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FOR ENGINEERING AND SCIENCE

Professional Responsibility and Conduct

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Description

Engineering and responsibility and ethics that must be followed in the work place, pertaining to lessons learned from the Morton Thiokol and the space shuttle Challenger disaster.

Body

What is everyone's professional responsibility and ethical conduct code which should be practiced in the work place? The following advice was given by Mr. Adolph J. Ackerman in June, 1967, in an article published by the IEEE. I firmly believe that his advice is timeless and applies to all generations in engineering. Mr. Ackerman said,

Engineers have a responsibility that goes far beyond the building of machines and systems. We cannot leave it to the technical illiterates, or even to literate and overloaded technical administrators to decide what is safe and for the public good. We must tell what we know, first through normal administrative channels, but when these fail, through whatever avenues we can find. Many claim that it is disloyal to protest. Sometimes the penalty disapproval, loss of status, even Vilification--can be severe. Today we need more critical pronouncements and published declarations by engineers in high professional responsibilities. In some instances, such criticism must be severe if we are properly to serve mankind and preserve our freedom. Hence it is of the utmost importance that we maintain our freedom of communication in the engineering profession and to the public. The decades ahead

are bound to be a critical and difficult period and there will be occasions for sharp dissent and strong words if we are to meet our responsibilities."Allan J. McDonald, "Engineering Ethics and the Challenger Accident," Address to Brigham Young University, December 4, 1986, page 10

In a parallel vein, the AIAA has published a code of ethics for their members, known as Rule 2.4 which states,

> "The member will indicate to this employer or client the adverse consequences to be expected if his judgment is overruled."Ibid.

More than 20 years ago I received some superb advice from a QA manager that I have applied throughout my career. He told me to ask myself the following question when faced with a tough question of whether a product was acceptable:

> "Would you allow your wife or children to use this product without any reservations?" If I could not answer that question with an unqualified, "Yes," he said, I should not sign off on the product for others to use. That is what ethical analysis of acceptable risk should be.Roger M. Boisjoly, "NASA, Morton Thiokol Must Rethink Risk", The Scientist, September 21, 1987, page 11

The academic community has studied many cases on whistle blowing and ethical conduct in our society and have some statements which apply directly to this discussion.

Professor William H. Starbuck, New York University's Graduate School of Business Administration said,

"The fact that people are in a hierarchy tends to amplify misperceptions. A low-level person has a fear that something might happen and reports it to a higher level. As it goes up the hierarchy, information gets distorted, usually to reflect the interests of the bosses."Trudy E. Bell and Karl Esch, "The Fatal Flaw in Flight 51L," IEEE Spectrum, Volume 24, number 2, February, 1987, page 50.

Professor of Communications at Boston University, Otto R. Lerbinger, states that corporate cultures try to ignore the unpleasant, and have to be counteracted by deliberately creating a culture that encourages people to bring up unpleasant

information. He also states,

"in a group trying to move ahead with a decision, you find that those people that have anything negative to say are unpopular, so a manager deliberately has to encourage people taking the devil's advocate position. In a crisis situation, somebody has got to think about the possibility of something going wrong, and to use a worst case scenario approach."Ibid.

Professor of Sociology at Smith College, Myron P. Glazer, said that time and again there is the tendency to kill the messenger bringing the bad news rather than punish the wrongdoers. He also states that,

"People who hung tough with their organization managed to do very well. Hanging in there and not protesting is valued highly. They manage to survive because of their fundamental and correct belief that the organization will protect them."Ibid, page 51.

The research on the subject of whistleblowers leads to two conclusions. First, all whistleblowers attempt to achieve problem resolution through their organizational chain of command; and, second, they are all punished by the organization after whistle blowing outside the organization.

I testified to the Presidential Commission that I made my engineering position clear to MTI and NASA Managers about the consequences of launching in such cold weather, but then I felt helpless as they ignored my input and decided to launch anyway.

A NASA (MSFC) colleague of mine, Ben Powers, said, "You don't override your chain of command. My boss was there; I made my position known to him; he did not choose to pursue it " - "at that point, it's up to him; he doesn't have to give me any reasons; he doesn't work for me; it's his prerogative."Ibid, page 49. I hope everyone can understand from these statements that all engineers who spoke out against the *Challenger* launch followed the same communications path that the researchers found; that is, their normal organizational chain of command. We also have been punished in varying degrees for our testimony to others.

Continue to Accountability

Notes

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Rights

Resource Type

Case Study / Scenario

Topics

Catastrophes, Hazards, Disasters
Employer/Employee Relationships
Lab and Workplace Safety
Workplace Ethics
Social Responsibility

Discipline(s)

Aerospace Engineering
Mechanical Engineering
Engineering