the Research Standards Officer and Associate Vice Chancellor for Research at the informed OIG on April 26, 1994, that the university had conducted an inquiry into allegations of misconduct against Professor (the subject). She informed OIG that, because the university found that the allegations had substance, it had appointed an investigative panel and was proceeding with an investigation. The university was notifying OIG because the subject had received financial support for his research from NSF.<sup>1</sup>

The university convened an investigative panel composed of two faculty members from the university and one from outside the university; all panel members were in the subject's research field. The panel's task, as stated in their report, was to determine (i) "the existence and extent of redundancy" in the subject's publications and (ii) "whether the methodology of and contributions to the research reported in [the subject's] publications [were] accurately stated and properly attributed." The panel was also supposed to determine whether the subject's actions under either heading constituted misconduct in science.

There were several allegations related to methodology and authorship credit (ii). These were:

- 1) (a) The subject failed to adequately acknowledge authorship credit by not naming (student 1) as a co-author on the second of two papers that were based extensively on the student's thesis work. (b) The subject's verbatim use of textual material from student 1's thesis in the second publication was plagiarism.
- 2) The subject inappropriately took credit for work of publishing with him a term paper that was allegedly prepared only by student 2.
- 3) (a) The subject's publication of an article, co-authored with student 2, misappropriated credit by referencing a numerical code (written by the subject and a collaborator) that was different from the one actually used to calculate the results (written by student 2). (b) The erroneous listing of the code itself was sufficiently misleading as to be misconduct in science.
- 4) The reference for data supplied by (the company) was improperly omitted.

the university's Chancellor sent a letter and a copy of the investigative report to OIG. The committee found, with respect to the allegations of redundancy (i), that there existed duplication of publications (four pairs of redundant publications) and decided that, although "inappropriate for a major research university," this deviation was not serious and was not misconduct. Their decision concerning the seriousness of the deviation was based in part on the nature of the redundancies; the redundant pairs of publications were generally a conference proceeding, which is typically not peer reviewed, followed by publication in a refereed journal. The Chancellor agreed

<sup>&</sup>lt;sup>1</sup> The award is a Presidential Young Investigator Award,

This type of grant usually covers an entire research program.

with the finding and added that "this conduct deviates from accepted standards in science, but that it does not represent a sufficiently serious deviation that it rises to the level of misconduct in science and engineering when measured against the examples contained in the NSF definition, including those of fabrication and falsification of data." OIG accepted the judgment of the investigative panel that in view of the factors cited above, the redundancy in the subject's publications did not rise to the level of misconduct in science.

Related to the second class of allegations (ii), the investigative panel determined that issue (2), the subject's inclusion of himself as an author of the publication based on student 2's term paper, was within the accepted practices of the community; the Chancellor agreed. The only evidence to support this allegation was the statements of student 2. Given the view of the panel that "it is common practice for the faculty advisor who plays an active role in the selection and development of a research topic by a student whom he or she financially supports [conditions met here] to be included as a co-author on papers reporting the research," OIG concluded that the subject's claim of authorship under these conditions could not be considered misconduct in science.

Pertaining to allegation (4), the subject produced a letter from the company to him, dated after the inquiry began, that stated that as the subject and a company official had discussed previously, the company preferred that its name not be used as the source of his data in his publications. Since the subject was apparently complying with the company's request, OIG concluded that the lack of citation for the source of data was not misconduct in science.

The committee concluded that with respect to allegations (1) and (3), there were deviations from accepted practices, but that they did not rise to the level of misconduct. OIG asked the Chancellor to clarify why the university believed, in light of the facts brought forth, the subject's deviations from accepted practices with regard to (1) and (3) were not serious. In addition, to help OIG evaluate the seriousness of the deviations, OIG asked the university for more evidential materials and requested further interviews with the subject's students.

The Chancellor's response indicated that he accepted the panel's conclusions as an official of the university even though he disagreed with some of them personally. The Chancellor personally believed that the omission of student 1 as an author on the second publication, allegation (1a), was a serious deviation, but did not wish to overturn the decision of the faculty panel. He noted that he has introduced policy changes that resulted from this investigation that should be helpful in future inquiries should they arise. The Chancellor informed OIG that the subject had accepted a position at another university.

The university's decision left OIG with no authoritative judgment or reasoning from the university and with conflicting, unresolved evidence as to the seriousness of the subject's deviations from accepted practices. OIG requested that the university reconvene the investigative panel to clarify its reasoning related to issues (1) and (3). The university declined to do so. OIG consulted with two experts familiar with research and publication practice within the subject's field and asked them if they considered the subject's actions in instances (1) and (3) to be serious deviations from accepted practice. The first consultant indicated that she considered the subject's actions on both of these issues serious deviations from accepted practices. The second consultant offered conclusions on allegations

(1) that were conditional or open-ended; he did not provide his personal assessment of the allegation. His conditional assessment was based on the working relationship between the subject and student 1 together with the quantity and nature of the subject's input into his student's research. He decided that the subject's reference to the code, allegation (3), was not a serious deviation because the reference indicated the general methodology used to derive the code, not necessarily the utilization of a specific code, and that the reference appeared in an unrefereed conference proceeding. After OIG requested that he apply his own criteria to reach a decision on allegation (1), the second consultant visited OIG and examined relevant evidential materials. He then concluded that the subject did not commit misconduct in science.

Although there was a general consensus by the faculty panel, the Chancellor, and the outside consultants that the subject's deprivation of authorship credit from student 1, allegation (1a), represented a deviation from accepted practices, the widespread views of the facts as they relate to misconduct indicated that there was no clear consensus in the community as to the seriousness of the deviation. At the time of the inquiry, the subject and student 1 both signed a statement indicating that they were both satisfied with the appropriation of authorship credit. The panel noted that the subject referenced student 1's thesis and acknowledged student 1's contributions in the sole-authored publication. The panel reasoned that insofar as the subject acknowledged student 1, "... this case is not an attempt to claim that the work of others is completely his own" and concluded that the subject's actions in this instance did not rise to the level of misconduct in science. OIG noted that the subject and student 1 had disagreed with the interpretation of results after the jointly published conference proceeding but before the publication of the solely authored manuscript; student 1 did not ascribe to the subject's interpretation of the data. OIG reasoned that this disagreement, together with the disparate interpretation within the community of the subject's actions, are the basis for a conclusion that the subject's actions deviated, but not seriously, from the accepted practices of the community with regard to the allegation raised in (1a).

Concerning the allegation of plagiarism (1b), the subject used his and student 1's joint publication as the basis for his single-authored publication. Although there was significant verbatim textual overlap between the publications, the copied text was primarily in the introductory and methodology sections; both the subject and student 1 agree that there are differences in the conclusions of the two papers. It is OIG's view that the subject, as co-author of the first publication, was entitled to use material in his subsequent publications. Even though he could have been more charitable in referencing the contributions of student 1, this action, allegation (1b) was not misconduct in science.

Regarding allegation (3), there are two distinct parts. One is the incorrect reference to the numerical code that produced the results and the other is the deprivation of authorship credit from student 2 by the incorrect reference. Regarding the misrepresentation, the investigative panel and the first consultant concluded that a member of the subject's professional community would not read the reference as belonging to a class of codes instead of a specific code. They indicated that it was misleading to represent it that way, but it was not misconduct in science. The first consultant, but not the second, concluded that this misleading reference of the code indicated a serious deviation from accepted practices. OIG concluded that the subject deviated from accepted practices when he

misrepresented the actual numerical code in his publication but that this deviation was not sufficiently serious to be misconduct in science.

Concerning the deprivation of authorship credit for developing the code, again, only the first consultant considered this action by the subject to be a serious deviation from accepted practices. In fact, the second consultant suggested that the results could have been obtained from a variety of codes. He implied that the seriousness of the lack of proper citation was reduced because interest of the community in student 2's code may be minimal if the authors had no plans to edit the conference proceedings paper and publish it in a refereed journal (as is often done as indicated by the panel when they addressed the redundancy allegations). He further suggested that if student 2's code were indeed a substantial contribution, he should prepare his own manuscript, providing details and demonstrating applicability, for publication. The university committee and one of the two consultants concluded that the subject's actions were not misconduct in science. In this case, OIG concluded that the subject could have been more accurate in assigning authorship credit for the numerical code, but that his actions did not rise to the level of misconduct.

Finally, while evaluating the subject's manuscripts, the first consultant raised an additional concern regarding differences in the conference proceeding published jointly by the subject and student 1 and the following journal publication of the subject only. She noticed that the subject changed several of the figure captions without any mention of the changes, i.e., the data are presented differently in the two publications. For scientific reasons she indicated that, if the underlying data were the same, these different representations raise questions about the honesty with which the data was reported. OIG asked the second consultant about this discrepancy. He provided a textbook reference indicating that, for the conditions valid in the subject's analysis and within the measured accuracy of the data, it was equivalent to use either of the published captions. OIG concluded that the subject's failure to indicate why he had changed the graph label was sloppy, but not misconduct in science.

OIG concludes that although the subject's actions were, in some instances, deviations from accepted practices, they were not so serious as to be judged misconduct in science.

This investigation is closed and no further action will be taken on this case.

cc: Staff Scientist, Deputy AIG-Oversight, AIG-Oversight, IG