
CSEP MODULE SERIES IN APPLIED ETHICS

This is one of a series of modules in applied ethics produced by the Center for the Study of Ethics in the Professions at the Illinois Institute of Technology under a grant from the Exxon Education Foundation. Each module consists primarily of an essay, and contains illustrative examples and an annotated bibliography. The modules are intended for use in a wide range of undergraduate, graduate and continuing education programs in such areas as science, technology and human values, the sociology or history of science and/or technology, public policy and professional ethics courses in engineering, business and computer science. After a widely publicized call for proposals, authors and topics were chosen by a rigorous review process by the project's staff and Advisory Panel. Drafts of the modules were tested and evaluated by faculty and students in educational programs throughout the country. The final product, therefore, although primarily the work of its author(s), represents the contributions of many persons.

Project Director: Mark S. Frankel
Series Editor: Vivian Weil
Editorial Assistants: Julie Siegel and Jessica Tovrov

Advisory Panel

Carl Ahlers, Vice President (International Engineering),
Cummins Engine Company
Vere Chappel, Professor (Philosophy), University of Massachusetts
Alan H. Goldman, Professor (Philosophy), University of Miami
Donald R. Haworth, Managing Director (Education),
American Society of Mechanical Engineers
Homer Sewell, Professor (Engineering Administration),
The George Washington University

Whistleblowing

Ethical and Legal Issues
in Expressing Dissent

James C. Petersen and Dan Farrell



Kendall/Hunt
Publishing Company
Dubuque, Iowa

About the Authors

James C. Petersen (Ph.D., University of Iowa) is an associate professor of sociology at Western Michigan University. A specialist in organizational and political sociology, he has conducted research on organizational politics, science-related social conflicts, and public participation in policy formation. His publications include two edited books, *Politics, Science and Cancer: The Laetrile Phenomenon* (Westview, 1980, with Gerald Markle) and *Citizen Participation in Science Policy* (University of Massachusetts Press, 1984).

Dan Farrell (Ph.D., University of Iowa) is an associate professor of management at Western Michigan University. In addition to his work on whistleblowing and political behavior in organizations, he has conducted studies on employee turnover and absenteeism. His articles have appeared in the *Journal of Applied Psychology*, *Human Relations*, *Academy of Management Journal* and the *Academy of Management Review*.

Copyright © 1986 by Kendall/Hunt Publishing Company

ISBN 0-8403-3945-3

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright owner.

Contents

Introduction	1
The Emergence of Whistleblowing	2
What Is Whistleblowing?	4
Ethical Dilemmas for Whistleblowers	7
The Legal Aspects of Whistleblowing	14
The At Will Doctrine	15
Abusive Discharge	16
Statutory Protection	17
Misprison of Felony	17
Labor Law	18
Collective Bargaining Protection	19
Whistleblowers Protection Act	20
Implications for Engineers	20
A Whistleblowing Case Study	22
Questions for Discussion	22
The Browns Ferry Case	23
Summary	23
Chronology	24
Questions for Discussion	27
Bibliography	28

Introduction

In 1980 Dan Deford, manager of the quality engineering section of the Tennessee Valley Authority (TVA), was involved in a study of safety features in the design and construction of a nuclear power plant. He was concerned that instruments designed to measure the flow of coolant during a reactor accident might have been omitted from the plant. Deford felt that the failure to install such equipment should be reported to the Nuclear Regulatory Commission (NRC). His section's study was halted, however, when an engineering division manager downgraded the omission of such equipment to a category not requiring an NRC report. During an NRC on-site inspection, Deford and others complained to an inspector. Later Deford was strongly criticized by superiors for this act of whistleblowing and was transferred to a lesser job in another unit. He appealed this transfer to the Department of Labor under an employee protection feature of the Nuclear Regulatory Commission authorizing legislation. The hearing officer in the case did find that the transfer was a clear case of retaliation and recommended reinstatement, reimbursement for legal fees, and compensation for medical costs and damage to professional reputation. The Department of Labor took no action until President Reagan, who had just been elected, assumed office and appointed a new Secretary of Labor. Early in 1981 Secretary Donovan did reinstate Deford and awarded funds for legal costs. He held, however, that medical expenses and compensation for damage to professional reputation were not recoverable under the law (Chalk 1982). The case was appealed, and in 1983 the Sixth Circuit of the United States Court of Appeals held that the finding of unlawful discrimination was supported and that Deford should be awarded compensatory damages, including medical costs.

Incidents of whistleblowing by engineers, such as Deford and other professionals, have frequently made news in the past decade. In looking at these episodes Sissela Bok has observed "Whistleblowers sound an alarm from within the very organizations in which they work, aiming to spotlight neglect or abuses that threaten the public interest" (Bok 1980, p. 177). Only a small percentage of employees choose whistleblowing as a means of expressing dissent, yet many employees are exposed to examples of organizational wrongdoing. A Senate Subcommittee headed by the late Philip Hart estimated that the annual cost of corporate crime in the U.S. was around 200 billion dollars. Furthermore, over 100,000 deaths a year are the result of occupationally-related diseases, many caused by violation of occupational health and safety laws; and perhaps as many as 140,000 deaths a year in the U.S. are the result of air pollution. Add to this the 20 million annual serious injuries which the Consumer Product Safety Commission attributes to unsafe and defective consumer products, and you have a staggering list of problems originating in organizations. The government and its agencies have an equally dismal record. In the early 1970s a Nader research group found that the federal government had committed nearly

900 civil violations during a 30 month period, or about one a day. Unfortunately, there seems to be little reason to expect that the rate has slowed greatly in recent years.

Resignation, confrontation, obstructionism, and neglect have always been available as means of dissent for employees troubled by the activities of their organizations. Often employees have expressed their concerns internally, going to superiors seeking changes in organizational policies. It is not uncommon for these internal protests to be met with bureaucratic delaying tactics, refusals to listen, attempted suppression and even charges of disloyalty. In cases where internal channels are closed or ineffectual, employees sometimes have gone outside their organization and "blown the whistle."

For most organizational leaders such whistleblowing remains a controversial topic, but many business leaders are recognizing that employee dissent can provide them with early warnings of problems with products or with evidence of wrongdoing in the corporation. A 1977 survey of *Harvard Business Review* subscribers, mostly managers, revealed that a majority of respondents favored protection for dissident employees. Over 60 percent of the 2000 subscribers who returned the questionnaire agreed that if an employee blew the whistle in the belief that he or she was serving the best interests of customers, stockholders, or the public, the whistleblower should be respected and not penalized. Fewer than ten percent of the respondents felt that whistleblowers should be penalized even if there were evidence that the exposure had hurt sales or customer relations (Ewing 1977).

Still we must recognize that unpleasant consequences and outcomes are commonly associated with whistleblowing. Preliminary research of our own using about 90 accounts of whistleblowing that were reported in newspapers reveals that in only ten percent of whistleblowing cases did the employing organization fail to take some action against the whistleblower. Organizations frequently demoted, transferred, forced retirements, and, in over 40 percent of the cases, fired the whistleblower. On the other hand, Myron Glazer's recent follow-up of ten whistleblowers does reveal that there is life after whistleblowing. As Glazer details for each of the ten, new and often very satisfying career possibilities were opened up by their actions. Glazer (1983, p. 41) concludes that "For each of these whistleblowers there was no going back. Yet there was a future. That message is as vital as the severe price they paid."

The Emergence of Whistleblowing

Only a few political observers remember the 1963 publicity about Otto Otopka when he gave classified documents concerning security risks in the new administration to the chief counsel of the Senate Subcommittee on Internal Security. Then Secretary of State Dean Rusk dismissed Otopka from

his job in the State Department, charging conduct unbecoming a State Department officer. This case was the first to which the term whistleblowing was attached, and it initiated continuing discussion about the divided loyalties of organizational members.

Daniel Ellsberg became a national figure in 1971 when he released confidential Pentagon documents to the *New York Times* showing government misdeeds in Viet Nam. The documents were copied while he was employed at the Rand Corporation, a government contractor for planning and analysis. Almost as well known as the Pentagon Papers case is the story about Ernest Fitzgerald. Fitzgerald was dismissed as a Pentagon cost analyst in 1969 after telling Congress the C-5A transport plane would cost \$2 billion more than originally estimated. Fitzgerald has remained in the news for well over a decade. In 1973 he was reinstated with back pay and in 1981 he settled out of court with Richard Nixon for over \$140 thousand in a civil suit for damages following Mr. Nixon's taped boasting of having given the order to "get rid of that son of a bitch."

Engineers have figured prominently in whistleblowing, especially in cases involving questions of product safety and environmental pollution. William Stieglitz became a whistleblower when his resignation as consultant to the National Highway Safety Bureau attracted substantial media attention. An MIT aeronautical engineering graduate, Stieglitz had devoted his career to system-safety engineering, first in the aviation industry and later in automobiles. Hired to direct the safety standard-setting process in 1968, Stieglitz found that industry pressure was having a powerful effect on his agency. While in the last phase of preparing the final standards, he was assigned to other duties. When the standards were issued he resigned saying, "The standards were, in my opinion, a hoax on the American public, creating an illusion of improved safety which did not, in fact, exist. I could not be a party to this" (Nader, Petkas, and Blackwell 1972, p. 98).

The ethical dilemmas faced by engineers were highlighted by the Winamac, Indiana trial of the Ford Motor Company. Three girls died of burns in 1978 when the gas tank of their 1973 Pinto burst into flames after their car was rear-ended by a van. By 1978 the Pinto had developed a fiery reputation and nearly 50 suits related to rear-end crashes of Pintos had been brought against Ford. The Winamac trial attracted national attention, however, because the prosecutor had charged Ford with a criminal offense, reckless homicide. The prosecutor attempted to show that Ford knew about defects related to the gas tank but avoided making changes that would have reduced profits. Ford was acquitted of criminal charges in March of 1980, but the trial and the journalistic attention it prompted brought out a number of stories of how engineering decisions can be distorted by corporate policy.

The Pinto was created as a response to the Japanese subcompacts. Ford was eager to have the Pinto available for the 1971 model year and set a very tight schedule that cut off about a year and a half from the usual time required for the creation of a new car. Frank Camps, a principal design engineer at

Ford, charged that this time pressure along with management's goals for the car's weight and price resulted in engineers having to provide merely "band-aid" solutions for problems that emerged during testing. Camps became concerned about what he viewed as questionable procedures being used in the safety testing of the Pinto and what he saw as inaccurate reporting of crash test results with respect to windshield retention. He raised these issues in a series of letters to Ford officials and was rewarded with a downgrading of his performance appraisal and, eventually, a demotion (Westin 1981, pp. 119–129). Another Ford engineer, Harley Copp, had serious concerns about the safety of the Pinto. After a whistleblowing episode unrelated to the Pinto, Copp had been assigned to a series of meaningless tasks and was eventually fired. In a California product liability trial, Copp testified as a witness for the burn victim of a Pinto crash. His testimony emphasized Ford's knowledge of fuel system defects from crash tests and its willingness to delay safety improvements as a way of maintaining profit.

The Bay Area Rapid Transit (BART) project involved both state of the art technology and massive size. The development of a rapid transit system for the San Francisco area spanned over 25 years, and required the services of many engineering specialists. Three of the engineers working on the project—Holger Hjortsvang, Robert Bruder, Max Blankenzee—became concerned about the adequacy of the automatic train control (ATC) system. After repeated memos, first to their immediate supervisor and then other BART managers, failed to bring attention to their concerns, the engineers met with a member of the BART Board of Directors. Two days after the meeting the *Contra Costa Times* published an account of their concerns and reprinted documents provided to the board members. While the engineers had not sought out the press coverage, they were dismissed from their jobs. These engineers may have contributed to the safety of the system, but they were also victims of BART's poorly specified power and authority system (Anderson et al. 1980).

What Is Whistleblowing?

It is striking how many different types of actions get described as whistleblowing. These accounts focus on an extremely varied range of activities—some internal, some external; some anonymous, others public; some done willingly, some inadvertently; some carried out by organization members, others by former members. Often it is very difficult to recognize whistleblowing until well after the fact. While it is in process, the potential whistleblower may be constantly exploring a variety of forms for expressing dissent. In this section we define whistleblowing and distinguish it from some related actions.

Whistleblowing is a special form of dissent in which a member or former member of an organization goes outside the organization or outside normal

organizational channels to reveal organizational wrongdoing, illegality, or actions that threaten the public. The term is reserved for revelations of significant misbehavior with consequences for a number of people. These conditions—going outside, revealing wrongdoing, and serving the public interest—differentiate whistleblowing from related activities such as lawsuits and filing grievances, actions primarily intended to redress problems of a particular individual or classes of individuals of which the initiator is usually a member. Whistleblowing in its classic use seems also to be limited to acts that are conducted publicly. Anonymous leaks to the media and secret sealed memos in the file are also employee attempts to respond to organizational wrongdoing, but in the eyes of both the public and the employing organization such acts are qualitatively different from whistleblowing.

Comparing whistleblowing with leaks and secret memos allows us to consider the whole range of backstage or political behavior that occurs within organizations (Farrell and Petersen 1982). Organizations are traditionally viewed as rational, hierarchically oriented entities. Under the rational model that dominates the training and thinking of managers, employee behavior exists only within the formally defined role boundaries and is regulated by the norms and goals of the organization. Scholars interested in organizations have begun to note, however, that a considerable portion of the effort expended in the work place occurs outside of the formal requirements of the job; there is a growing recognition that classic rational views must be supplemented by realistic political models of organizations.

A political view of organizations supplements the rational model in three major ways. First, the political view more adequately reflects authority and power in work organizations. The rational approach views direction in the organization as flowing downward from a central decision point. The political model recognizes that middle and lower level organizational members have the resources and the motivation to challenge and change bureaucratic directions. Second, the rational/classical model assumes a universal and pervasive set of goals, those associated with the organization's effectiveness. The political model recognizes the legitimacy of self, group and public interests in addition to organizational interests. Third, the political model recognizes the existence of ongoing attempts by many organizational members to influence the distribution of advantages and disadvantages available through the organization.

The decision to take political action within a work organization also implies that tactical choices will be made concerning which resources will be mobilized, how they will be mobilized, and where the efforts will be focused. In an earlier analysis (Farrell and Petersen 1982), we identified three key dimensions differentiating organizational political behavior: the internal-external dimension, the vertical lateral dimension, and legitimate-illegitimate dimension.

The internal external dimension of political behavior is concerned with the focus of resources sought by those engaging in political behavior. In cases such

as whistleblowing, organizational members attempt to expand the resources available for mobilization by going outside the boundaries of the organization to bring in outside help. Internal political methods such as obstructionism, symbolic protest gestures, and forming alliances, employ resources already within the organization. Evidence suggests that members seek outside resources after internal attempts fail, when they fear reprisals for internal political activity, when they believe internal attempts will not be effective, or when they do not know how to use internal political methods.

As mentioned earlier, hierarchy is a dominant feature of organizational life, and the vertical-lateral dimension recognizes the difference between influence processes relating superiors to subordinates and those between equals. Such political activities as complaining to a supervisor, by-passing the chain of command, and mentor-protege activities are best seen as vertical political behavior. Lateral political behaviors have received less systematic attention but would include exchanging favors, offering help, and coalition organizing. Lateral political behaviors seem to occur most frequently among middle level, professionalized employees such as engineers and scientists.

The final dimension, legitimate-illegitimate, acknowledges that organizations make distinctions between normal everyday politics and extreme political behavior that violates the "rules of the game." These rules typically exclude certain kinds of actions as too dangerous or threatening to the organization. *From the organization's point of view*, whistleblowing is typically seen as illegitimate. The exposure of organizational wrongdoing is generally considered threatening to the profitability or general competitive position of the organization. We wish to make clear, however, that while we believe organizations almost always view whistleblowing as deviance and attempt to punish those who engage in it, from other perspectives whistleblowing may be seen as entirely legitimate and perhaps even obligatory in some situations. As will be seen in later sections, support for publicly revealing wrongdoing may be found in major social values, the responsibilities of professionals, professional association codes of ethics, and law.

As we have seen, engineers have been prominent among the whistleblowers who have attracted wide media attention. Despite this prominence, the public image of engineering seems to be one of technical expertise rather than one of political leadership. We believe, however, that the conditions for whistleblowing—the technological content of the work, awareness of possible wrongdoing or negligence, concern for the public interest, and interested and affected outside parties—frequently confront practicing engineers. Unfortunately, the engineer is often caught between conflicting demands and may be uncertain about the most appropriate actions to take. Whistleblowing is, after all, just one of many options and may not be appropriate in many situations. In the next section we address the major ethical dilemmas that confront the potential whistleblower.

Ethical Dilemmas for Whistleblowers

In the view of some, harsh treatment of whistleblowers is justified. They have been labelled "unbalanced" and "disloyal employees"; a commentary in *Fortune* attacked them as "rats." A like-minded executive decorated a washroom wall with the observation, "Just because they pass a right to rat law, it doesn't make ratting any less obnoxious." In 1971 the Chairman of General Motors, James Roche, charged,

Some of the enemies of business now encourage an employee to be disloyal to the enterprise. They want to create suspicion and disharmony and pry into the proprietary interests of the business. However this is labelled—industrial espionage, whistleblowing or professional responsibility—it is another tactic for spreading disunity and creating conflict (quoted in Walters 1975, p. 27).

More recently the management writer Peter Drucker has claimed that whistleblowing is just another word for informing and "The only societies in Western history that encouraged informers were bloody and infamous tyrannies." In Drucker's view, "under 'whistle-blowing', under the regime of the 'informer', no mutual trust, no interdependencies, and no ethics are possible" (Drucker 1981, p. 33).

Others, in contrast, see whistleblowers as courageous citizens, upholders of professional standards, and protectors of the public interest. For more than a decade, Ralph Nader has been urging organizational employees who believe their organizations are involved in wrongdoing, are producing defective goods, or are selling dangerous products to take action. In Nader's view, workers should have the right to go public, "and the corporation should expect them to do so when internal channels of communication are exhausted and the problem remains uncorrected." In this way whistleblowing becomes a "powerful lever for organizational responsibility and accountability" (Nader, Petkas, and Blackwell 1972, p. 10, cf. also Ladenson 1982).

Given such divergent views of whistleblowing, it is clear that a potential whistleblower is faced with a number of ethical dilemmas. When should one's responsibility to the public be placed before loyalty to one's employer and co-workers? Does one have to go public when revealing wrongdoing, or can this be done anonymously? What takes precedence when professional judgment and organizational authority clash? Does one ever have an *obligation* to be a whistleblower?

These and similar questions inevitably confront many people who work in organizations. Such questions demand that choices be made between values; often both are highly esteemed values such as loyalty to one's colleagues or fulfilling a responsibility to society. The difficulty of making such choices is further compounded by a potential whistleblower's incomplete information and by ambiguity about the likely consequences of blowing the whistle.

Professional employees are especially likely to feel the conflicting demands of being loyal to the employing organization and to colleagues while also serving the public interest. After all, the professions are distinct from other occupations in that members of a profession have attained mastery of an extensive body of knowledge and also adhere to values that stress service to society. Such values are normally embodied in a code of ethics or oath that new professionals accept as part of the process of entry into the profession. At the same time, professionals tend to be reluctant to publicly charge one another with incompetence or wrongdoing. This reluctance stems from professional socialization processes that stress loyalty to colleagues, generate empathy toward those who commit errors, and caution against any actions that might damage the public image and prestige of the profession. At the same time, such practical concerns as the desire to maintain cordial interpersonal relations and fear of being sued may also ensure that many errors remain shared secrets among co-workers.

Within engineering, an examination of the development of codes of ethics reveals the difficulty of balancing responsibility to employers and duty to the public. When the American Institute of Electrical Engineers established its Code of Ethics in 1912, the engineer was told that he should consider "the protection of a client's or employer's interests his first professional obligation." This first code of ethics for an American engineering society did not spell out obligations to the public other than to call for engineers to help develop public understanding of engineering matters and to discourage false or exaggerated statements related to engineering (Baum 1980, p. 8).

Thirty-five years later when the new Canons of Ethics for Engineers of the Engineers' Council for Professional Development (ECPD) began to serve as the model for the revision of the codes of ethics of many of the engineering societies, the obligations of engineers toward the public became much more explicit. The ECPD Canons called for the engineer to "discharge his duties with fidelity to the public, his employers, and clients, and with fairness and impartiality to all. It is his duty to interest himself in public welfare and to be ready to apply his special knowledge for the benefit of mankind." Furthermore, the 1947 Canons stated that the engineer "will have due regard for the safety of life and health of the public and employees who may be affected by the work for which he is responsible" (Baum 1980, pp. 8-9). No longer did the engineer face the simple situation of an employer's or client's interests being paramount. Instead, the engineer was asked to balance the sometimes competing interests of a variety of stakeholders—stockowners, employees, managers, directors, customers, and the general public (Becker 1979).

The 1974 revision of the ECPD Canons gave even greater priority to protection of the public interest. This updating of the Canons included the statement that "Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties." Since the ECPD Canons have continued to serve as the model for the codes of ethics of the

various engineering societies, most of the codes of the major professional societies of engineers now formally place the protection of the safety, health and welfare of the public as the primary obligation of the engineer. The only significant deviation from this pattern is found in the Code of Ethics of the Institute of Electrical and Electronics Engineers which simply states that an engineer's responsibility to an employer or client is limited by an obligation to "protect the safety, health and welfare of the public" (Baum 1980, p. 9). Neither the IEEE Code nor the 1963 and subsequent revisions of the ECPD Canons mention worker safety at all (Unger 1982). In 1980 ECPD was renamed The Accreditation Board for Engineering and Technology, Inc. (ABET). At the same time, activities were restructured and the ethics committee was transferred to the American Association of Engineering Societies. ABET continues, however, to distribute the 1977 ECPD Code of Ethics.

While it is clear that as codes of ethics for engineers have evolved they have placed greater priority on the defense of the public interest, the practical impact of these codes has been limited. They do not spell out in sufficient detail the ways in which the public may be placed at risk by the actions of engineers or their employers. This is also true of the "Guidelines to Professional Employment for Engineers and Scientists" that grew out of a 1972 conference sponsored by the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers, and the National Society of Professional Engineers. This document goes into great detail on such aspects of employer-employee relations as recruitment practices, performance reviews, and responsibilities for expenses related to job transfers. At the same time, different points in the Guidelines call for the professional employee to "be loyal to the employer," to keep confidential all proprietary information, and to "have due regard for the health, safety, and welfare of the public and fellow employees in all work for which responsibility is assumed." The Guidelines call for the employee to withhold approval of plans and to explain the basis for this action when the "technical adequacy of a process or product is unsatisfactory" (Guidelines to Professional Employment for Engineers and Scientists, 1978). No guidance is provided, however, for those who may find loyalty to employer and protection of public welfare in conflict.

An even more significant problem is that most of the engineering societies have been unwilling to become participants in disputes between whistleblowers or other dissident engineers and their employing organizations. Such conflicts, of course, might threaten the stability of societies composed of both management and professional employees, but they also provide opportunities for the societies to work out more precisely the meaning of the values set forth in their codes of ethics, to give collegial support to engineers who uphold these standards, and to educate employers about the implementation of engineering ethics.

In the early 1970s, the Institute of Electrical and Electronics Engineers took the innovative step of establishing a process to examine complaints by

members about employer retaliation for acts of "professional responsibility." IEEE established the Committee on Social Implications of Technology (CSIT) to provide a forum for the discussion of a variety of controversial topics, including engineering ethics. During the fall of 1973 an account of the BART case was published in the Committee's newsletter, and the following March, CSIT passed a resolution calling on the Board of Directors of IEEE to establish procedures to support engineers whose attempts to act ethically had placed them in jeopardy. IEEE did eventually file an *amicus curiae* brief in support of the three engineers' civil suit against BART. Later, CSIT investigated several other cases, and IEEE began the presentation of an Award for Outstanding Service in the Public Interest. In 1978 a Member Conduct Committee was created by IEEE to both discipline members for unprofessional conduct and to implement support for engineers whose careers were threatened by attempts to act ethically. Thus, IEEE instituted a procedure for entering into disputes between engineers and their employers.

Stephen Unger, a participant in much of the CSIT activity, recognizes the progress made by IEEE but is critical of its slow pace and the limited commitment of IEEE as a whole. He attributes this caution to the fact that the most powerful actors in IEEE are often managers who are understandably leery of anything that limits the power of managers over subordinates (Unger 1982). In addition to IEEE, engineering societies that have actively explored questions of engineering ethics include the American Society of Civil Engineers, the American Society of Mechanical Engineers (especially the Division on Technology and Society), and the National Society of Professional Engineers. The Ethics Committee of the American Association of Engineering Societies, formed in 1980 by 28 engineering professional societies, is working toward both a model code of ethics for engineers and a position on whistleblowing (Broome 1983).

Instances where engineers and other professionals perceive a tension between loyalty to their superiors or their employing organization and protecting the public appear to be commonplace. Such conflicts are likely to become even more prevalent in the future when our understanding of the risks posed by our actions is increased and we have developed more precise ways of measuring these risks. A typical example of such an instance was reported in *Science*, the journal of the American Association for the Advancement of Science (Holden 1980). Morris Baslow, a marine biologist, had been hired in 1974 by Lawler, Matusky and Skelly (LMS) Engineers. The firm's clients included several power plants belonging to Consolidated Edison that were located on the Hudson River, and Baslow carried out research on the Hudson for these plants. The Environmental Protection Agency had ordered ConEd to erect cooling towers to reduce the amount of heated water being discharged into the Hudson, but ConEd wanted an exemption. Such an order required demonstrating at an EPA hearing that the Hudson's marine life was not being harmed by thermal effluents from the power plants.

LMS Engineers developed a case for the EPA hearing which argued that the destruction of marine larvae and fish eggs by increases in the Hudson's water temperature was beneficial to the surviving populations since competition for food and other resources was reduced. Baslow, however, felt that his data showed that fish growth was dependent on optimal water temperatures and that increases above this range inhibited growth. Baslow sought for nearly two years to get his employer to include his research in the data to be presented to the EPA. Finally, he threatened to go to the EPA with his findings if his supervisor would not intercede for him. In October of 1979 Baslow did write to the administrative law judge handling the case detailing his concern over the presentation of data by LMS.

An important detail of this episode is that Baslow supplied the government, that is, the administrative law judge and the Federal Energy Regulatory Commission, a number of documents from his files to provide data supporting his position. LMS claimed that these documents were their property and accused Baslow of stealing the documents. Without the documents, Baslow would not have been able to furnish evidence for his conclusions. In this instance, FERC ruled that Baslow had not misappropriated the documents. However, the case illustrates the difficulty for the whistleblower of providing evidence of the alleged wrongdoing. It can be a matter of some subtlety to determine ownership of data.

Certainly Baslow's act of whistleblowing never attracted widespread press attention, and many others who have blown the whistle have revealed more dramatic problems and clearer cases of organizational wrongdoing. John Lawler of LMS Engineers, in a letter to *Science*, contended that the Baslow affair was simply a scientific and technical dispute, a conflict over the meaning of data (Lawler 1981). In one important respect, however, the Baslow case was quite typical of whistleblowing episodes. Baslow was fired by LMS Engineers. This, combined with legal costs for hearings and for a libel suit filed by his former employer, posed severe economic problems for Baslow. The American Association for the Advancement of Science awarded him its Scientific Freedom and Responsibility Award for his "responsible defense, at considerable personal cost, of the principle that full disclosure of all important scientific data and analysis is essential to the integrity of the public policy-making process for science and technology" (quoted in Chalk 1982).

The high personal costs of whistleblowing that were acknowledged in the AAAS award increase the attractiveness of anonymity to the potential whistleblower. Not every employee is willing to sacrifice a career or a steady income for an abstraction like the public interest, and most of our organizations are not very good training grounds for moral heroism. While we view whistleblowing as a public act and believe that the anonymous leaking of information to the press or to government agencies ought to be seen as a separate kind of action, other observers do speak of anonymous whistleblowing. Elliston (1982a) has defended such anonymous dissent and proposed four factors that

delimit the conditions under which anonymous whistleblowing is defensible: serious wrongdoing, probability of unfair retaliation, distant social relationships, and effectiveness in redressing wrongs. Others, however, charge that anonymity inevitably reduces the credibility of someone making claims of wrongdoing and that it is unfair to those who are accused not to know the identity of their accusers and to be able to answer them. We fear that were anonymity to become an accepted aspect of whistleblowing, significant increases in damage to organizations and employers would occur due to the reduced level of caution that potential whistleblowers would be likely to exercise.

A related issue has been raised concerning procedures for protecting those who go public with information on organizational wrongdoing. Do whistleblowers have an obligation to exhaust internal channels of dissent before going public? To go to management first does imply, of course, that the opportunity for anonymity will be lost. Furthermore, internal dissent can anger one's superiors and result in organizational retaliation, although organizations generally seem to reserve their harshest penalties for those who violate their organizational boundaries and go public. Complete consensus does not exist among those who have examined policy proposals designed to encourage internal attempts to bring about change. Elliston (1982b, p. 24) summarizes what seems to be the dominant position by noting that

an employee may be said to have a *prima facie* obligation to exhaust internal avenues of change before bringing outside pressure to bear. Yet at the same time, one must recognize that pursuing these avenues may be expensive in terms of time and effort, ineffective and slow—delaying the immediate action that is required.

Delay may carry with it very high costs for society, as in cases where faulty or unsafe products continue to be sold to the public by companies despite the concerns expressed by internal dissenters. At the same time, we need to recognize that undue haste by whistleblowers can result in unfair or inaccurate charges being brought against organizations or individual company executives. Bok (1980, pp. 279–280) has expressed concern that the growing acceptance of whistleblowing within our society may make it too easy to ignore its very real dangers:

of uses in error or in malice, of work and reputations unjustly lost for those falsely accused, of privacy invaded, and trust undermined. There comes a level of internal prying and mutual suspicion at which no institution can function. And it is a fact that the disappointed, the incompetent, the malicious, and the paranoid all too often leap to accusations in public.

A fair recognition of these dangers demands that potential whistleblowers and those who might advise them set high standards as to the certainty of their charges before making them public. The employee who disagrees with colleagues over the interpretation of data on the safety of a product or who simply

suspects wrongdoing must recognize that in many areas data may be inconclusive and that, especially in a large organization, any one employee's limited knowledge of the organization can easily lead to misunderstandings. Furthermore, not all issues may be of sufficient importance to warrant external dissent. In some cases, problems with products may be minor, and in other instances the wrongdoing may be essentially private, as with revelations about the sexual life of a corporate executive.

On the other hand, in cases where clear evidence of harm to society exists, an organizational employee may have a special obligation to make this information public. De George (1981), in his analysis of ethical responsibilities of engineers in the well-publicized Ford Pinto case, makes a distinction between permissible and mandatory whistleblowing. In his view, engineers and other organizational employees are morally *permitted* to go public with information about a risk to consumers if the potential harm posed to the public by the product is serious and considerable, if they have discussed their concern with their superiors in the organization, and if they have exhausted other organizational channels, including the board of directors. De George (1981, p. 6) argues that for an organizational employee to have a moral *obligation* to blow the whistle, two additional conditions must be met: the employee must possess documented evidence of wrongdoing which is strong enough to convince a "reasonable impartial observer" and there must also be strong evidence that blowing the whistle will prevent the threatened harm from occurring. Thus, De George insists that an engineer cannot be morally obligated to go public unless he or she knows the use to which the information will be put by the government agency, reporter, or other recipient of the knowledge. He further argues that there is no obligation to blow the whistle when the chance of success is low because the harm the whistleblower "personally incurs is not offset by the good such action achieves" (De George 1981, p. 7).

The conditions of documented evidence and probable success are exceedingly difficult to meet, and indeed, De George concludes that in the Ford Pinto case the engineers had no moral obligation to blow the whistle. In his view, Ford engineers disagreed among themselves about the safety of the Pinto and there was little likelihood that public disclosure of safety defects would have resulted in removing a risk to the public. The notion that principles must be acted on only when success is probable is, however, an approach that ought to raise some eyebrows among ethicists. Mankin's commentary on the De George article does, in fact, rebuke the author for being

entirely too easy on engineers or, for that matter, anyone else who faces a moral dilemma. He would seem to say that there is no further obligation to do something about a moral problem on the part of the individual if his personal risks are greater than the chance of success in affecting a change. I was stunned to read . . . we cannot reasonably expect engineers to be willing to sacrifice their jobs each day for principle. . . . I thought that was what principles were about (Mankin 1981, p. 15)

We share Mankin's concern over an approach that seems to suggest one need uphold moral principles only if the cost/benefit ratio looks favorable. Mankin may ask too much of engineers, however, when he suggests that they should be willing to sacrifice their jobs each day for principle. Still, heroic actions may be necessary on occasion. If impending harm is very serious and irreversible, the employee who is in a position to sound the alarm effectively may be morally obligated to incur the risks of whistleblowing (Alpern 1983).

In addition, we see De George's criterion of probable success for obligatory whistleblowing as highly unrealistic. When one blows the whistle, he or she is acting to increase the probability of success by expanding the arena in which the conflict will be played out. This is a time-honored political tactic that provides the dissenter with additional resources (government agencies, the media, etc.) at the cost of some loss of control over the way in which the issue will be resolved. When one blows the whistle, the probability of success is shaped by many factors including the skill with which new players in the controversy use the information provided to them. To make it a prerequisite for obligatory whistleblowing that an engineer in a critical situation be confident that success will result from going public is to require omniscience beyond most mortals.

Despite our differences with De George, we find his differentiation of permissible whistleblowing and obligatory whistleblowing useful. To make inside information public when threatened or actual harm is not serious, when internal channels have been ignored, or the evidence, by any reasonable standards, is scanty is to do injury to the parties accused without moral justification. The more serious the harm from organizational wrongdoing and the better the evidence, the more justification the employee has for pursuing internal channels to rectify the problem and for going public if internal efforts fail. In some cases, the harm may be serious enough and the evidence for it impressive enough to make whistleblowing mandatory for employees who are in a position to mobilize a response by going public.

The Legal Aspects of Whistleblowing

It is probably not mere coincidence that both the first case to be termed whistleblowing, the Otto Otopoka case, and the best known whistleblowing episode, Ernest Fitzgerald's C-5A case, involved government employees. Legal protections for whistleblowing by public officials traditionally have been much stronger than those pertaining to private-sector employees.

Phillip Blumberg (1971, p. 300) points out that in the case of *Pickering v. Board of Education*, the Supreme Court held that in the absence of proof of false statements knowingly or recklessly made by him, a teacher's exercise of a right to speak on issues of public importance may not furnish the basis for his dismissal from public employment. The *Pickering* decision ultimately assigned a relatively minor role to the state as an employer. In balancing Pickering's interests of freedom of speech and the duty of loyalty and obedience

to the school board, the Court held strongly for government employees' rights, eventually adding protection to even false statements, as long as they were not knowingly or recklessly made.

This doctrine of free speech for government employees has been limited under some conditions. In cases where the employee would, through public criticism, damage a close working relationship where personal loyalty and confidence would be necessary, dismissals could be upheld. Pickering's criticism of the school board did not damage a close working relationship. In *Meehan v. Macy* a Canal Zone policeman was discharged for criticizing the Governor's personnel policies during rioting by Panamanian students. Given the tense situation and the fear of renewed rioting, the Court of Appeals upheld the discharge stating, "Such uninhibited public speech by Government employees [may produce] intolerable disharmony, inefficiency and even chaos" (Blumberg 1971, p. 301). Other decisions have upheld discharges of firemen and school personnel when the employees' criticism was held to disrupt or impair the public service. In addition, two 1983 Supreme Court decisions, *Connick v. Meyers* and *Bush v. Lucas*, have further restricted the traditional broad protection of government employees, especially in the area of remedies for mistreatment of whistleblowers.

In 1978 the Civil Service Reform Act (P.L. 95-454) established the quasi-judicial Merit Systems Protection Board. One of the chief functions of the Board was the protection of whistleblowers who charge that they have been ousted, transferred, or otherwise disciplined because they disclosed information about wrongdoing or mismanagement in their agencies. Charges of retaliation against a whistleblower may be brought before the Board in two ways. A whistleblower may directly appeal certain agency actions such as dismissal, a suspension of over 14 days, and a reduction in grade or pay. In addition, the whistleblower may ask the Special Counsel to prosecute his or her claim of agency reprisal before the Board. In this manner, agency actions such as transfers and reassignments may also be considered by the Board.

The At Will Doctrine

An interesting complexity of disputes over whistleblowing is that government employees may comment on their employer and have free speech guaranteed under the first and fourteenth amendments because citizens have a right to speak out about the government, a right overriding employment. Private sector employees do not have similar protection in their comments about private employers. The longstanding general common law rule is that the private employment contract is of indefinite duration and is terminable at the will of either party. In general terms this means that, barring collective bargaining agreement protection or applicable statutes, an employer is free to discharge an employee at any time and for any reason.

In addition to the provisions of the At Will doctrine, private employees are further restricted, and subject to legal action, under the legal principle of

agency. As Blumberg (1971) relates, an agent (the employee) has traditionally been held to have a duty of obedience. The orders of a principal (the employer or superior) must be obeyed as long as they are reasonable. The agent may not be required to perform illegal or unethical acts, but is not authorized then to disclose such directives or any information about the principal's affairs. This duty exists even after the agency has been terminated. The duty of loyalty, a second provision, requires that an agent act solely for the benefit of the principal in all matters connected to employment. Other than statements made in good faith outside the employment, the agent is expected to act in the economic interests of the principal's business and avoid all conflicts of interest. Of special relevance to whistleblowing is the agency duty of confidentiality. An agent may not use or communicate information confidentially received from the principal or acquired during the agency to injure the principal unless the information is general knowledge.

Abusive Discharge

As Ewing (1983) has pointed out in his recent book, *Do It My Way or You're Fired!*, the At Will doctrine has been considerably eroded in recent years. Legal trends indicate that a wrongful act, and thus a cause for legal action, may exist if the discharge violates public policy. Jurisdictions which have recognized the tort of abusive discharge, however, have taken divergent positions as to when the discharge of a whistleblower violates public policy. Malin (1983) points to a continuum of positions from least to most protective. The least protective jurisdictions recognize abusive discharge, and thus afford a cause of action only when there are "specific and clearly applicable legislative declarations" (Malin 1983, p. 281) protecting such acts. Even with such guidelines, the At Will doctrine may still override, as in *Maus v. National Living Centers*. After being terminated for making repeated internal complaints about neglect of patients, Maus sought legal recourse. The Texas Court recognized state law making it a misdemeanor to fail to report abuse or neglect of nursing home patients, but the court still viewed itself bound by the At Will doctrine and held that Maus was not entitled to protection.

A somewhat more protective approach has been applied in other jurisdictions. While agreeing that a clear declaration of public policy is necessary to afford protection under abusive discharge, the court in *Harless v. First National Bank* found such a declaration in the statute violated by the employer. In that case, the discharged employee had drawn attention to the employer's violation of the West Virginia Consumer Credit and Protection Act. As one employee who reported his employer's financial misdeeds found out (*Adler v. American Standard Corporation*), to receive protection the whistleblower may bear a heavy burden of proving statutory violations. Merely pointing to wrongdoing may be insufficient; the whistleblower may need to prove specific statutory violations.

Courts appear to be generally receptive to the tort of abusive discharge when the employer violates statutes that directly concern the employee. An early case of abusive discharge (*Petermann v. International Brotherhood of Teamsters*) found for the defendant, limiting the contractual right to discharge when Petermann was fired by the International Brotherhood of Teamsters. Petermann successfully showed that the discharge occurred because of his refusal to perjure himself before a state legislative committee. Other discharges resulting from employees' refusing to violate laws or from employees seeking protection under applicable labor laws have generally been viewed as abusive.

Of key concern to engineers or other professionals is the question of whether professional behavior in conformity with a code of ethics will be grounds for protection from abusive discharge. As technological complexity brings increasing professionalization to more occupational groups, professional employees tend to develop codes of ethical behavior. Malin reports (1983, p. 287) that courts "are divided over whether a code of professional ethics is a sufficient expression of public policy to support an action for abusive discharge." Professional codes of ethics have been seen as expressions of public policy or, in the most protective view, the judiciary may go beyond the legislature and fashion its own definition of public policy (see *Palmeto v. International Harvester* and *Pierce v. Ortho Pharmaceutical Corp.*).

Statutory Protection

In addition to protection provided by various labor laws, whistleblowers may find protection in anti-retaliation provisions contained in several federal statutes. The broadest anti-retaliation provisions are contained in Title VII of the Civil Rights Act and the Age Discrimination in Employment Act (Ledvinka 1982). Discharge as well as other reprisals inside and outside the employment relationship are prohibited. These laws provide broad protection for a variety of actions, including filing of discrimination charges (even if false and malicious), opposition to discriminatory employer practices, assisting others to file charges, refusing to testify in favor of one party, refusal to carry out illegal instructions, and working within the organization to eliminate illegal practices. The major limitation on employees acting in opposition to discrimination is that acts must be lawful and reasonable. Copying of confidential documents is a most common unlawful employee behavior that would not be covered.

Misprison of Felony

A most interesting concept that may yet be applied to whistleblowing cases is the ancient legal concept of misprison of felony. Based in English common law and often considered obsolete (Blumberg, 1971, p. 293), misprison of felony

was revitalized during the Watergate era. Misprison of felony holds that "A person who saw the commission of a felony or knew that a felony had been committed and possessed information that would lead to apprehension of the offender and failed to communicate such information to the proper authorities was guilty of a misdemeanor" (Blumberg 1971, p. 293). Whistleblowers thus might claim that they were legally required to come forward. Misprison of a felony seems to relate closely to public policy provisions of abusive discharge torts, but its overall relationship to whistleblowing cases remains untested and unknown. The American legal system has not generally attempted to create a duty to disclose. Recent legislation in several states, however, seeks to have citizens assist in law enforcement. For example, disclosure laws covering physicians may require physicians to report suspected child abuse to law enforcement officials.

Labor Law

Problems and disagreements between employees and employers are not new to the workplace. A wide range of sources of conflict, from unjust treatment to criminal activity, has undoubtedly been part of employment since the first employment relationship. Some issues have arisen with such consistency that legislation exists to regulate and control the conflict. The presence of statutes generally makes conflicts more manageable and less destructive to both the employee and the employing organization. While whistleblowing is not an easy situation, where labor laws apply, they provide useful support.

Conflict concerning compensation of employees is covered in large measure by The Fair Labor Standards Act (Ledvinka 1982). This act, specifying minimum wages and regulating overtime pay in the non-agricultural sector, includes an anti-retaliation provision protecting both *current and former* employees who assert violations by employers. Employees may initiate administrative complaints, file private suits, testify, and refuse to give false testimony. Protection is even extended to those who have merely threatened to file suits. The ban against taking retaliatory actions includes not only the employer but other persons as well. Also similar to other acts, employees' protection is not dependent on the merits of the complaint. Employees must, however, act in a lawful and reasonable manner. Evidence against the employer must be obtained lawfully and not be misappropriated. In the Baslow case, we noted the controversy about whether the whistleblower misappropriated the evidence he provided the government. That episode reveals an ethical complexity of this requirement. There may be instances when an employee is justified in "misappropriating" the evidence.

The National Labor Relations Act (NLRA), also known as the Wagner Act, provides some limited protection from retaliation against any employee who files unfair labor practices charges or who gives testimony in an NLRA proceeding. The NLRA primarily protects the rights of covered employees to

organize and bargain collectively with employers. Protection for engineers is likely to be extremely limited as the act applies to "employees" and has traditionally excluded supervisors and managerial employees. Considerable controversy exists regarding retaliation against supervisory and managerial employees. Those who testify in NLRA Board proceedings seem to be protected and a supervisor who assisted employees to file charges was also protected. In some cases supervisors have been given general direct protection for filing their own NLRA complaint, but the question of coverage of supervisors and managerial employees remains uncertain.

Whistleblowing episodes involving engineers have on several occasions involved issues of safety, both of employees and the public. The Occupational Safety and Health Act (OSHA), written to regulate the safety of employees, like other employment legislation, contains an anti-retaliation provision. Applications of this law have varied considerably. In cases suggesting narrow application, courts have refused to protect employee complaints unless the rights in question were expressly included in the law. The law is written to protect filing of complaints to the agency, complaints to the employer, and complaints to other agencies regulating employee safety.

Collective Bargaining Protection

A significant change occurs in the employer-employee relationship in the presence of most collective bargaining agreements. Employment is no longer "at will." Employers wishing to discharge an employee must show just cause. As Malin (1983, p. 288) notes, even in the absence of specific just cause provisions, arbitrators frequently imply it. The requirements of just cause do not, however, necessarily include substantial protection for whistleblowers.

Under collective bargaining agreements, employee disloyalty is frequently cited as grounds for discharge. In a voluntary employment relationship, employees are expected to have an identity of interests with the employer, to engage in a common effort, and to support the organization. The employee must act in the interests of the employer and must not engage in activities that may have an adverse economic impact on the employer. Damaging the employers' reputation or causing customers to be disaffected are examples of disloyal behavior. An Appalachian Power Company serviceman (Malin 1983, p. 289) was successfully discharged after he told the officials of one community that a proposed rate hike should be opposed because the company was wasting money. Similarly, a dissatisfied employee of the *Los Angeles Herald-Examiner* who had given two weeks notice was immediately discharged when a comment he made about the *Herald Examiner* in an employment interview with a competing newspaper became a satirical piece in the competing paper (Malin 1983, p. 289). The discharge was upheld on the grounds of embarrassment to the employer. Union officials are well aware of the obligation of

loyalty; typically they caution workers engaged in negotiation and work actions to avoid criticism of the employer in areas not germane to the issues at hand.

Whistleblowers Protection Act

The extent of protection for whistleblowers is growing but is still inadequate, especially for private sector employees. In 1981 Michigan became the first state in the nation to enact general statutory protection for private sector whistleblowers. Spurred by the public reaction to employer demands for employee silence about a PBB poisoning accident, Michigan adopted its Whistleblowers' Protection Act (Petersen 1983). The act prohibits employers from retaliating against an employee because that employee reports or is about to report a violation to any United States public body (i.e., governing bodies or law enforcement agencies).

The Michigan law encourages employees to help enforce laws governing business operations, emphasizing citizens' duty to society as well as their duty to their employers. It is very broad, protecting against all but knowingly false reports and provides for reinstatement, back pay, restoration of benefits, damages, and attorney fees. In an unusual twist, the law seems to encourage employees to go directly to public bodies, by-passing internal channels. The Michigan law provides no requirement for employees to make internal appeals (Malin 1983). Despite this weakness, the law is serving as a model for other states, and several have passed legislation very similar to that in place in Michigan. At present, nineteen states have whistleblowing statutes, seven of which cover private sector employees.

Implications for Engineers

As we have pointed out, engineers have been well represented among the celebrated whistleblowers of the past two decades. There is every reason to believe that engineers are going to continue to be asked to make hard decisions when organizational actions and the public interest do not seem to coincide. The very nature of their work places engineers at the center of the development and evaluation of new technologies. Such activity can put engineers in the situation of feeling that more work is required to produce a sound and safe product while management is pushing hard to "get it out the door." Even when existing technologies are simply being adapted or applied, disagreements over risk assessment can arise. The public is increasingly concerned over possible risks posed by products or technologies, and as a result, engineers can expect to practice in an environment that is demanding ever higher standards of safety.

Engineers have already seen their own professional societies increase their attention to social concerns and the public interest. We have detailed the

manner in which engineering codes of ethics have evolved during this century. While the first such code of ethics defined the engineer's responsibility as protecting the interests of the client or employer, current codes call for the engineer to hold the public's interests paramount. To the extent that such codes affect the day-to-day behavior of engineers, the revisions of these codes seem likely to place a larger number of engineers in the role of potential whistleblowers.

Further revisions of the various engineering codes of ethics could enhance the utility of these codes for engineers who are considering whistleblowing as a response to organizational wrongdoing. Two Senior Associate Editors of *Chemical Engineering* (Hughson and Kohn 1980) concluded their recent report on reader responses to an ethics survey with a series of recommendations for revision of codes of ethics. They suggest that codes be revised to reflect the reality that many engineers are employed in large organizations. Current codes are often written as though all engineers are independent consultants. For example, the Code of Ethics of the American Institute of Chemical Engineers is silent on what the engineer should do when recommendations are disregarded by organizational superiors. Furthermore, Hughson and Kohn recommend that all codes include guidelines for the application of the principles and that codes provide clearer hierarchies of values. These authors also call for corporate involvement in finding solutions to the ethical dilemmas faced by engineers. Such solutions would provide engineers with alternatives to whistleblowing and prevent them from being squeezed between loyalties to the employer and to society.

A model code of engineering ethics presented by Unger does move away from the image of the engineer as independent consultant. Among the items in this proposal are a series of guidelines for the relations of engineers with employers and clients and with colleagues, co-workers, and subordinates. This model code calls for engineers to "seek, accept, and offer honest professional criticism," to "report, publish, and disseminate information freely, subject to legal and reasonable proprietary or privacy restraints," and to avoid giving "directions that would encourage others to compromise their professional responsibilities" (Unger 1982, pp. 163-164).

If engineers regularly can expect to be placed at points of conflict between organizational desires and the public interest, very good reasons exist to explore the development of alternatives to whistleblowing. Other mechanisms for the expression of dissent and the resolution of conflicting opinions might serve engineers well without posing the grave career risks that whistleblowing carries with it. Undoubtedly situations will arise where whistleblowing is demanded, but a wider range of alternatives would help ensure that engineers need not be forced to turn to it prematurely.

As Bok (1980, p. 290) has observed, "The need to resort to whistleblowing can be reduced by providing mechanisms for taking criticism seriously before it reaches the press and the courtroom." Top corporate executives sometimes

maintain "open door" policies as an avenue for dissenters. Such systems can work, but are subject to abuse and provide no protection for the dissenter. As a result, even the best intentioned open-door policies may require years to develop much credibility. Alternatives which are preferable include an organizational inspector general, an ombudsman division (Laurendeau) 1983: pp. 184-199), special committees, an employee complaint system, and an employee bill of rights. Various participative management arrangements and Japanese-style quality circles may be especially promising mechanisms for the expression of concern over products or organizational practices. The quality circle, a small group of workers or workers and administrators who meet regularly to discuss and solve work problems, is widespread in Japan and is being adopted by a number of American firms. The mechanism is an institutionalized way of permitting the expression of dissent or concern over product quality or safety in a setting that is seen as non-threatening to the company.

A Whistleblowing Case Study

There are many opportunities for corporations and for professional societies to contribute to a better climate for decision making by engineers who are searching for appropriate ways to express dissent. Still, the decision to blow the whistle or to express dissent in some other manner is ultimately a personal decision for an engineer. As a result, we conclude this module with an account of personal decision making. In the Browns Ferry case, four engineers resigned their jobs and went public with concerns over the safety of nuclear power. As you read the brief summary and chronology of events in this case, you may want to reflect on how you would have handled the situation these engineers faced.

Questions for Discussion

Were the three GE engineers who resigned violating their profession's commitment to loyalty to the employer? If so, was such a violation justified?

Whistleblowing may have a number of consequences: moral, interpersonal, financial, and others. What factors would weigh most heavily if you were faced with such a decision?

What alternatives might you have considered if you were faced with the events in this case? Are there actions short of resignation that could have brought about change?

Would it have been possible in this case to have effectively warned the public by anonymously leaking information? What limitations exist with such an approach?

Were these engineers obligated to give up their jobs and warn the public of safety hazards? If so, what is the basis of this obligation?

The Browns Ferry Case*

Summary

On February 2, 1976, three engineers in General Electric Company's nuclear energy division resigned and made statements to the press and on TV declaring their concern for the effects on the public of technical flaws in the nuclear power program. The three engineers, Dale G. Bridenbaugh, 44 years old, Richard B. Hubbard, 38 years old, and Gregory C. Minor, 38 years old, had each joined GE at the age of 22. They were managers in the areas of performance evaluation and improvement, quality assurance, and advanced control and instrumentation respectively. On January 13, 1976, Robert D. Pollard, a nuclear safety engineer and project manager for the Nuclear Regulatory Commission, acting without knowledge of the decisions of the three GE engineers, had given notice of his resignation to be effective February 15. He had expressed his concerns about nuclear power plant safety in a CBS interview recorded on January 13, but not aired until February 8.

What led to these concerns and the four startling resignations which involved substantial personal sacrifice? The engineers cited a number of specific unresolved safety problems in commercial nuclear power plants. Prominent among them were hazards revealed by the Browns Ferry Plant fire of March 22, 1975. The fire, which started in the electrical control cables from the use of a candle to detect air leaks, burned uncontrolled for 7½ hours. The two operating GE nuclear reactors were at full power when the fire began. One of them went dangerously out of control for several hours and was not stabilized until a few hours after the fire was put out. The reactor's sophisticated emergency safety devices failed totally. The unit was in the end controlled by some available equipment which was not part of the elaborate safety apparatus, and which emerged from the fire undamaged as a matter of random chance.

The accident was a case of common-mode failure, a type of accident assumed to be highly unlikely, in fact, not "credible." Harry J. Green, Superintendent of Browns Ferry, said after the fire, "We had lost redundant components that we didn't think you could lose." The record shows, however, that there was extensive official fore-knowledge of safety deficiencies at Browns Ferry and that the very combination of problems responsible for the accident had been identified by Federal safety authorities but left uncorrected. The responsibility for designing and maintaining nuclear power plants and for assessing and guaranteeing the safety of their operation rests to an important degree with engineers, individually and collectively, in the industry and in the regulatory agency. Failures by engineers at many different levels to anticipate

*The summary and chronology of the Browns Ferry Case were excerpted from Vivian Weil, "The Browns Ferry Case," Chicago: Center for the Study of Ethics in the Professions, Illinois Institute of Technology, 1977.

consequences, to establish safety criteria, to meet applicable criteria, and to respond to recognized situations of non-compliance led to the Browns Ferry fire.

We are left with the question of what made possible all these failures. Our concern is to discover where and how engineers fell short in discharging professional and moral responsibilities. The actions of the four engineers who resigned out of moral and professional concerns raise important questions. Were these men morally required to take a course of action such as they pursued in resigning and “going public?” Was it a professional obligation? Or did their actions exceed what was morally and/or professionally required of them? If so, how should we regard their actions—heroic, morally creditable, emulable, foolhardy, or unnecessary?

All these questions have particular urgency if Dale Bridenbaugh was correct when he said in his letter of resignation, “In the past we have been able to learn from our technological mistakes. With nuclear power we cannot afford that luxury.”

This summary is based on information derived from two primary sources:

1. *Investigation of Charges Relating to Nuclear Reactor Safety*, Hearings before the Joint Committee on Atomic Energy, Congress of the United States, Ninety-Fourth Congress, Second Session, February 18, 23, and 24 and March 2 and 4, 1976, Volume 1, Hearings and Appendixes 1–11, and Volume 2, Hearings and Appendixes 12–19.
2. *Browns Ferry: The Regulatory Failure* by Daniel F. Ford, Henry W. Kendall, and Lawrence S. Tye (Cambridge, Mass: Union of Concerned Scientists, 1976).

Chronology

1954: The Atomic Energy Commission begins to regulate the commercial nuclear power industry. The Commission has the dual roles of promoting and regulating commercial nuclear power plants. This situation is to lead to conflicts over maintaining development schedules and resolving known safety problems.

1958: Commercial nuclear power gets underway with the installation and start-up of the first large-scale commercial nuclear power plant, Commonwealth Edison’s Dresden 1 near Chicago. Dale G. Bridenbaugh is the field engineer for that project.

In the 1960s: Section III of the hallowed ASME codes, originally developed to protect the public from boiler explosions, is further developed for application to nuclear power plant components. However, these codes do not apply to some safety-related equipment. Present Nuclear Regulatory Commission (one of the two agencies into which AEC was split in 1975) requirements for equipment not covered by ASME codes are less stringent than those for ASME boiler code items.

1963: AEC’s Division of Operational Safety warns that the combustibility of polyurethane foam constitutes a fire hazard. Nevertheless, this is the material later used in parts of Browns Ferry’s electrical system.

1965: During the construction of the Peach Bottom plant a serious electrical cable fire erupts. The fire is the first of a series over several years which involves major damage to important cable installations. These fires make plain the capacity of electrical cable fires to cause failure of important safety systems.

1966: Construction begins on the Browns Ferry Nuclear Power Plant near Decatur, Alabama. It is intended as a model for future U.S. power production and is to supply electricity for about two million people. The plant is to be ten times the size of any plant already in operation. Indeed, it is to become one of the world’s largest electrical generating facilities.

1967: Browns Ferry goes through a major Federal safety review and is granted a Federal construction permit.

1969: AEC adopts an *industry committee’s* vague design standard for electrical cables. The need for physical separation of cables is admitted, but there is a failure to specify how to achieve it. On July 3, F. U. Bower, an AEC inspector monitoring Browns Ferry, sends the AEC a memo in which he notes, among other items, the need for specific criteria for cable separation. He points out the incongruity of requiring the spending of immense sums on specific safety systems in case of accident without providing equivalent criteria for the electrical cable installation.

1970: In January, after a five day inspection of Browns Ferry, five AEC inspectors report deficiency in quality control over cable separation, and other deficiencies as well. The AEC adopts an addition to its regulations to minimize the danger of fires. There are, however, no specific provisions for achieving cable separation, that is, as to how much, which cables, the design of cable spreading rooms, etc.

1971: Fire erupts at Indian Point 2, before the plant is in operation. In the AEC Review, the conclusion is that there is an urgent need “to re-evaluate previously approved cable separation criteria for this facility and for other facilities.” In October, three AEC inspectors, including F. U. Bower, warn about safety problems at Browns Ferry in their evaluation report.

1972: In January, the new head of Region II, Norman Mosely, sends a memo to AEC headquarters supporting Bower’s report, and he puts as his first regulatory question, “What enforceable requirements exist for separation of redundant component instrumentation and wiring?” When Browns Ferry is under review by AEC’s Committee on Reactor Safeguards, the Assistant Manager of Power for the TVA urges deferring

Questions for Discussion*

- safety improvements that would interfere with the schedule for start-up. In December, AEC safety reviewers criticize electrical cable separation at Browns Ferry, but they defer needed improvements to unit 3. They allow serious compromises with the safety of units 1 and 2.
- 1973: In June, Browns Ferry is issued a license by the AEC for commercial operation. In November, Manning Muntzing, AEC's Director of Regulation, speaks personally with Browns Ferry officials about serious deficiencies in their Quality Assurance program. The AEC regulatory position is that the company operating a nuclear power plant should be self-regulating. The detailed implementation is also left up to the companies. Quality Assurance programs are the companies' devices for implementing safety guidelines and for checking up on implementation. However, Browns Ferry is extended a grace period of several years to upgrade its Quality Assurance program. Browns Ferry is allowed to operate during that interval without Quality Assurance programs considered essential to nuclear safety. Requiring Browns Ferry to meet new separation criteria for its electrical system would involve extensive re-wiring and construction of redundant systems. Such efforts would entail substantial expenditures and delays in going into operation.
- 1974: In March, Charles E. "Doc" Murphy supervises pre-operational testing at Browns Ferry. On August 1, Browns Ferry goes into full operation after Murphy warns AEC headquarters about the electrical cable installation of the plant. The warning is ignored. The AEC thus overlooks warnings since 1969 about dangers of electrical cable fires arising from poor control of combustible materials, inadequate fire prevention programs, and poor separation of redundant circuitry.
- 1975: On March 22, in the course of plant modification at Browns Ferry a candle which is being used to detect air leaks ignites polyurethane foam. The foam is employed to plug leaks where electrical cables pass through the wall between the cable spreading room and the reactor building. The fire which erupts causes extensive damage to electrical power and control systems. This damage interferes with normal and standby cooling systems. The capability for monitoring the plant's status is also impeded. It is a matter of chance that unit 1 is brought under control. A potentially catastrophic radiation release is avoided "by sheer luck." Units 1 and 2 are put out of service for many months. Coincidentally, over the course of the year Dale Bridenbaugh has discussions with colleagues and his boss in which he talks about his concerns about safety in the nuclear power plant program.
- 1976: In February, Bridenbaugh, Hubbard, and Minor resign from their nuclear plant management positions at GE and Pollard resigns from his project management post at the Nuclear Regulatory Commission. They give as their reasons their concerns about known hazards of a serious nature which are left uncorrected.

1. Describe, from your own experience if possible, the kinds of internal channels that make whistleblowing unnecessary. Why do these work?
2. Defend (from the incidents presented in the reading) the proposition: Whistleblowers are just a bunch of malcontents who can't get along in their jobs.
3. Defend (from the incidents presented in the reading) the proposition: Whistleblowers are the real moral heroes of the industrial age.
4. Contrast the rational (classical) model of the organization and the political model. What advantages do the authors see in using the political model to understand organizational behavior? What disadvantages might there be?
5. What is the role of "mutual trust" in a business corporation? Can it survive the sanctioning of "whistleblowing"? What is at stake for society? Take Drucker's view into account, but defend your own.
6. What is the relation between professional-colleague obligations and manager-employee obligations? Can a professional society function effectively that includes both managers and employees?
7. What is the relation between professional-client obligations and the obligation to prevent harm to the general public? Take the LMS case as an example, and articulate both sets of obligations that Baslow had.
8. Discuss Richard De George's distinction between occasions when whistleblowing is permitted and cases where it is mandatory. Does it hold up? Or is the difference between the two kinds of cases always a judgment call? Can you defend the proposition that whistleblowing is never mandatory?
9. Describe and evaluate the issue between De George and Mankin. Which one do you tend to agree with? Why?
10. Do a "social cost-benefit analysis" of the At Will doctrine. Is it too valuable to lose?
11. Should a code of professional ethics be regarded by the courts as a sufficient expression of public policy to support an action for abusive discharge? Why or why not? (What *is* a code of professional ethics?)
12. Should professionals worried about unjustified discharge or other retaliation enter into collective bargaining agreements that contain protective clauses? Or is organization along union lines incompatible with the nature of a profession?

*We wish to thank Dr. Tim H. Newton, Director, Program in Applied Ethics at Fairfield University, who prepared these questions and permitted us to include them in the module.

Bibliography*

Alpern, Kenneth D.

1983 "Engineers As Moral Heroes," *Beyond Whistleblowing: Defining Engineers' Responsibilities*, Vivian Weil (ed.) (Chicago: Center for the Study of Ethics in the Professions, Illinois Institute of Technology), pp. 40-51.

Anderson, Robert, Robert Perrucci, Dan Schendel, and Leon Trachtman

1980 *Divided Loyalties: Whistle-Blowing at BART* (West Lafayette, Indiana: Purdue University).

This is a detailed account of the controversy surrounding the computerized control system for San Francisco's Bay Area Rapid Transit system. The authors document the variety of forces and parties involved and demonstrate that the whistleblowing engineers did not fully control their own actions.

Baum, Robert J.

1980 *Ethics and Engineering Curricula* (Hastings-on-Hudson, New York: The Hastings Center).

In a brief and clearly written account Baum outlines the nature of ethical problems likely to confront engineers, provides a history of the teaching of engineering ethics, and sets out suggestions for incorporating ethical issues into engineering education.

Becker, Lawrence C.

1979 "Property Theory and the Corporation," *Proceedings of the Second National Conference on Business Ethics* (Bentley College) (Washington, D.C.: University Press of America), pp. 257-267.

Blumberg, Phillip.

1971 "Corporate Responsibility and the Employee's Duty of Loyalty and Obedience: A Preliminary Inquiry," *Oklahoma Law Review* 24(3): 279-318.

Bok, Sissela.

1980 "Whistleblowing and Professional Responsibilities," *Ethics Teaching in Higher Education*, D. Callahan and S. Bok (eds.) (New York: Plenum), pp. 277-295.

Bok focuses on whistleblowing as a matter of individual moral choice and as a question of responsibilities to the many parties that professionals serve. Her paper provides an excellent analysis of key elements in whistleblowing including dissent, breach of loyalty, and accusation.

Broome, Taft H.

1983 "New Developments in Engineering Ethics: The AAES Plan," *Beyond Whistleblowing: Defining Engineers' Responsibilities*, Vivian Weil (ed.) pp. 228-242.

Chalk, Rosemary.

1982 "The Miners' Canary," *Bulletin of the Atomic Scientists* 38: 16-22.

Chalk, Rosemary, and Frank von Hippel.

1979 "Due Process for Dissenting Whistle-blowers," *Technology Review* 81(7):49-55.

The authors consider several alternatives for providing due process to whistleblowers. Among the mechanisms considered are internal review boards, complaint reviews by professional societies, and legislative remedies.

De George, Richard T.

1981 "Ethical Responsibilities of Engineers in Large Organizations: The Pinto Case," *Business and Professional Ethics Journal* 1(1): 1-14.

De George provides an in-depth review of the well-known Ford Pinto case and considers the question of the moral responsibility of engineers to blow the whistle. He makes a distinction between permissible and obligatory whistleblowing and concludes that engineers were not morally obligated to blow the whistle in the Pinto case.

Drucker, Peter.

1981 "What Is 'Business Ethics'?" *The Public Interest* 63: 18-36.

Edsall, John T.

1975 *Scientific Freedom and Responsibility* (Washington, D.C.: American Association for the Advancement of Science).

The American Association for the Advancement of Science has been quite active in exploring issues related to the professional responsibilities of scientists and engineers. This pamphlet is a report of the Association's Committee on Scientific Freedom and Responsibility which contains discussions of a wide range of issues including scientific inquiry, technological development, and protection of the public.

Elliston, Frederick A.

1982a "Anonymous Whistleblowing: An Ethical Analysis," *Business and Professional Ethics Journal* 1(2): 39-58.

1982b "Civil Disobedience and Whistleblowing: A Comparative Appraisal of Two Forms of Dissent," *Journal of Business Ethics* 1(1): 23-28.

Ewing, David W.

1977 "What Business Thinks about Employee Rights," *Harvard Business Review* 55: 81-94.

1983 *Do It My Way or You're Fired* (New York: Wiley).

Ewing shows managers how and why employee rights are being redefined. If dissent is necessary, the book offers some guidelines for the most effective actions given likely legal, organizational, and personal consequences.

Farrell, Dan, and James C. Petersen.

1982 "Patterns of Political Behavior in Organizations," *Academy of Management Review* 7(3): 403-412.

This paper places whistleblowing in a broader context by locating it within the wide range of political behaviors that occur in organizations. In this work political behaviors are classified according to where resources are sought, the nature of influence processes, and the degree of organizational acceptance.

Glazer, Myron.

1983 "Ten Whistleblowers and How They Fared," *The Hastings Center Report* 13: 33-41.

Guidelines to Professional Employment for Engineers and Scientists: Second Edition.

1978 *Mechanical Engineering* 100:36-39.

Holden, Constance

1980 "Scientist With Unpopular Data Loses Job," *Science* 210: 749-750.

Hughson, Roy, and Philip Kohn.

1980 "Ethics," *Chemical Engineering* 87: 132-147.

*The list of references includes a number of annotated items. These are especially recommended for students and for those seeking an introduction to the literature on whistleblowing.

- James, Gene G.
1980 "Whistleblowing: Its Nature and Justification," *Philosophy in Context* 10: 99-117.
- Ladenson, Robert F.
1982 "Freedom of Expression in the Corporate Workplace," *Ethical Theory and Business*, 2nd edition, T. L. Beauchamp and N. E. Bowie, (eds.) (Englewood Cliffs, New Jersey: Prentice-Hall), pp. 162-168.
- Laurendeau, Normand M.
1983 "Engineering Professionalism: The Case For Corporate Ombudsmen," *Beyond Whistle-blowing: Defining Engineers' Responsibilities*, Vivian Weil (ed.), 184-199.
- Lawler, John.
1981 Letter to editor, *Science* 211: 875-876.
- Ledvinka, James.
1982 *Federal Regulation of Personnel and Human Resource Management* (Boston: Kent).
- Malin, Martin H.
1983 "Protecting the Whistleblower From Retaliatory Discharge," *University of Michigan Journal of Law Reform* 16(2): 277-318.
Malin provides an up-to-date review of the important cases involving whistleblowers and discusses applicable legislation. He also analyzes whistleblower protection laws and considers their problems.
- Mankin, Hart T.
1981 "Commentary on 'Ethical Responsibilities of Engineers in Large Organizations: The Pinto Case,'" *Business and Professional Ethics Journal* 1(1): 15-17.
- Nader, Ralph, Peter Petkas, and Kate Blackwell (eds.).
1972 *Whistle Blowing* (New York: Grossman).
Written in the consumer activist tradition, this book includes detailed accounts of ten whistleblowing cases. It also includes proposals on how corporations and government might be changed to further serve the public interest.
- New York Times.
1980 "Fund and Appointment Woes Slow Agency to Protect 'Whistleblowers,'" November 3, p. B10.
- Parmerlee, Marcia, Janet Near, and Tamila Jensen.
1982 "Correlates of Whistleblowers' Perceptions of Organizational Retaliation," *Administrative Science Quarterly* 27(1): 17-34.
The authors explore the motivations for organizational retaliation and test several hypotheses relating co-worker support, views of top management, merits of case, and whistleblower characteristics to the nature of retaliation.
- Peters, Charles, and Taylor Branch (eds.).
1972 *Blowing the Whistle: Dissent in the Public Interest* (New York: Praeger).
Fifteen whistleblowing cases are described in this volume in a rather journalistic style. The book makes a useful distinction between "pure" and "alumnus" whistleblowers. A pure whistleblower goes public while still employed by the organization being charged with wrongdoing, whereas an alumnus blows the whistle after leaving the organization for a new position.
- Petersen, James C.
1983 "Protecting Whistleblowers," *Citizen Participation* 4(3): 5-6, 19.
- Raven-Hansen, Peter.
1980 "Do's and Don'ts for Whistleblowers: Planning for Trouble," *Technology Review* 82: 34-44.
The author, a private-practice attorney, outlines some practical guidelines for potential whistleblowers. Much of the advice is aimed at securing the best possible legal position for dissent and for building a case if the organization engages in retaliation.
- Throdahl, Monte.
1981 "Anyone Can Whistle," *Business and Society Review* 39:16-17.
- Unger, Stephen H.
1982 *Controlling Technology: Ethics and the Responsible Engineer* (New York: Holt, Rinehart and Winston).
This brief book contains a wealth of useful information—case studies, comments on codes of ethics, advice on how to be a responsible engineer, and appendices that include many different codes of ethics.
- Walters, Kenneth D.
1975 "Your Employees' Right to Blow the Whistle," *Harvard Business Review* 53: 26-34, 161-162.
- Westin, Alan F. (ed).
1981 *Whistle Blowing!: Loyalty and Dissent in the Corporation* (New York: McGraw-Hill).
In this edited collection ten episodes of whistleblowing are recounted by those who blew the whistle. Westin's concluding chapter includes several proposals for new legal protections for whistleblowers.