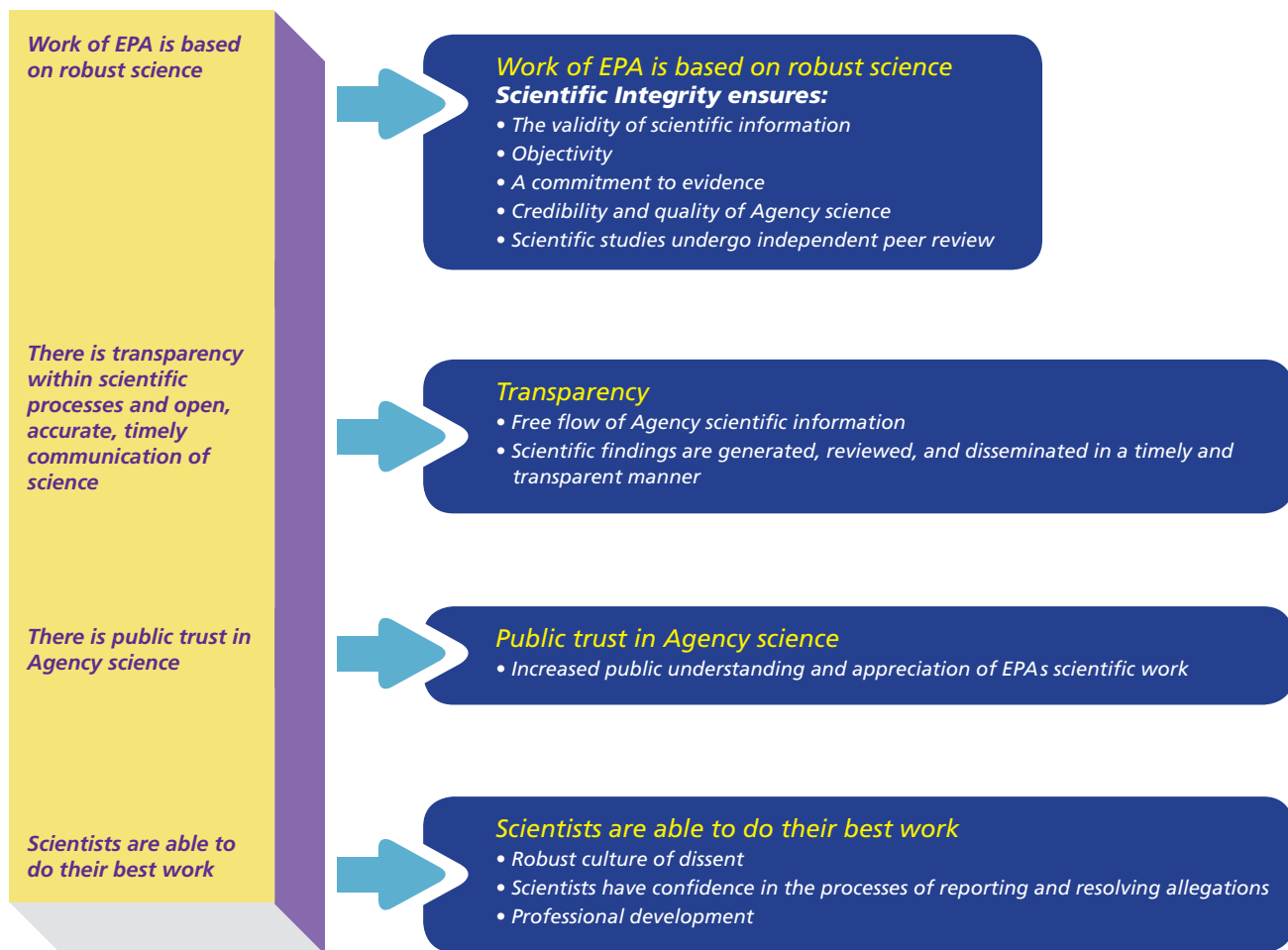
- **Content**
- **Implementation**
- **Impacts**

*Figure 5 The Evaluation of the Scientific Integrity Policy*



*Figure 6 An Example of One Logic Model Activity*





**Figure 7** Logic Model Conditions EPA is Striving to Achieve

The Evaluation will also identify barriers to full implementation, document success in accomplishing objectives, demonstrate accountability, gather success stories, and support organizational change and improvement. It will also be a valuable tool in annual planning and setting priorities.

Logic model columns, such as those in Figure 6, are linked by a series of if-then questions. The columns are connected by asking, "If an activity is completed, then will the outcome in the next column happen?" For example if the procedures are written, then will EPA employees have increased knowledge? If employees have that increased knowledge, then would the behaviors take place? And if those behaviors take place, then will there be a change in condition? Metrics will allow measurement of successes at each of the column junctures. This kind of analysis will reveal where additional investments would need to be made to achieve the changes in condition the Policy is designed to achieve. Figure 7 lists the conditions the Agency is trying to achieve. These, like the behaviors listed in the logic model, are taken from the Scientific Integrity Policy.

### **Peer Review Handbook**

The Peer Review Handbook provides guidance for EPA employees and managers planning and conducting peer review. The third edition of the Peer Review Handbook has been the Agency-wide resource for peer review since 2006. EPA's Peer Review Advisory Group (PRAG) is currently working

on a fourth edition of the Peer Review Handbook. The draft document is in the Agency-wide review process and is being prepared for final review and approval by the Science Advisor.

### **Scientific Integrity Outreach**

Outreach on scientific integrity is key to the full implementation of the Policy. In 2014, outreach consisted of 23 presentations to four regions, several offices, union representatives and external stakeholders. Last year's annual report identified the construction of an EPA Web portal on scientific integrity as a critical priority. OSA has launched the redesign of the scientific integrity Internet site for deployment in FY2015. In the interim, background documents are currently hosted on ORD's website.<sup>13</sup> The scientific integrity Web portal will provide a comprehensive resource for policies and documents related to scientific integrity at EPA. The Web portal plans also include a comment box, which will allow visitors to submit questions or suggestions anonymously. Concerned employees or other stakeholders who prefer to remain unidentified also will be able to use this feature to report allegations of a loss of scientific integrity.

### **Quarterly Meetings of the Union Working Group**

The Scientific Integrity Official established a work group composed of representatives of EPA employee unions. Their meetings roughly coincide in timing and content with the Scientific Integrity Committee's quarterly meetings. Agency labor union representatives are able to comment on scientific integrity issues and discuss recommendations directly with the ScIO.

### **Ethics Training Module**

The professional development section of the Policy does not make reference to the many ethical considerations that must be a part of seeking permission, for example, to present a paper, hold office in a scientific society or choose to undertake an outside activity. The ScIO worked with the Senior Ethics Counsel to develop a training that will help scientists and their supervisors navigate these tricky situations. This module is designed to be a resource with easy access to various topics without having to take the entire training. It includes case studies and examples. The training module is expected to be offered to staff online in FY2015.



*Photo courtesy of L.C. Miner Jr.*

## Scientific Integrity Accomplishments

In 2014, EPA program and regional offices took many approaches to enhance a culture of scientific integrity at EPA. Research-focused offices made advances in the public release of large data sets, dashboards and other mechanisms that lead to greater transparency and accessibility of Agency science. Other offices have revised procedures to assure the quality of Agency science, such as those for reviewing and approving scientific products and for conducting peer review. The following are examples of scientific integrity accomplishments across the Agency in FY2014.

### Promoting a Culture of Scientific Integrity

A culture of scientific integrity promotes the quality, collection, processing and communication of scientific information. Many quality assurance systems are already in place to ensure the integrity of the scientific research process. In FY2014, several new initiatives were introduced to demonstrate EPA's commitment to evidence, objectivity and the quality of scientific information.

### Data Management

The Office of Research and Development (ORD) uses a Research Management System (RMS) to provide EPA and its stakeholders with access to up-to-date information on ORD research.

### Clearance Procedures

Clearance procedures increase transparency in the release of research results, ensuring timely review and discouraging unreasonable delays. They also ensure that scientific products are reviewed by the appropriate supervisors and technical managers before being released to the public. Several regional and program offices have developed their own clearance procedures for scientific research, as the Scientific Integrity Committee develops a framework for Agency-wide clearance procedure guidelines.

- ORD uses the Scientific and Technical Information Clearance System (STICS) to verify that scientific and technical products are properly reviewed before their release.
- Region 1's Scientific Product Clearance Review Procedures require that external subject matter experts review science products in addition to the formal peer review process.
- Region 6's Standard Operating Procedure (SOP) A-10: Procedures for Review and Approval of Technical Presentations or Publications establishes procedures for internal approval of technical products to ensure the consistency and accuracy of publicly released documents.
- Region 9 has developed guidelines for scientists seeking to publish their work or engage in publication review.

### Quality Assurance

A variety of mechanisms work to ensure the quality and integrity of EPA scientific products, in addition to those mentioned above. Quality Management Programs (QMPs) play a large role in the quality assurance of scientific information. Collectively, these programs contribute to a culture that emphasizes the validity of scientific information.

- The Office of Environmental Information (OEI) develops Agency-wide policies to manage environmental data and quality-related activities for EPA science.
- Region 3 has chartered an internal workgroup, the Regional Field Advisory Council (RFAC), to develop and implement consistent guidelines for field operations when collecting, analyzing and reporting data.
- Region 9 is performing Technical Systems Audits (TSAs) of state and tribal monitoring programs to ensure the integrity of scientific data used for regulatory decisions.
- Region 10's Science Steering Council (RSSC) undertook an initiative to evaluate regional priority science needs and provide staff and management with training and resources to address the needs.

### Release of Information to the Public

EPA encourages the transparency of Agency activities through communications tools such as online blogs, newsletters, news releases and official publications. EPA also maintains several online databases to provide open access to Agency information. Special user interfaces allow the public to navigate EPA databases easily. Online tools such as dashboards and calculators allow users to access a variety of datasets, input their own data and model personalized scenarios.

- The Office of Research and Development (ORD) launched a beta version of the interactive Chemical Safety for Sustainability (iCSS) dashboard, which provides public access to the toxicity screening information of over 10,000 chemicals.
- ORD released the Exposure Toolbox, "EPA-Expo-Box,"<sup>14</sup> which includes guidance documents to help the public assess chemical exposure risks.
- ORD updated the Chemical and Product Categories (CPCat)<sup>15</sup> database, which provides public access to chemical exposure information for over 43,000 chemicals used in consumer products.
- ORD created a National Stormwater Calculator (SWC)<sup>16</sup> desktop tool to help users model and manage stormwater runoff on their property. The Calculator accesses geographic data to project stormwater retention values under various scenarios.
- ORD is updating the Integrated Climate and Land Use Scenarios tool (ICLUS)<sup>17</sup> to include datasets that will facilitate climate adaptation assessments and planning at local, regional and national scales.
- ORD completed a pilot simulation to incorporate real-time data in EPANET<sup>18</sup> software. EPANET allows water utilities to manage the consequences of contamination events by producing an automated simulation of the water distribution system.
- ORD created two tools, the Community-Focused Exposure and Risk Screening Tool (C-FERST) and the Tribal-Focused Environmental Risk and Sustainability Tool (T-FERST) to help communities understand public health risks when making decisions.
- ORD publicly released EnviroAtlas,<sup>19</sup> a new interactive Web-based tool that combines maps, graphs and other analysis tools to help the public make well-informed natural resources planning and policy decisions.
- The Office of Air and Radiation (OAR) launched a revised Power Plant



Emission Tracking website with improved public access to current data on power sector emissions and released the third edition of EPA's Climate Change Indicators in the United States.

- The Office of Chemical Safety and Pollution Prevention (OCSPP) released the Aquatic Life Benchmarks tool<sup>20</sup> to provide consistent data for stakeholders interested in aquatic ecosystem protection. The tool contains information from the ecological risk assessments of over 384 chemicals.
- EPA's Particulate Matter (PM) Designation Mapping Tool<sup>21</sup> enabled the public to access the data used for air quality decision-making.
- Region 6 piloted a SharePoint site to facilitate the sharing of documents between EPA and state officials managing public water systems. The Public Water System Supervision (PWSS) SharePoint site encourages communication and collaboration between Region 6 and state drinking water staff.
- The Office of Enforcement and Compliance Assurance (OECA) continued to publish a monthly Criminal Enforcement Case Bulletin to publicize its investigations of noncompliance with national environmental laws.

### Peer Review and Federal Advisory Committees

Scientific integrity ensures the quality of scientific and technical products by promoting adherence to proper scientific procedures. In FY2014, EPA continued its efforts to promote peer review as an essential component of quality scientific research products.

- EPA submitted an annual report to the White House Office of Management and Budget (OMB), showing that EPA completed proper peer review reports for Influential Scientific Information (ISI) and Highly Influential Scientific Assessments (HISAs) in FY2013.
- ORD reviewed the Science Inventory, a comprehensive catalogue of EPA research, to ensure that all information was up to date, accurate, well-documented and defensible.



## Professional Development

EPA encourages professional development activities so that EPA's scientists and engineers can maintain their expertise, be active members of their scientific communities and become leaders in their fields. Training activities may include online courses, webinars, in-person workshops or conferences. EPA provides several professional development opportunities for employees and encourages their participation in professional societies.

- ORD created Risk Assessment Training and Experience (RATE) Program modules to improve Agency training in hazard identification, dose-response assessment, exposure assessment and risk characterization.
- Region 1's Laboratory Branch Chief led a national webinar on Ethics and Data Integrity for Environmental Labs for labs accredited under the National Environmental Laboratory Accreditation Program (NELAP). The webinar was attended by over 900 people.
- Region 8's training officer collaborated with their Scientific Integrity workgroup to conduct a training needs assessment. The Human Resources Program will use the assessment to allocate funds for training activities.
- Region 10's Scientific/Technical Scholarship Program provided over \$15,000 in FY2014 for Region 10 employees to attend university classes, conferences or other professional development opportunities.
- EPA employees were recognized by multiple organizations in FY2014, including Research! America, the Partnership for Public Service and the White House.
- Region 3's Air Protection Division hosted a two-day Air Monitoring Quality Assurance workshop in Philadelphia.
- EPA co-sponsored the National Environmental Monitoring Conference (NEMC) under a cooperative agreement with the NELAC Institute (TNI).





## 3. Opportunities for Improvement

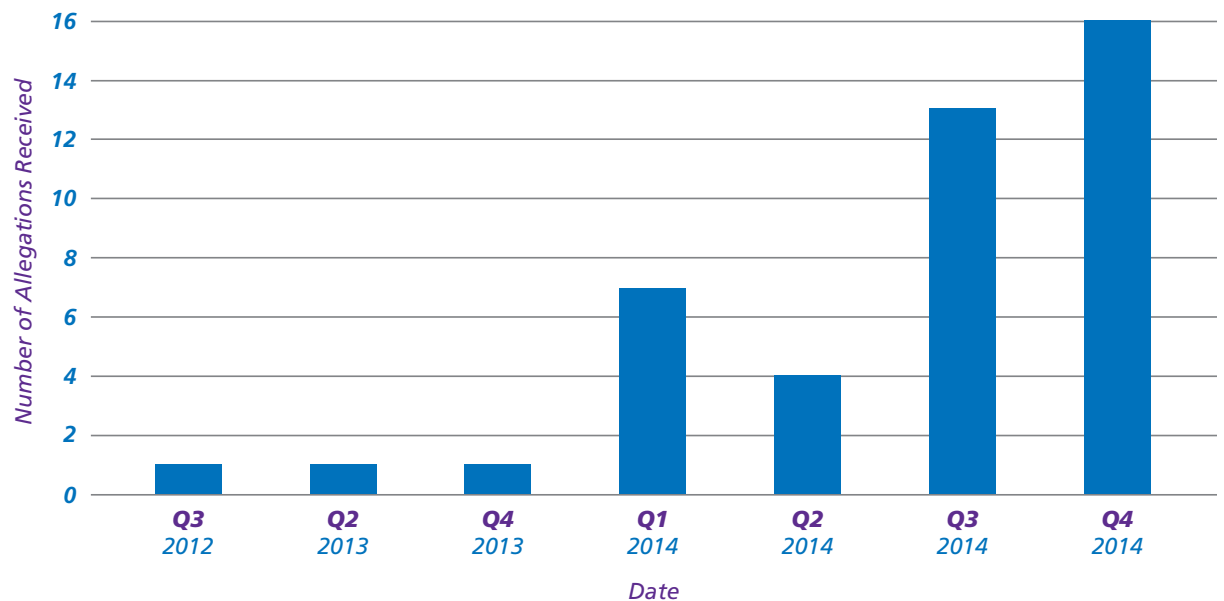
EPA has made great strides in 2014 in scientific integrity. Looking forward to fiscal year 2015 and beyond, six priority issues present opportunities for improvement:

- Reporting and resolving allegations of a loss of scientific integrity.
- Reducing confusion about designating publication authorship.
- Increasing transparency.
- Addressing constraints to full implementation of the Policy.
- Defining the timely release of agency science and scientific products.
- Enhancing peer review.

Agency investments in these activities ensure the credibility of, and maintain the public trust in, Agency science.

### Reporting and Resolving Allegations of a Loss of Scientific Integrity

EPA has received 43 allegations of a loss of scientific integrity since the release of the Scientific Integrity Policy and 40 in fiscal year 2014 (Figure 8). It is important to remember that the allegations represent less than 0.3% of EPA employees and an even smaller percentage if one includes the contractors, grantees and volunteers who are also covered by the Policy.



**Figure 8** Total Allegations Received by FY Quarter/Year (as of 9/30/14)



Formal allegations can be reported officially, revealing the identity of the person making the allegation. These currently go through the draft processes outlined on pages 10-11 for reporting and resolving allegations. There are also instances where complainants do not want to reveal their identity to anyone except the Scientific Integrity Official. The ScIO is still interested in obtaining information about these allegations and can take some steps to resolve them. These are informal allegations. In FY2014, of the 40 allegations received, 17 were made formally and 23 were made informally (Figure 9).

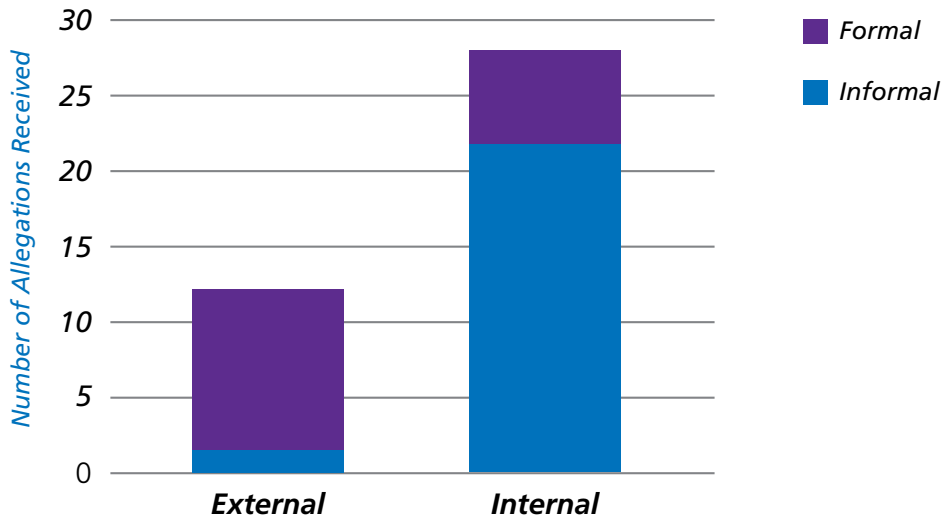


Figure 9 Informal and Formal Allegations Received in Fiscal Year 2014

Of the 23 informal reports, only one came from outside the Agency (Figure 9). Fourteen came from EPA offices and programs and eight came from regional offices. Of the 17 formal allegations in FY2014, 11 came from outside the Agency, three from EPA offices and programs and three from regional offices.

### Allegations by Quarter, FY14

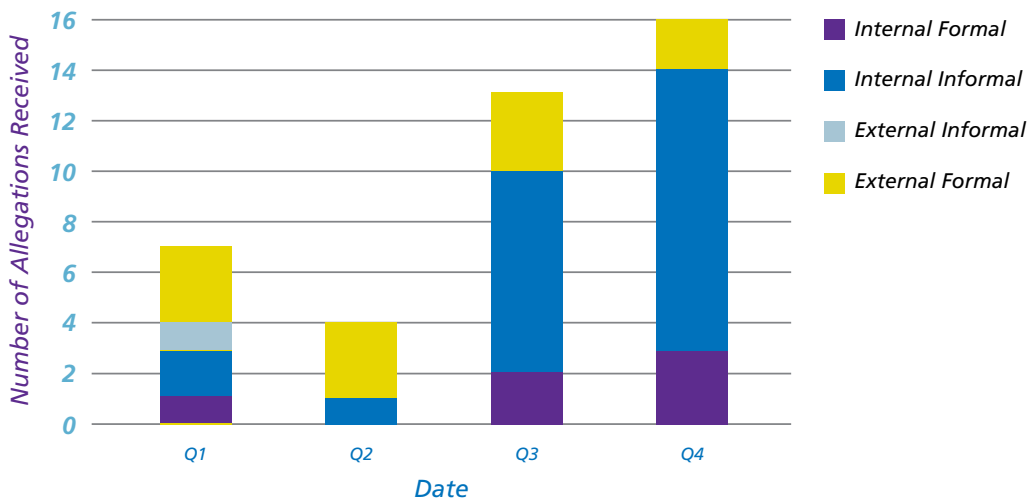


Figure 10 Allegations by Quarter, FY14

The allegations relate to many different areas of the Scientific Integrity Policy. For example, 13 allegations concern suppression or delay, nine relate to peer review and five concern authorship disputes, including allegations of plagiarism.

Of the 17 formal allegations received in FY2014, three are closed, three are being investigated by the Inspector General, one is being resolved in the affected region and the other 10 are in the inquiry phase.

The increase in the reporting of allegations in fiscal year 2014 coincides with both the arrival of the Agency's first full-time Scientific Integrity Official and significant increases in outreach about the Policy and hence is probably not as notable as it might seem. Allegations from outside the Agency have dropped while those from inside the Agency have increased (Figure 10). This is a positive development that may indicate that the Agency is resolving concerns before they are shared with outside parties. The number of informal allegations is larger than the number of formal allegations and this disparity has grown recently. Increasing outreach could reduce the hesitancy of these employees to report issues formally. It is important to continue to watch these trends closely.

## Reducing Confusion about Designating Publication Authorship

Many Agency publications have specific individuals designated as authors. While the majority of formal scientific publications come from ORD, offices and regions produce many other kinds of authored scientific products. Five allegations concerning authorship designation were reported in FY2014. For example, they involve confusion about when a supervisor is an author and when the contributions of contractors are recognized with authorship. Four labs in ORD—National Center for Environmental Assessment, National Exposure Research Laboratory, National Health and Environmental Effects Research Laboratory and National Risk Management Research Laboratory—have authorship guidelines that address these and other issues. These guidelines, along with authorship rules from major journals, will form the basis of a series of best practices for designating authorship that the Committee will release in FY2015.

“The Administration is committed to ensuring that, to the greatest extent and with the fewest constraints possible and consistent with law and the objectives set out below, the direct results of federally funded scientific research are made available to and useful for the public, industry, and the scientific community. Such results include peer-reviewed publications and digital data.”

— John Holdren • February 2013

## Increasing Transparency

### **Media Access to EPA Scientists**

In April 2014, the Scientific Integrity Official met with a group of external stakeholders to discuss scientific integrity at EPA. The stakeholders expressed concern about barriers to media access to EPA scientists and engineers. Media access to Agency scientists has been the subject of several letters to the Agency by coalitions of groups espousing increased transparency in government.<sup>22</sup> In addition, four members of the media, nine scientists and two staff members have brought the issue of access both by the media to scientists and by scientists to the media to the attention of the ScIO. While designating spokespeople for Agency policy issues is necessary for clear and consistent communications, it is vital that EPA scientists have both training and permission to communicate their research results. The role of EPA scientists as translators of research is ever more important to reporters being able to write well about EPA's research accomplishments and to enhancing public trust in the Agency.

The Office of Public Affairs has increased their existing efforts to ensure timely and accurate responses to press inquiries. They have added five new staff to increase their responsiveness. For example, the Office of Research and Development's records indicate an increase in the numbers of interviews and the ability of EPA to schedule them within reporter's deadlines.

### **Decision Making**

Agency scientists have raised concerns that they are sometimes unsure about how the work they do is reflected in Agency decisions. It will be important for the ScIO to learn more about these concerns and, if merited, look at ways to ascertain if this is a matter of scientists and others not knowing where to look or if the Agency can do better at being more transparent.

### **Public Access**

In response to a memorandum from the Office of Science and Technology Policy to the heads of executive departments and agencies, the Agency submitted a plan to increase public access to its federally funded scientific research.<sup>23</sup> EPA's plan for public access to scientific research data will begin with a pilot program focused on our intramural research. This pilot will inform the design of the requirements that could be implemented more broadly across the Agency's intramural research program and extramural research programs.

## Addressing Constraints to Full Implementation of the Policy

### **Maintaining Scientific Expertise in a Time of Reduced Workforce**

Scientists at EPA use technologies and practices to make key contributions to the Agency's programs. Their analytical work is central to environmental protection and partnerships with states, tribal nations and local governments. The Agency has recently gone through a reduction in the size of its scientific staff. While challenging, this in and of itself, is not a scientific integrity issue; however, if such reductions lead to changes in process or practice that make scientific conclusions more vulnerable to a loss of scientific integrity, then this could become an issue of concern to the ScIO.

## Outreach and Training

Promoting a culture of scientific integrity at EPA requires tremendous outreach to all parts of the Agency. The outreach efforts in 2014 represent a good start, with over one-third of the Agency employees taking the training on the Scientific Integrity Policy, many employees participating in the annual Conversation with the ScIO webinar, and the ScIO giving 23 presentations on scientific integrity. Additional work is required to ensure that all EPA employees, contractors, grantees and volunteers are familiar with the Policy, understand that it applies to them and know what to do if they experience something that they feel may compromise the integrity of EPA science.

## Defining the Timely Release of Agency Science and Scientific Products

The Scientific Integrity Policy mentions timeliness 11 times as it relates to the release of scientific work, findings, conclusions, information, the data underlying Agency decisions, and scientific activities, research and results. The Inspector General has asked the Scientific Integrity Committee to define “timeliness” as it is used in the Policy. The Committee is working to develop a definition that would “ensure scientific findings are generated and disseminated in a timely and transparent manner...”<sup>24</sup> as the Policy requires.

To support a culture of scientific integrity within the Agency, this policy:

- Prohibits all EPA employees, including scientists, managers, and other Agency leadership, from suppressing, altering, or otherwise impeding the timely release of scientific findings or conclusions.

— *Scientific Integrity Policy • Section IV, Part A*

## Enhancing Peer Review

The purpose of the EPA Peer Review Handbook is to ensure that peer review is used consistently and appropriately across the Agency. Peer review is critical to maintaining the quality of our scientific products. The release of the new edition of the Peer Review Handbook and the accompanying training will help to ensure the consistency of peer review of the science used by EPA.





## 4. Areas for Future Investment

The FY2015 work plan for scientific integrity includes:

1. Annual activities and requirements of the Policy,
2. Ongoing projects initiated in FY2014 (pages 8-9), and
3. New initiatives (pages 10-16)

### Annual Activities and Requirements

The annual requirements of the Scientific Integrity Policy include the annual report, annual meeting and other webinars, annual stakeholder meetings, the use of the Federal Managers Financial Integrity Act process to request annual certification of compliance with the Policy, Scientific Integrity Committee and Union Working Group quarterly meetings and coordination of our work with the Inspector General.

### Ongoing Projects

The Evaluation of the Scientific Integrity Policy will continue with the collection of data on our progress through a survey of Agency personnel. We will continue to assist with the oversight of contractor-managed peer review. We will finalize the procedures for receiving and resolving allegations as well as continue to receive them and resolve those we have. We will release best practices for designating publication authorship as described on page 24.

### New Initiatives

#### Transparency and the Public Trust

##### 1. Agency Framework for Clearance Procedures

The Scientific Integrity Policy lists the following among the roles and responsibilities of the Scientific Integrity Committee:

- Develop an Agency framework for clearance procedures for scientific products as guidance for program offices and regions.
- Evaluation of program offices' and regions' clearance procedures for scientific products and make recommendations as appropriate to promote standardization across the Agency.

In FY 2014, the Scientific Integrity Committee will work on creating an Agency framework for clearance procedures. This entails identifying the procedures currently in place and sharing best practices.

##### 2. Transparency in Decisions Informed by Science

- The Scientific Integrity Official will learn more about these concerns previously outlined, and if merited, look at ways to work with the Scientific Integrity Committee to address them.

### *3. Increasing Access to Agency Science and Scientists*

- We plan to continue to work with the Office of Public Affairs to increase media access to scientists and engineers reporting research results. The ScIO will explore options for communications and media training as well.

## **Nurturing a Culture of Robust Scientific Discourse**

### *1. Differing Professional Opinion Policy*

- The Scientific Integrity Committee and the Union Working Group will consult with other federal agencies that have policies that govern dissenting or differing professional opinions. Following this, the Scientific Integrity Committee will draft a policy for EPA. Care will be taken to distinguish differing opinions on the interpretation of scientific results from differing opinions on Agency policy decisions. The former is a scientific integrity issue; the latter is not.

### *2. Professional Development Ethics Training*

- Professional development opportunities also can present ethics issues. To assist scientists and their supervisors in navigating this, the ScIO and the Counsel for Ethics will finish and release a training module and once released, publicize its availability.

## **Extending EPA's Culture of Scientific Integrity**

### *1. Outreach*

- The ScIO plans increased efforts to reach out with information on scientific integrity to all employees in the EPA program and regional offices and also outside the Agency. In addition to meetings, webinars and discussions, the ScIO and Scientific Integrity Committee plan to produce outreach products in FY2015. A particular focus of the outreach will be those involved with the FMFIA annual review process, designated federal officials managing EPA's advisory committees and special government employees (SGEs) serving on those committees. EPA has 21 Federal Advisory Committees. Some consist of representatives of various stakeholders, some are populated with scientists appointed as special government employees and some have both. The Policy applies to members appointed as SGEs.

### *2. Language for Contracts and Grants*

The Scientific Integrity Policy applies to contractors and grantees. The ScIO will work with those who write and manage these agreements to make sure this is reflected in the agreements that govern the Agency's relationships with grantees and contractors.



# 5. Conclusions

## Conclusions

Preparing this Annual Report has been a very important process of reflection and strategic thinking as we look back on last year and look ahead to next year. We want to emphasize that while this report raises many important topics, the science at EPA is robust and ready to meet the task of guiding our work towards protecting public health and the environment.

From the earliest formation of a scientific question to the application of those results, scientific integrity creates protections for science from inappropriate interference, manipulation and suppression. This assures that EPA decisions are informed by the best science the Agency, its contractors, grantees and collaborators have to offer.

The Scientific Integrity Committee will continue to work with the Senior Counsel for Ethics, the Office of Inspector General and all of the other parts of the Agency that together safeguard our science and earn the public trust in the quality and integrity of our work every day. Scientific integrity gets us there.







# Sources & End Notes

## Sources

This report's content was gathered from across EPA. Each of the program offices and regional offices provided an assessment of scientific integrity activities in their respective offices through the Federal Managers Financial Integrity Act (FMFIA) annual review process. The ScIO supplied additional information from efforts to resolve allegations of lapses in scientific integrity in FY2014. Stakeholder meetings (summary in Appendix 1), the Annual Meeting/Conversation with the ScIO (summary in Appendix 2) and the work of the Scientific Integrity Committee provided additional valuable information.

## End Notes

- 1 Ruckelshaus, William. Fishbowl Memo (1983): <http://www2.epa.gov/aboutepa/ruckelshaus-takes-steps-improve-flow-agency-information-fishbowl-policy>
- 2 EPA's Principles of Scientific Integrity: <http://www2.epa.gov/sites/production/files/2014-11/documents/epa-principles-of-scientific-integrity.pdf>
- 3 Memorandum from the President for Heads of Executive Department Agencies (2009): [www.whitehouse.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09](http://www.whitehouse.gov/the-press-office/2009/03/09/memorandum-heads-executive-departments-and-agencies-3-9-09)
- 4 Memorandum from the Science Advisor for the Heads of Executive Departments and Agencies (2010): [www.whitehouse.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf)
- 5 US EPA Peer Review Handbook, 3rd Edition (2006): [http://www.epa.gov/peerreview/pdfs/peer\\_review\\_handbook\\_2012.pdf](http://www.epa.gov/peerreview/pdfs/peer_review_handbook_2012.pdf)
- 6 US EPA Annual Report on Scientific Integrity (2013): [http://www2.epa.gov/sites/production/files/2014-12/documents/2013\\_scientific\\_integrity\\_annual\\_report.pdf](http://www2.epa.gov/sites/production/files/2014-12/documents/2013_scientific_integrity_annual_report.pdf)
- 7 <http://www2.epa.gov/programs-office-science-advisor-osa/training-epas-scientific-integrity-policy>
- 8 US EPA Annual Report on Scientific Integrity, Appendix E (2013): [http://www2.epa.gov/sites/production/files/2014-12/documents/2013\\_scientific\\_integrity\\_annual\\_report.pdf](http://www2.epa.gov/sites/production/files/2014-12/documents/2013_scientific_integrity_annual_report.pdf)
- 9 US EPA Annual Report on Scientific Integrity, Appendix D (2013): [http://www2.epa.gov/sites/production/files/2014-12/documents/2013\\_scientific\\_integrity\\_annual\\_report.pdf](http://www2.epa.gov/sites/production/files/2014-12/documents/2013_scientific_integrity_annual_report.pdf)



- 10 EPA Order 3120.5, Policy and Procedures for Addressing Research Misconduct. <http://ori.hhs.gov/sites/default/files/epapolicy.pdf>
- 11 <http://www.osc.gov/>
- 12 The ScIO and the Scientific Integrity Program Lead are a part of the Office of the Science Advisor. Work on FMFIA was initiated by the Office of the Science Advisor together with the ScIO.
- 13 <http://www.epa.gov/research/htm/scientific-integrity.htm>
- 14 <http://epa.gov/risk/expobox/>
- 15 <http://actor.epa.gov/cpcat/faces/home.xhtml>
- 16 <http://www2.epa.gov/water-research/national-stormwater-calculator>
- 17 <http://www.epa.gov/ncea/global/iclus/>
- 18 <http://www.epa.gov/NRMRL/wswrd/dw/epanet.html>
- 19 <http://enviroatlas.epa.gov/enviroatlas/atlas.html>
- 20 [http://www.epa.gov/oppefed1/ecorisk\\_ders/aquatic\\_life\\_benchmark.htm](http://www.epa.gov/oppefed1/ecorisk_ders/aquatic_life_benchmark.htm)
- 21 [http://geoplatform2.epa.gov/pm\\_map/index.html](http://geoplatform2.epa.gov/pm_map/index.html)
- 22 Union of Concerned Scientists, EPA SAB Letter (2014): <http://www.ucsusa.org/sites/default/files/legacy/assets/documents/center-for-science-and-democracy/epa-sab-letter-8-12-14.pdf>
- 23 White House Office of Science and Technology Policy, Increasing Access to the Results of Federally Funded Scientific Research (2013): [http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp\\_public\\_access\\_memo\\_2013.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf)
- 24 U.S. Environmental Protection Agency Scientific Integrity Policy (2012): [http://www2.epa.gov/sites/production/files/2014-02/documents/scientific\\_integrity\\_policy\\_2012.pdf](http://www2.epa.gov/sites/production/files/2014-02/documents/scientific_integrity_policy_2012.pdf)

# Appendix 1: Stakeholder Meeting Notes

April 29, 2014

The annual stakeholder meetings are an opportunity for stakeholders to air any concerns and ask questions. The following meeting notes reflect this and do not include EPA responses. The Scientific Integrity Official responded to these concerns and questions at the meeting, over the course of FY2014 by phone and email, by addressing some of the larger issues in our work plan for FY2014 and for FY2015 and by working with other parts of the Agency. For example, the Agency has added additional public affairs staff to increase our responsiveness to media inquiries. We have drafted procedures for reporting and resolving allegations of a loss of scientific integrity, which address questions about our handling of allegations. We are currently working on a differing scientific opinions policy which will address those questions. These notes capture a moment in time, while our work to enhance our culture of scientific integrity is ongoing.

**Attendees:** Natural Resources Defense Council, Environmental Defense Fund, Public Employees for Environmental Responsibility, Center for Effective Government, Society for Environmental Journalism, Government Accountability Project, Coalition for Sensible Safeguards, Union of Concerned Scientists, Society for Conservation Biology, and Climate Science Watch.

Following a presentation by the ScIO, the following topics were raised:

## Transparency

- The Policy states that the “public affairs staff...should attend interviews with members of the media...” Is following this provision the responsibility of the employee being interviewed or of the public affairs staff? Can an EPA scientist be subjected to discipline for speaking with a reporter outside the presence of public affairs staff? If not, where is that stated?
- Why can't a scientist speak to a reporter on background without going through many layers of phone calls which result in consistently missed deadlines?
- Does EPA provide media training for its scientists?
- How can or does EPA ensure the ability of its scientific and technical experts to communicate freely about fracking environmental issues?
- There are scientific integrity issues in EPA's communications about EPA's Corexit dispersant policy.
- Is EPA considering revising its policy regarding minders on calls with scientists?
- Transparency builds trust. What is EPA afraid of when it muzzles its scientists? Reporters need to speak to scientists to report well on the good work EPA is doing.



## Conflict of Interest/Peer Review

- EPA should address conflict of interest disclosure and research sponsorship issues in Integrated Risk Information System (IRIS) systematic review procedures and in Science Advisory Board meetings of the full Chemical Assessment Advisory Committee panel vs meetings of the subpanels
- EPA should mount a more vigorous response to accusations that receipt of EPA funding constitutes a Clean Air Science Advisory Committee membership conflict of interest.
- Who determines if the contractors doing peer review have conflict of interest?
- EPA does not consider its IRIS panels to be Federal Advisory Committees, despite the fact that these panels provide science-based human health assessments to support the Agency's regulatory activities. Conflict reviews are conducted by contractors and the Agency has taken the position that these conflict reviews are not even subject to the Freedom of Information Act.
- Shouldn't the fully transparent treatment of the recruitment and review of Federal Advisory Committee panels also apply to IRIS panels conducted by contractors?

## Implementation of the Scientific Integrity Policy

- Who polices or enforces the prohibition that "policy makers shall not knowingly misrepresent, exaggerate, or downplay areas of scientific uncertainty associated with policy decisions"?
- Does this violation require that the victim of the "managers and other Agency leadership" file a complaint? How would these violations ever be investigated?
- The Policy references "EPA clearance procedures" but does not define them. Where are these procedures spelled out?
- In a footnote (4), the Policy provides that "[t]he EPA Scientific Integrity Committee will develop an Agency-wide framework for approval of scientific communications." Has this been done? What is the function/purpose of an Agency-wide framework?
- Are allegations and their outcomes confidential? May the complainant publicly disclose the contents of his/her complaint?
- May complaints be filed anonymously? May they be filed by third parties, such as a union?
- Who investigates violations of the Policy (such as suppressing dissent or preventing participation in a scientific society)?
- By what mechanism are all the provisions of the Policy – other than the prohibition against scientific misconduct – actually enforced?
- Does the subject of the complaint have any due process rights, such as being able to examine the evidence behind the allegation? If so, where are those rights spelled out?
- In allegations involving the chain-of-command, is there a process to wall off members of the Scientific Integrity Committee from cases/allegations involving their direct superiors? What conflict rules apply to Scientific Integrity Committee members?

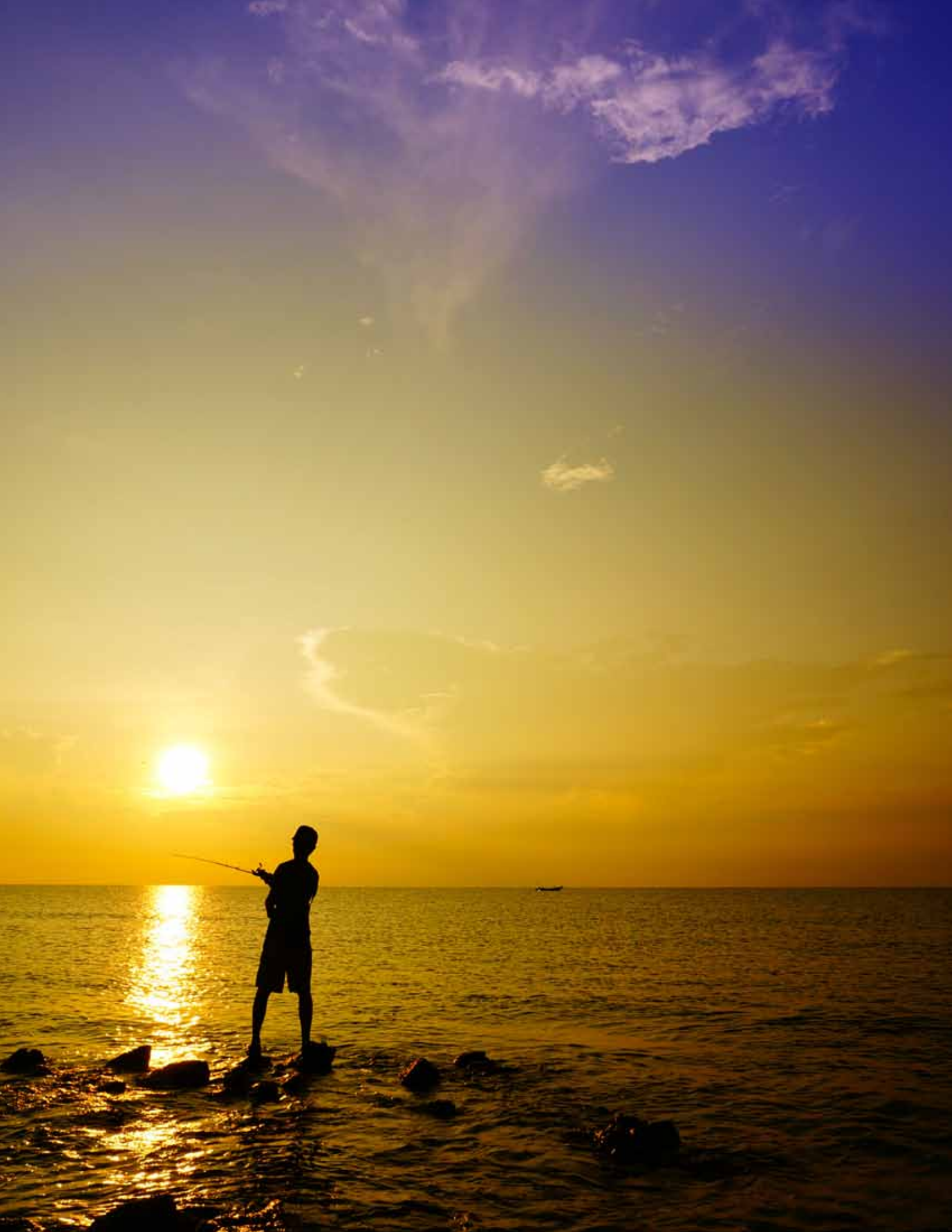
- The Policy “mandates the ScIO, with input from the Deputy ScIOs, to develop a transparent mechanism for Agency employees to express differing scientific opinions.” What is the status of this mechanism and what does it look like?
- When has EPA ever featured the dissenting or differing scientific views of its staff scientists?

### Working with the Inspector General

- The OIG principally is staffed by investigators and auditors. In an allegation involving highly technical matters, how is the OIG supposed to handle matters beyond its expertise?
- Has the OIG voluntarily assented to subject itself to the EPA Scientific Integrity Policy?
- Does EPA have a memorandum of agreement with the OIG governing how scientific misconduct investigations will be conducted or is it entirely up to the discretion of the OIG?
- Appendix D of the Annual Report on Scientific Integrity for Fiscal Year 2013 states that the OIG will report the status of a case after 30 days. Is there no other timeline? What prevents an OIG from investigating a case indefinitely?
- The Policy cautions that its implementation is “subject to the availability of appropriated funds.” Since OIG did not receive a supplemental appropriation for these actions, does OIG have an incentive to assign these misconduct cases a low priority?
- May the ScIO withdraw a case from the OIG? If so, under what circumstances?
- Who investigates allegations of scientific misconduct involving the OIG?
- In cases where “There is no further OIG interest in the allegation,” does the ScIO have any protocol for investigating such complaints or is it completely ad hoc, perhaps varying from case to case?

### Whistleblower Protections

- By what mechanism are whistleblower protections extended to scientific dissidents? Who exactly enforces these protections?
- The Whistleblower Protection Act (WPA) creates an affirmative defense against a slate of named adverse personnel actions, such as demotions, suspensions, etc. By contrast, the Policy references “retaliation or other punitive actions.” Is the zone of whistleblower protection under the Policy broader than the WPA? For example, would the Policy protect an EPA scientist whom a manager prevents from submitting an article to a peer-reviewed journal as retaliation for the scientific content of the work? If so, then specifically how?
- By way of footnote 13, the Policy implies that its whistleblower protections are limited to WPA. Why does EPA not include the whistleblower protections of statutes which are implemented by EPA, such as the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Safe Drinking Water Act or Superfund?



## Appendix 2: Annual Meeting with the ScIO

DISCUSSION: July 17, 2014

**Attendees:** Dr. Francesca T. Grifo, U.S. EPA's Scientific Integrity Official (ScIO), held a webinar conversation with EPA employees on July 17, 2014. Dr. Grifo gave a presentation in which she explained the Agency's Scientific Integrity Policy (ScIP), shared current scientific integrity initiatives, and discussed future scientific integrity plans. More than 140 participants attended the webinar. Dr. Grifo addressed questions after her presentation.

### **Allegations of a Loss of Scientific Integrity**

*In response to questions, Dr. Grifo explained that:*

- Employees can report allegations of a loss of scientific integrity by approaching their management chain or they can contact Dr. Grifo directly. The ScIO's office discusses concerns confidentially and reviews options with scientists who are unsure whether there may be a scientific integrity issue. Dr. Grifo noted that her office has a spreadsheet containing allegations that have not been formally reported. She and senior EPA officials want to know about allegations, even if the people making allegations are reluctant to provide their names.
- Regarding confidentiality for formal allegations, Dr. Grifo recognizes the need for EPA staff to feel safe about contacting her with concerns. OGC is working to assist Dr. Grifo in advancing her objectives of maintaining full confidentiality.
- The OIG would handle concerns about excessive work or unachievable goals, if they involve waste, fraud or abuse. However, an employee with such concerns may contact Dr. Grifo to discuss the matter so that she can help determine the appropriate avenue for addressing the concern based on specific facts.
- Regarding concerns about the integrity of peer reviewed published studies used by EPA in assessments or regulatory actions, Dr. Grifo would need to be presented with specific examples to determine whether the issue was one for her office or another entity to address. However, she encouraged employees to bring this type of issue to her attention.
- If an allegation against an employee were substantiated, the Scientific Integrity Committee reviewers would not be the officials to recommend disciplinary actions; this would be the purview of the employee's supervisor or other manager. The procedures to address allegations change none of the existing rights of employees. The Scientific Integrity Committee review is strictly concerned with the science.
- The decision on whether an allegation has been substantiated may be appealed. The appeal would be reviewed by a different set of members of the Scientific Integrity Committee than those who had originally reviewed



the allegation. The members of the Scientific Integrity Committee, who are senior officials designated by each office and region, are listed on the EPA scientific integrity website.

### **EPA's Scientific Integrity Policy**

*In response to questions, Dr. Grifo explained that:*

- The logic model to evaluate the ScIP is a series of if/then statements. If a certain activity were followed, then a certain result would occur, producing specified outcomes that in turn would have certain outcomes producing specific behavioral changes and long-term changes in the Agency. The draft logic model starts with the ScIP, which defines the outcome EPA is seeking vis-à-vis scientific integrity, and then works backward to activities that will produce the end result; the model also analyzes current activities in this way.
- Implementation of the ScIP will involve the OIG, the Office of Special Counsel, the Senior Counsel for Ethics and others who Dr. Grifo had mentioned. Dr. Grifo works closely with those mentioned and others. For example, her office recently met with EPA quality assurance specialists to understand how they can work together. Every few months, Dr. Grifo's office meets with the OIG to coordinate with them. EPA has a conflict resolution group that Dr. Grifo hopes to contact soon. She is reaching out one-by-one to all of the relevant groups to ensure mutual understanding of each other's functions and to promote coordination.
- The Deputy Scientific Integrity Officials (DSclOs) communicate policies and procedures regarding scientific integrity to regional management. There is one DSclO in each program and EPA regional office. The Scientific Integrity Committee members take that responsibility very seriously and in all cases communicate regularly with their regional administrators. Dr. Grifo requested that she be contacted if there are any instances of the policies not being communicated to regional management. Dr. Grifo has visited several regions and hopes to visit others this coming year.
- Dr. Grifo's office is not responsible for the integrity of all of the science at EPA. The ScIO's office is responsible for the processes that ensure the integrity of the science. For example, when scientists wish to publish journal articles, they should go through their office's usual clearance procedures. The ScIO's office can examine specific issues, but the ScIO's office does not scrutinize a priori every piece of science in EPA.

### **Closing Remarks**

- Dr. Grifo thanked the participants for attending the webinar and said that she looked forward to another webinar in the fall when she will have a sense of the scientific integrity agenda for 2015. In the meantime, participants can call or send an email message to her with any questions.





# Scientific Integrity Committee Contact Information\*

| Office/Region                            | Official               | Email                          |
|--|------------------------|--------------------------------|
| <b>Scientific Integrity Official</b>     | <b>Francesca Grifo</b> | <b>Grifo.francesca@epa.gov</b> |
| <b>Scientific Integrity Program Lead</b> | <b>Martha Otto</b>     | <b>Otto.martha@epa.gov</b>     |
| OAR                                      | Betsy Shaw             | Shaw.betsy@epa.gov             |
| OARM                                     | Karl Brooks            | Brooks.karl@epa.gov            |
| OCFO                                     | David Bloom            | Bloom.david@epa.gov            |
| OCSPP                                    | David Dix              | Dix.david@epa.gov              |
| OECA                                     | Carol Rushin           | Rushin.carol@epa.gov           |
| OEI                                      | Ron Borsellino         | Borsellino.ron@epa.gov         |
| OGC                                      | Carol Ann Siciliano    | Siciliano.carolann@epa.gov     |
| OITA                                     | Randy Hill             | Hill.randy@epa.gov             |
| AO (OP)                                  | Al McGartland          | McGartland.al@epa.gov          |
| ORD                                      | Robert Kavlock         | Kavlock.robert@epa.gov         |
| OSWER                                    | Barry Breen            | Breen.barry@epa.gov            |
| OW                                       | Mike Shapiro           | Shapiro.mike@epa.gov           |
| AO (SABSO, OFACMO, OEAE, OCHP)           | John Reeder            | Reeder.john@epa.gov            |
| OSA                                      | Mary Greene            | Greene.mary@epa.gov            |
| Region 1                                 | Robert Maxfield        | Maxfield.robert@epa.gov        |
| Region 2                                 | Marie O'Shea           | Oshea.marie@epa.gov            |
| Region 3                                 | John Forren            | Forren.john@epa.gov            |
| Region 4                                 | Thomas Baugh           | Baugh.thomasL@epa.gov          |
| Region 5                                 | Carole Braverman       | Braverman.carole@epa.gov       |
| Region 6                                 | Rick McMillin          | McMillin.rick@epa.gov          |
| Region 7                                 | Cecilia Tapia          | Tapia.cecilia@epa.gov          |
| Region 8                                 | Deb Thomas             | Thomas.debrah@epa.gov          |
| Region 9                                 | Eugenia McNaughton     | Mcnaughton.eugenia@epa.gov     |
| Region 10                                | Joyce Kelly            | Kelly.joyce@epa.gov            |

\*As of March 2015

*<http://www.epa.gov/scientificintegrity>*





### **What Did You Think?**

We strive to constantly provide the highest level of value for you. Please take a few minutes to tell us about your experience using this product.

To be taken to a short consumer satisfaction survey, please [click here](#) or copy and paste the following URL into your browser:

[https://www.surveymonkey.com/r/OSAconsumerfdbck?  
product=Scientific Integrity Annual Report FY14](https://www.surveymonkey.com/r/OSAconsumerfdbck?product=Scientific+Integrity+Annual+Report+FY14)

Thank you for your feedback.

Sincerely,

Office of the Science Advisor  
United States Environmental Protection Agency  
[www.epa.gov/OSA@epa.gov](mailto:www.epa.gov/OSA@epa.gov)