

- Section III.10. - Code of Ethics  
Section III.10.a. - Code of Ethics

### CREDIT FOR ENGINEERING WORK – RESEARCH DATA

#### FACTS:

The XYZ Company headed by Engineer A offered to provide funding to professors in the chemistry department of a major university for research on removing poisonous heavy metals (copper, lead, nickel, zinc, chromium) from waste streams. The university then agreed to contract with XYZ company to give the company exclusive use of the technology developed in the field of water treatment and waste water stream treatment. Under the agreement, XYZ Company will provide a royalty to the university from profits derived from the use of the technology. Also, a group of the university professors organized QRS, a separate company to exploit applications of the technology other than the treatment of water and waste water.

At the same time that the university research was being conducted, XYZ continued to conduct research in the same area. Performance figures and conclusions were developed. XYZ freely shared the figures and conclusions with QRS organized by the university professors.

At the university, Engineer B, a professor of civil engineering wanted to conduct research and develop a paper relating to the use of the technology to treat sewage. Engineer B contacted the professors in the university's chemistry department. The chemistry professors provided XYZ's data to Engineer B for use in the research and paper. The professors did not reveal to Engineer B that the data was generated by Engineer A and XYZ company .

Engineer B's paper was published in a major journal. Engineer A's data was displayed prominently in the paper and the work of XYZ constituted a major portion of the journal. The paper credits two of the chemistry professors as major authors along with Engineer B. No credit was given to Engineer A or XYZ as the source of the data, the funds that supported the research. After publication Engineer B learns about the actual source of the data and its finding.

#### QUESTION:

Does Engineer B have an obligation under the Code of Ethics to clarify the source of the data contained in the paper?

#### REFERENCES:

Section III.10. -Engineers shall give credit for engineering work to those

Section III.10.a. -Engineers shall, whenever possible, name the person or persons who may be individually responsible for designs, inventions, writings, or other accomplishments.

### DISCUSSION:

The issue of providing credit for research work performed by others is a vital matter in this day and age. Its importance is more than merely crediting contributions of individuals who have performed work in an area of engineering and scientific research. In actual fact, funding decisions for research and development of various technologies are vitally affected by the credit and acknowledgments.

Over the years, the Board has examined these issues in a variety of contests. In BER Case 75-11, Engineer A performed certain research and then prepared a paper on an engineering subject based on that research which was duly published in an engineering magazine under his byline. Subsequently, an article on the same subject under the name of Engineer B appeared in another engineering magazine. A substantial portion of the text of Engineer B's article was identified word-for-word with the article authored by Engineer A. Engineer A contacted Engineer B and requested an explanation. Engineer B replied that he had submitted with his article a list of six references, one of which identified the article by Engineer A, but that the list of references had been inadvertently omitted by the editor. He offered his apology to Engineer A for the mishap because his reference credit was not published as intended. In ruling that Engineer B did not act ethically by his actions, we distinguished research from plagiarism. We offered that a "quotation from many sources is research" and "quotation from a single or limited number of sources is plagiarism" However, in either event, it is contemplated that the author will identify and give credit to his sources – single or many. In addition, we noted that the important belief of Engineer B that he would have been without fault if the list of references had been published at the end of the article. This belief represented a lack of understanding of the requirements of the Code. Merely listing the work of Engineer A in a list of references to various articles only tells the reader that Engineer B had consulted and read those cited articles of other authors. It no way tells the reader that a large portion of his text is copied from the work of another.

More recently, in BER Case 83-3, Engineer B submitted a proposal to a county council following an interview concerning a project. The proposal included technical information and data that the council requested as a basis for the selection. Smith, a staff member of the council, made Engineer B's proposal available to Engineer A. Engineer A used Engineer B's proposal without Engineer B's consent in developing another proposal, which was subsequently submitted to the council. The extent to which Engineer A used Engineer B's information and data is in dispute between the parties. In finding that it was unethical for Engineer A to use Engineer B's proposal without Engineer B's consent, we indicated that Engineer A had an obligation to refuse to accept the proposal from Smith and also noted that Engineer A's actions constituted unfair competition by improper and questionable methods in violation of Code Section III.7.

Taking BER Cases 75-11 and 83-3 together, we believe that the instant case can be distinguished from the two earlier cases. Unlike the facts in BER Cases 75-11 and 83-3, Engineer B did not knowingly fail to credit Engineer A or XYZ corporation for its contributions to the research which formed the basis of his paper. Instead, Engineer B assumed that the material he received from the other professors was developed solely by those professors.

We conclude that Engineer B did not knowingly and deliberately fail to credit Engineer A or XYZ for its contributions to the research. However, we believe that had Engineer B made more of an effort to substantiate the sources contained in his paper, he may have been able to identify those sources. We would also emphasize our deep concern over the conduct of the chemistry professors who for whatever reason(s) misled Engineer B by failing to reveal the sources of the data. While not technically covered by this Code, the conduct of the chemistry professors is clearly deplorable and is unacceptable under the philosophical standards embodied in the Code of Ethics.

Finally, we would suggest that Engineer B prepare and request that the journal publish a clarification of the matter explaining how the matter occurred along with an apology for any misunderstanding which may have arisen as a result of the publication of the paper.

#### CONCLUSION:

Engineer B has an obligation to request that the journal publish a clarification of the matter explaining how the matter occurred along with an apology for any misunderstanding which may have arisen as a result of the publication of the paper.

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**Note:** In regard to the question of application of the Code to corporations vis-a-vis real persons, business form or type should not negate nor influence conformance of individuals to the Code. The Code deals with professional services, which services must be performed by real persons. Real persons in turn establish and implement policies within business structures. The Code is clearly written to apply to the Engineer and it is incumbent on a member of NSPE to endeavor to live up to its provisions. This applies to all pertinent sections of the Code.