

Ethics and Professionalism

Ethical behavior cannot be delegated, and the responsibility for behaving ethically cannot be outlived. Good communication makes it easier to be ethical. So does self-awareness, especially an acknowledgement of one's inclinations and biases

Gael Ulrich, University of New Hampshire

Chemical engineering and, perhaps to a lesser degree, other kinds of engineering are topics of intense interest to contemporary ethicists and philosophers. In many cases, this scrutiny has been triggered by unfortunate safety or pollution incidents from the recent past in "our" process industries. In some circles, merely identifying oneself as a chemical engineer arouses negative associations that range from acid rain, asbestos, Bhopal, Chernobyl, chlorofluorocarbons, Exxon Valdez, DDT, Kepone, lead paint, Love Canal, mercury, PCBs, and author Rachel Carson's "Silent Spring" to Three-Mile Island.

It is unfair, of course, to condemn an entire profession for the mistakes, poor judgment, or crimes of a few engineers or their employers; indeed, many engineers have made that point. Chemical engineering leaders and educators have worked hard to elevate or maintain the ethics of their colleagues and to enhance the image of our profession.

Virtually every chemical engineer will encounter ethical conflicts during his or her career while exerting control over forces that can affect health, lives, jobs, finances, and reputations. It is a heavy responsibility. No insurance reimbursement can compensate

for the regret and guilt stemming from a lapse in judgment that causes injury, loss of life, or property damage. Because we are human, incidents will inevitably happen, but there is no need to despair over acts of fate that fell during our watch if we obey the rules and do our best.

What are the chemical engineer's legal liabilities, and what constitutes "doing our best?" In the U.S., laws to protect safety, the environment, and people's money are administered by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and the Securities and Exchange Commission (SEC), among other agencies. Other countries have similar organizations, and, as in the U.S., legal guidelines are usually published widely in the workplace.

Keep in mind, however, that there is a difference between legality and ethics. On the one hand, a society's rules change as its morality evolves. As a consequence, regulations ebb and flow; their nature and their impact are moderated by the weight of the public as it reacts to events, comes to a consensus, and forces legislation.

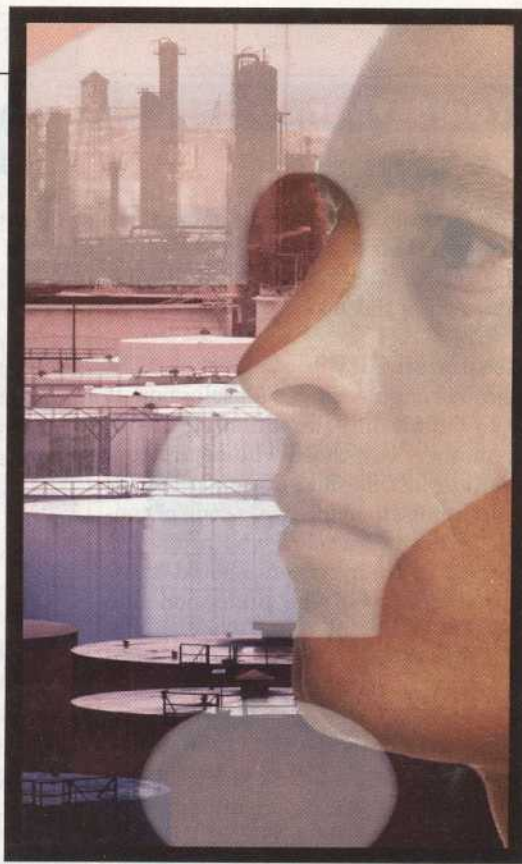
Ethical codes, on the other hand, tend to be less specific, and they change less dramatically. Their moral guidelines are more encompassing,

but those guidelines require individual, person by person, interpretation. Such codes have been adopted by all major engineering societies, among them the American Institute of Chemical Engineers (AIChE), the American Soc. of Civil Engineers, the American Soc. of Mechanical Engineers, the Institute of Electrical and Electronics Engineers and the National Soc. of Professional Engineers.

The AIChE Code of Professional Ethics, available at www.aiche.org/About/Code.aspx and reproduced, with permission, in the box that is part of this article, is shorter and simpler than most. The chemical engineer who abides by this admirable code is indeed unlikely to do anything unethical or illegal.

Based on the ethics literature and more than 50 years of my own professional and personal experience, here are four prime observations:

- Engineers cannot delegate ethical responsibility to anyone else
- Ethical behavior is enhanced by effective communication
- Ethical behavior is more likely when engineers are aware of their personal biases, and the limitations of their own knowledge
- Ethical challenges never go away. No matter how old or how experienced, individuals and organizations must



DAVID WHITCHER

AICHE'S CODE OF ETHICS

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continually examine and sometimes reform their behavior

The rest of this article delves deeper into each of those four points.

Members of the American Institute of Chemical Engineers shall uphold and advance the integrity, honor and dignity of the engineering profession by: being honest and impartial and serving with fidelity their employers, their clients, and the public; striving to increase the competence and prestige of the engineering profession; and using their knowledge and skill for the enhancement of human welfare. To achieve these goals, members shall

- Hold paramount the safety, health and welfare of the public and protect the environment in performance of their professional duties
- Formally advise their employers or clients (and consider further disclosure, if warranted) if they perceive that a consequence of their duties will adversely affect the present or future health or safety of their colleagues or the public
- Accept responsibility for their actions, seek and heed critical review of their work and offer objective criticism of the work of others
- Issue statements or present information only in an objective and truthful manner
- Act in professional matters for each employer or client as faithful agents or trustees, avoiding conflicts of interest and never breaching confidentiality
- Treat fairly and respectfully all colleagues and co-workers, recognizing their unique contributions and capabilities
- Perform professional services only in areas of their competence
- Build their professional reputations on the merits of their services
- Continue their professional development throughout their careers, and provide opportunities for the professional development of those under their supervision
- Never tolerate harassment
- Conduct themselves in a fair, honorable and respectful manner