Engineering Ethics (Part II)

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ABE 290 – Sophomore Seminar
Purdue University

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In-class team exercise, assignment due at end of class

Code of Engineering Ethics

I. Fundamental Canons

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health, and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

National Society of Professional engineers, 2007;
from lecture of 11/3/2016

II. Rules of Practice

1. Engineers shall hold paramount the safety, health, and welfare of the public.
2. Engineers shall perform services only in the areas of their competence.
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5. Engineers shall avoid deceptive acts.

National Society of Professional engineers, 2007

Case Studies (Situations that you may encounter)

Situations (some examples)

- Gifts from a potential customer or existing customer;
- Suspected hazardous waste (how to handle)
- Analysis of equipment operation with safety concern
- A new invention
- Managing conflicts of interest

Links given below have a series of case studies for your reading and future reference:

http://www.nspe.org/resources/ethics/ethics-resources/board-of-ethical-review-cases

http://biodesign.stanford.edu/bdn/ethicscases/1ipownership.jsp

http://www.nspe.org/sites/default/files/BER%20Case%20No%2013-8-FINAL.pdf

Air Pollution Monitoring Code

Facts:

Engineer A, a licensed professional engineer with expertise in computer programming and computer coding, is employed by Company X, which manufactures air pollution monitoring equipment for power generation companies. Engineer A is asked to design, program, and develop code for a new type of equipment the company is planning to develop. The computer code Engineer A develops performs well during testing but causes the company's equipment to reduce its pollution monitoring capacity during peak periods of energy consumption, which decreases the amount of actual pollution reported to the power generating companies - data that is then routinely reported to state and federal officials. Company X officials advise Engineer A that this reduced capacity feature will extend the life of the equipment and provide better value to power generation companies who will purchase it.

Question:

Would it be ethical for Engineer A to design, program, and develop code for a new type of equipment the company is planning to develop for power generation companies with a feature that reduces the amount of actual pollution reported to the power

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Obligations within the NSPE Code of Ethics often conflict

The NSPE Board of Ethical Review noted on numerous occasions that individuals should read the Code in its entirety and understand that no provision should be read in a vacuum. Instead, the Code should be read as an organic whole with certain provisions having greater priority and each provision depending upon the others.

Among the more common conflicts in the NSPE Code of Ethics is the conflict between the obligation to the employer/client and the obligation to protect the public health, safety, and welfare.

Public Health and Safety vs Faithful Agent and Trustee to Employer or Client

This case does involve a clear conflict between the obligation of the engineer to the public health and safety and the obligation to be a faithful agent and trustee to an employer or client.

Balancing the ethical considerations, it is the Board's view that Engineer A's proposed coding would be inconsistent with his obligation to the public health and safety.

Discussion

It would not be ethical for Engineer A to design, program, and develop code for a new type of equipment the company is planning to develop for power generation companies with a feature that reduces the amount of actual pollution reported to the power generation companies—data that is routinely reported to state and federal officials.

Engineer A has an ethical obligation to offer to the client that he attempt to develop a new code that does not have this reporting deficiency.

If Company X chooses to use the original code without reporting the deficiency to state and federal officials, then Engineer A has the ethical obligation to report that deficiency.

Suspected Hazardous Waste

Alex is an engineering student employed for the summer by Environmental Engineering. RJ, the engineer who supervises Alex, directs Alex to sample the contents of drums located on the property of a client. From the look and smell of the drums, Alex believes that analysis of the sample will show hazardous waste in the drums. Alex knows that if the material contains hazardous waste, there are legal requirements for the transport and disposal of the drums, and that federal and state authorities must be notified.

Alex informs RJ of the likely contents of the samples and asks what to do next. RJ instructs him to report only that samples have been taken, and not to do the analysis. Since the client is a major one for Environmental Engineering of the company, RJ proposes to Alex that he only report where the drums are located, that they contain questionable material, and only suggest that they be removed.

What can and should Alex, a student and a summer hire, do in this situation?

Provide your answer in written form at the end of class