

DOE/IG-0478

**INSPECTION
REPORT**

**INSPECTION ON THE
REVIEW OF SCIENTIFIC INTEGRITY
ISSUES AT
LAWRENCE BERKELEY
NATIONAL LABORATORY**



U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
OFFICE OF INSPECTIONS

JULY 2000



July 28, 2000

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman /s/
Inspector General

SUBJECT: INFORMATION: Report on "Inspection on the Review of Scientific Integrity Issues at Lawrence Berkeley National Laboratory"

BACKGROUND

The Office of Inspector General initiated an inspection into issues relating to allegations of scientific misconduct on the part of a research scientist at the Lawrence Berkeley National Laboratory (Berkeley). This was done in response to your request.

RESULTS OF INSPECTION

The inspection disclosed the following information:

- Berkeley had established appropriate policies and procedures for dealing with allegations of scientific misconduct. These were in accord with Title 42 Code of Federal Regulations Part 50, Subpart A (42 CFR Part 50), the Department of Health and Human Services' policy on scientific misconduct.
- Berkeley through an internal investigation concluded the research scientist had, in fact, engaged in scientific misconduct. We found that the investigation was consistent with Berkeley's own policies and procedures and 42 CFR Part 50. An oversight review by the Office of Research Integrity, Department of Health and Human Services, affirmed the findings and conclusions of Berkeley's investigation.
- At the time, the Department did not have a policy for addressing allegations of scientific misconduct. However, a Government-wide policy on research misconduct developed by the Office of Science and Technology Policy (OSTP), Executive Office of the President, is expected to be issued in the near future. The policy will require the Department and other Government agencies that conduct and support scientific research to develop and implement a policy on scientific misconduct. As noted in our report, the Department has initiated actions to implement the OSTP policy.
- Largely because it had no policy regarding scientific misconduct, responsible Departmental personnel apparently believed that they had no obligation to take corrective action in response to Berkeley's findings. More troubling, as a result of this management failure, the research scientist subsequently received over \$900,000 in additional Department funds for

research unrelated to the study investigated by Berkeley. We concluded that providing additional funding under the circumstances, specifically, without a thorough analysis of the situation from a Departmental perspective, was inappropriate.

The research scientist subsequently resigned from Berkeley. He also signed a “Voluntary Exclusion Agreement” with the Office of Research Integrity. As part of the agreement, the scientist neither admitted nor denied the finding of scientific misconduct, and he voluntarily agreed to exclude himself for three years from any contracting or subcontracting with Government agencies or get involved in Government non-procurement transactions. He also agreed to retract the falsely reported data that had been published in two science journals.

We recommended that the Deputy Secretary select an office that will be responsible for developing and implementing the Department’s policies and procedures on scientific misconduct, consistent with OSTP guidelines when issued. We also recommended that the Director of the Office of Procurement and Assistance Management, in coordination with the General Counsel, modify the Department’s current management and operating contracts in order to:

- incorporate those provisions of the Department’s policies and procedures for addressing alleged scientific misconduct that describe contractor responsibilities for conducting inquiries and investigations when these policies and procedures are issued; and
- require the Department to recover funds used to support research when the Department has determined that there has been scientific misconduct.

MANAGEMENT REACTION

The Under Secretary for Energy, Science and Environment has determined that the Office of Science will be the lead organization administering the research misconduct review process for the Department. The relationship between the Office of Science and the National Nuclear Security Administration, as it relates to the Department’s policy regarding research misconduct, has yet to be determined.

Management stated that the Department will ensure that any new Government-wide policy applicable to the executive branch and relating to scientific misconduct is incorporated into its management and operating contracts. This is to include, as well, any modification to Government-wide cost principles developed in response to the new policy.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment
Under Secretary for Nuclear Security
General Counsel
Director, Office of Management and Administration
Director, Office of Science

INSPECTION ON THE REVIEW OF SCIENTIFIC INTEGRITY ISSUES AT LAWRENCE BERKELEY NATIONAL LABORATORY

TABLE OF CONTENTS

Overview

Introduction and Objectives 1

Observations and Conclusions 2

Details of Findings

Allegation of Scientific Misconduct 5

Department of Health and Human Services
Policy for Addressing Allegations of
Scientific Misconduct 5

Berkeley Policy for Addressing
Allegations of Scientific Misconduct 5

Actions Taken by Berkeley Upon Learning of
Possible Scientific Misconduct by the
Research Scientist 5

Department Policy for Addressing
Allegations of Scientific Misconduct 6

Actions Taken by Department Officials Upon
Learning of Possible Scientific Misconduct
by the Research Scientist 7

Recovery of Department Funds Used by the
Research Scientist 8

Recommendations 10

Management Reaction 11

Inspector Comments 11

Appendix

A. Scope and Methodology 12

Overview

INTRODUCTION AND OBJECTIVES

On July 29, 1999, the Office of Inspector General, U. S. Department of Energy (Department), initiated an inspection into issues relating to allegations of scientific misconduct on the part of a Research Scientist at the Lawrence Berkeley National Laboratory (Berkeley). The inspection was initiated at the request of the Secretary of Energy.

The Research Scientist was alleged to have falsely reported and published research data on projects funded by the Department and another Government agency. Berkeley's investigation and a review by the Office of Research Integrity, Department of Health and Human Services, concluded that the Research Scientist had engaged in scientific misconduct by intentionally falsifying and fabricating the reporting of his research data.

The Research Scientist received substantial funding from the Department, other Government agencies, and private institutions for his research projects. From 1984 to 1999, total funding for his research projects was about \$5.9 million dollars. The Department's funding totaled \$3.1 million, Department of Health and Human Services funding totaled just over \$2 million, and funding from other sources totaled \$752,000.

The objectives of this inspection were to determine whether: 1) Berkeley has policies and procedures for addressing scientific misconduct issues and took appropriate action with regard to the Research Scientist; 2) the Department has policies and procedures for addressing scientific misconduct issues; and 3) the Department could recover funds that it had awarded to Berkeley to support the research that was allegedly falsified by the Research Scientist.

**OBSERVATIONS
AND CONCLUSIONS**

Berkeley has policies and procedures for addressing allegations of scientific misconduct, and took appropriate actions upon learning of the allegations of scientific misconduct on the part of the Research Scientist. Berkeley conducted an inquiry and an investigation into allegations of scientific misconduct by the Research Scientist in accordance with Part 50, Title 42, Code of Federal Regulations (42 CFR Part 50), Subpart A, “Responsibility of PHS [Public Health Service]¹ Awardee and Applicant Institutions for Dealing With and Reporting Possible Misconduct in science;” and the provision of its own Laboratory Regulations and Procedures Manual. Berkeley also notified the Department of Energy and the Department of Health and Human Services that the Laboratory had initiated an investigation into the allegations of scientific misconduct. The Office of Research Integrity’s review of Berkeley’s investigation affirmed Berkeley’s findings and conclusions that the Research Scientist had engaged in scientific misconduct.

The Department, however, has no policies or procedures for addressing allegations of scientific misconduct. In 1996 and 1997, the Department was represented at the National Science Technical Council, which submitted recommendations on developing a Federal policy on scientific integrity to the Office of Science and Technology Policy (OSTP), Executive Office of the President. On October 14, 1999, the Federal Register published for public comments OSTP’s proposed Government-wide Federal policy for research misconduct for adoption and implementation by agencies that conduct and support research. Following consideration of public comments received, OSTP is expected to issue its Government-wide policy relating to scientific misconduct in the near future. Agencies will be required to develop and implement this policy.

Upon learning of Berkeley’s investigation of possible scientific misconduct by the Research Scientist, senior officials in the Department’s Office of Science determined that no actions were necessary because no Department actions were required and because Berkeley’s investigation was in compliance with Berkeley’s policies and procedures on allegations of scientific misconduct. Also, a senior official in the Office of Energy Efficiency and Renewable Energy (EE Senior Official), was notified of Berkeley’s investigation. The EE Senior Official did not bring the issue of misconduct by the Research Scientist to the

¹ The Public Health Service (PHS) is a composite of funding agencies in the Department of Health and Human Services. References to PHS include organizational units within PHS that have delegated authority to award financial assistance to support scientific activities.

attention of supervisors or senior managers in the office. The EE Senior Official was not aware of any regulations in the office or in the Department that dealt with charges of scientific misconduct which would have required a review or specific actions to be taken on this matter. Consequently, the Department did not consider whether it should: 1) continue funding the work of the Research Scientist; 2) initiate recovery of Department funds used in the falsified scientific papers; and 3) fund future work of the Research Scientist. In fact, after being notified of the investigation, the EE Senior Official provided the Research Scientist over \$900,000 in additional Department funds in subsequent fiscal years for research not related to the study investigated by Berkeley.

In addition, since Berkeley's Management and Operating Contract did not address scientific misconduct issues, the Department could not recover funds in the case of the Research Scientist. Berkeley's Management and Operating Contract did not reference the disallowance of cost for scientific misconduct, and did not define the term "scientific misconduct." This contract also included what had been the Department's standard general indemnification clause. This clause stated that Berkeley would not be liable for any delay, failure, loss or damage, judgment or liability unless it was determined to have been caused directly by bad faith or willful misconduct on the part of some Corporate Officer or Officers of Berkeley or of any person acting as Laboratory Director.

With the publication of the first-ever uniform Federal policy on scientific misconduct developed by OSTP, the Department of Energy and other Federal agencies that support Federally-funded research will be required to create a system for handling allegations of misconduct that arise in the research they sponsor when the policy is issued. As such, we believe that this will provide the Department with an opportunity to:

- identify an office that will be responsible for developing and implementing the Department's policies and procedures on scientific misconduct consistent with OSTP guidelines when issued;
- determine how to evaluate alleged misconduct cases and make decisions at a management level on what appropriate action should be taken;
- evaluate its contracts with institutions that receive Department funding for research, and incorporate the necessary language

that addresses the responsibilities and rights of the contractor, the grantee, the sponsor, and the researcher;

- determine what contract modifications should be made to incorporate the provisions of new departmental policies and procedures for scientific misconduct that describe contractor responsibilities for conducting inquiries and investigations; and
- determine what contract modifications should be made to assure the right of the Department to recover funds that are found to have been used in cases of scientific misconduct.

Details of Findings

Allegation of Scientific Misconduct

It was alleged that the Research Scientist had misrepresented his research data and had used improper research methods in two scientific papers that were published in two science journals.

Department of Health and Human Services Policy for Addressing Allegations of Scientific Misconduct

Due to its receipt of funding from the Department of Health and Human Services, Berkeley was subject to the requirements of 42 CFR Part 50, Subpart A, which defined “Misconduct in Science” as the “fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research.” This regulation is applicable to each entity that applies for a research, research-training, or research-related grant or cooperative agreement under the Public Health Service Act. This regulation requires each such entity to establish uniform policies and procedures for investigating and reporting instances of alleged or apparent misconduct involving research or research training, applications for support of research or research training, or related research activities that are supported with funds made available under the Public Health Service Act.

Berkeley Policy for Addressing Allegations of Scientific Misconduct

Consistent with 42 CFR Part 50, Berkeley has established a uniform procedure for dealing with instances of alleged misconduct in scientific research. This procedure is included in Berkeley’s Laboratory Regulations and Procedures Manual, 2.05H, Integrity in Research, reprinted in August 1992. This procedure contains provisions for a preliminary inquiry and a formal investigation.

Actions Taken by Berkeley Upon Learning of Possible Scientific Misconduct by the Research Scientist

In accordance with the provisions of 42 CFR Part 50 and their own uniform procedure, Berkeley initiated a review of the allegation of scientific misconduct. Berkeley appointed a preliminary inquiry committee to review the allegation of scientific misconduct on the part of the Research Scientist. The preliminary inquiry committee recommended that a formal investigation of the Research Scientist’s research practices be undertaken. Berkeley subsequently appointed a committee to formally investigate the research practices of the Research Scientist.

Berkeley’s investigation found that the Research Scientist had intentionally falsified and misrepresented his research data and that the Research Scientist’s actions constituted scientific misconduct. As a result of the investigation, Berkeley imposed disciplinary action against the Research Scientist, which consisted of a letter of censure, two-year probation, and reduction of pay. Because his research “had not integrated into the overall program or complement the goals and objectives of ongoing . . . programs,”

Berkeley sent the Research Scientist a layoff notice due to lack of work. The Research Scientist then filed a grievance over his layoff. Berkeley subsequently settled the Research Scientist's grievance and the Research Scientist agreed to resign.

The Office of Research Integrity conducted an oversight review of Berkeley's investigation of the Research Scientist. The Office of Research Integrity concurred with Berkeley's finding that the Research Scientist had engaged in scientific misconduct by intentionally falsifying and fabricating the reporting of his research data.

The Research Scientist signed a "Voluntary Exclusion Agreement" with the Office of Research Integrity. As part of the agreement, the Research Scientist neither admitted nor denied the finding of scientific misconduct by the Office of Research Integrity. The Research Scientist, however, voluntarily agreed to exclude himself for a period of three years from any contracting or subcontracting with any agency of the United States Government and from eligibility for, or involvement in, non-procurement transactions (e.g. grants and cooperative agreements) of the United States Government as defined in 45 CFR Part 76 (the "Debarment Regulations"). The Research Scientist also agreed to write to the two science journals requesting retraction of the falsely reported data.

**Department Policy
for Addressing
Allegations of
Scientific Misconduct**

The Department currently has no policy for addressing allegations of scientific misconduct, nor is there a policy requiring the Department to develop formal procedures for addressing allegations of scientific misconduct. Also, the Department has no policy for reviewing the results of any investigation performed by a contractor or grantee institution. A senior official within the Office of Resource Management, Office of Science, said there are no current Department or Federal guidelines for dealing with charges of scientific or research misconduct. A senior official within the Office of Laboratory Policy, Office of Science, also said that there are no Department Orders or directives on scientific misconduct.

However, based on guidelines that will be forthcoming from OSTP, the Department will be required to establish a policy that will address issues related to scientific misconduct. In 1996 and 1997, the Department was represented at the National Sciences Technical Council, which had been tasked to define research misconduct and to develop a Federal policy on scientific integrity. In 1997, the National Science Technical Council's

recommendations were submitted to OSTP for review, and on October 14, 1999, the Federal Register published for public comments the proposed Federal policy on research misconduct developed by the OSTP.

The policy consists of a definition of research misconduct and guidelines for handling allegations of research misconduct. The policy states that Federal agencies have ultimate responsibility for oversight authority for Federally-funded research, but that research institutions bear primary responsibility for prevention and detection of research misconduct, and for the inquiry, investigation, and adjudication of allegations of research misconduct. Key provisions of this policy include phases of the investigation, adjudication, notification of responsible agencies, and agency follow-up of actions taken by the institution. The Federal Register states that following consideration of the public comments received, agencies will be directed to implement the policy. This policy will require the Department to establish a policy and a process for addressing issues related to scientific misconduct.

At the time of our field work, no Department office had been assigned the responsibility for developing and implementing a Department policy on scientific misconduct that the forthcoming Federal policy will mandate.

**Actions Taken by
Department Officials
Upon Learning of
Possible Scientific
Misconduct by the
Research Scientist**

Department officials who became aware of Berkeley's investigation of the Research Scientist for possible scientific misconduct determined that no actions were necessary. As such, senior Department officials were not made aware of this issue, and the Department did not consider whether: 1) the Research Scientist's current work should continue to be funded; 2) the Department should initiate efforts to recover funds used in the alleged falsified scientific papers; or 3) the Department should not provide future funding for the Research Scientist work.

Specifically, two senior officials in the Department's Office of Science said that upon learning of Berkeley's investigation of the Research Scientist, no action was taken. The officials said no Department actions were required and they determined that Berkeley's investigation followed established procedures. One of the senior officials held discussions with the Berkeley Laboratory Director, which focused on Berkeley's compliance with their policy on allegations of scientific misconduct.

In addition, the EE Senior Official said that upon learning that Berkeley was conducting an investigation of possible scientific misconduct by the Research Scientist, no action was taken regarding this matter. The rationale provided by the EE Senior Official was that Berkeley's investigation was still ongoing and that Berkeley's investigation would be reviewed by the Office of Research Integrity. Also, the EE Senior Official said any decisions by Berkeley regarding the Research Scientist could be changed by the Office of Research Integrity. According to the EE Senior Official, no discussions were held with any supervisor or anyone in the Department because there were no regulations in the Department that dealt with charges of scientific misconduct.

The EE Senior Official said that Berkeley's investigation found that the Research Scientist had falsified his research data. In the opinion of the EE Senior Official, the Research Scientist "simply misrepresented his data;" and that this opinion was shared by three of the Research Scientist's colleagues whom the Research Scientist had selected to conduct an independent review of his work. According to the EE Senior Official, the Research Scientist's action did not constitute falsification.

The EE Senior Official said that by 1995, the Department no longer had interest in the research projects which contained data that the Research Scientist had allegedly falsified. As a result, actions were taken to stop funding the Research Scientist's work that was involved in the allegations. Funding research in other areas that were conducted by the Research Scientist, however, continued. The EE Senior Official said the Research Scientist's research on other areas, which had been published, was independently verified and has not been challenged.

**Recovery of
Department Funds
Used by the
Research Scientist**

Berkeley's funding records show that from 1989 to 1991 the Department awarded Berkeley approximately \$499,000 in support of the research conducted by the Research Scientist. A Deputy Director at Berkeley said that in all likelihood this money was used by the Research Scientist to develop the research data that the Research Scientist falsely reported.

The Department does not have the contractual ability to recover its funds used by the Research Scientist in the development of the scientific papers that contained the misrepresented data. Specifically, Berkeley's Management and Operating Contract that was in effect from October 1992 to September 1997, when Berkeley's investigation concluded that the Research Scientist was guilty of scientific misconduct, did not reference disallowance of

cost for research involving scientific misconduct. Additionally, the Management and Operating Contract contained what has been the Department's general indemnification clause which stated that Berkeley "shall not be liable for and the Government shall indemnify and hold the University harmless against any delay, failure, loss or damage, judgment or liability . . . and any expenses . . . connected with the work, including any loss or . . . any alleged liability of any kind, and for any cause whatsoever arising out of or connected with the work." The indemnification clause also stated that the Government is obligated whether any employee of Berkeley is responsible, unless any such delay, failure, loss, expense or damage should be determined to have been caused directly by bad faith or willful misconduct on the part of some Corporate Officer or Officers of Berkeley or of any person acting as Laboratory Director. The contract defined "officer or officers of the Regents of the University of California" as the President of the Board of Regents (Governor of California), Chairman, Vice Chairman, General Counsel, Secretary, and Treasurer of The Regents.

A senior official at the Oakland Operations Office told us that scientific misconduct is not defined in Berkeley's Management and Operating Contract or in the Department of Energy Acquisition Regulations. The senior official said that the Department has not established a definition for "scientific misconduct." The senior official also said that Berkeley's Management and Operating Contract from October 1992 to September 1997 contained an indemnification clause which would have held Berkeley harmless of any liability for scientific misconduct committed during this period by either the Research Scientist or any Berkeley research scientist. The senior official said that it was therefore not possible for the Department to recover funds that were used to support the Research Scientist's work for scientific misconduct reasons.

The senior official at the Oakland Operations Office also said that Berkeley's current Management and Operating Contract, which took effect in October 1997, no longer contains the indemnification clause.

RECOMMENDATIONS

We recommend that the Deputy Secretary:

1. Select a Department office that will be responsible for developing and implementing the Department's policies and procedures on scientific misconduct consistent with OSTP guidelines when issued.

We recommend that the Director, Office of Procurement and Assistance Management, in coordination with the General Counsel:

2. Modify current Management and Operating Contracts to incorporate those provisions of the Department's policies and procedures for addressing alleged scientific misconduct that describe contractor responsibilities for conducting inquiries and investigations when these policies and procedures are issued.
3. Modify current Management and Operating Contracts to require the Department to recover funds used to support research when the Department determines that there has been scientific misconduct.

**MANAGEMENT
REACTION**

The General Counsel responded to the draft report on behalf of the Director, Field Management Council, the General Counsel, and the Director, Office of Management and Administration. The General Counsel concurred with Recommendation 1. In addition, the Under Secretary for Energy, Science and Environment, has determined that the Office of Science will be the lead organization administering the research misconduct review process for the Department and the National Nuclear Security Administration.

The General Counsel also concurred “in principal” with Recommendation 2. The General Counsel stated that “depending on the approach used to establish and implement policies and procedures on scientific misconduct, a rulemaking may be necessary before applying these requirements to the contractors. If these policies are implemented through the issuance of a Department of Energy directive, the directive’s requirements will be incorporated into existing management and operating contracts pursuant to the process set forth in the contract clause found at 48 CFR § 970.5204-78.”

Regarding Recommendation 3, the General Counsel stated that the Department will ensure that any new Government-wide policy applicable to the executive branch and relating to scientific misconduct is incorporated into the Department’s management and operating contracts, as well as any modification to Government-wide cost principles developed in response to the new policy. However, the Department does not intend to deviate from the cost principles generally applicable to Government contracting by establishing a unique Department of Energy contract clause governing reimbursable costs.

The General Counsel also stated that decisions about the appropriate sanction (e.g., disallowance of costs, reduction in fee, debarment) for scientific misconduct should be made on a case-by-case basis and should take into consideration the circumstances of the misconduct, the sanctions already imposed by the contractor on the scientists involved, and actions considered or taken by other agencies investigating the same or similar misconduct.

**INSPECTOR
COMMENTS**

We consider management’s comments to be responsive to our recommendations.

Appendix A

SCOPE AND METHODOLOGY

In conducting this inspection, we interviewed contractor officials from Lawrence Berkeley National Laboratory and Oak Ridge National Laboratory. We also interviewed Department officials from Headquarters and the Oakland Operations Office, and officials from the Office of Research Integrity, Department of Health and Human Services.

As part of our inspection, we reviewed the following pertinent records and documents: 1) The Research Scientist's personnel file at Lawrence Berkeley National Laboratory; 2) Department Directives; 3) Berkeley's Management and Operating Contracts from October 1992 to September 1997 and from October 1997 to September 2002; 4) Berkeley's funding and research records on projects conducted by the Research Scientist; 5) the report of investigation on the Research Scientist for scientific misconduct completed by Berkeley and the review by the Office of Research Integrity; 6) the October 14, 1999, Federal Register; 7) the Energy Policy Act of 1992 regarding the Electric and Magnetic Fields Research and Public Information Dissemination Program; and 8) 42 CFR Part 50.

This inspection was conducted in accordance with the "Quality Standards for Inspections" issued by the President's Council on Integrity and Efficiency.

CUSTOMER RESPONSE FORM

The Office of Inspector General has a continuing interest in improving the usefulness of its products. We wish to make our reports as responsive as possible to our customers' requirements, and, therefore, ask that you consider sharing your thoughts with us. On the back of this form, you may suggest improvements to enhance the effectiveness of future reports. Please include answers to the following questions if they are applicable to you:

1. What additional background information about the selection, scheduling, scope, or procedures of the inspection would have been helpful to the reader in understanding this report?
2. What additional information related to findings and recommendations could have been included in the report to assist management in implementing corrective actions?
3. What format, stylistic, or organizational changes might have made this report's overall message more clear to the reader?
4. What additional actions could the Office of Inspector General have taken on the issues discussed in this report which would have been helpful?
5. Please include your name and telephone number so that we may contact you should we have any questions about your comments.

Name _____ Date _____

Telephone _____ Organization _____

When you have completed this form, you may telefax it to the Office of Inspector General at (202) 586-0948, or you may mail it to:

Office of Inspector General (IG-1)
Department of Energy
Washington, DC 20585

ATTN: Customer Relations

If you wish to discuss this report or your comments with a staff member of the Office of Inspector General, please contact Wilma Slaughter at (202) 586-1924.

This page intentionally left blank.

The Office of Inspector General wants to make the distribution of its reports as customer friendly and cost effective as possible. Therefore, this report will be available electronically through the Internet at the following address:

U.S. Department of Energy Office of Inspector General Home Page
<http://www.ig.doe.gov>

Your comments would be appreciated and can be provided on the Customer Response Form attached to the report.