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# CSEP MODULE SERIES IN APPLIED ETHICS

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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.

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## Conflicts of Interest in Engineering

Paula Wells, Hardy Jones, and Michael Davis



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# Conflicts of Interest in Engineering\*

"The term 'conflict of interest' bespeaks a situation in which regard for one duty tends to lead to disregard of another." (*U.S. v. Miller*, 463 F. 2d. 600, 602)

"Generally, when used to suggest disqualification of a public official from performing his sworn duty, the term 'conflict of interest' refers to a clash between public interest and the private pecuniary interest of the individual concerned." (*Gardner v. Nashville Housing Authority*, 514 F. 2d. 38, 41)

Few texts in engineering ethics devote any space to conflict of interest. Perhaps that is because the topic strikes most text writers as foreign to engineering, not a concern of those whose profession is to mold the material world. Yet, as we shall see, conflicts of interest turn up in engineering far more often than one might expect. Because all engineers must exercise professional judgment on behalf of a client or employer, all are subject to conflicts of interest. Unnoticed, such conflicts can cause an engineer serious trouble.

This is an introduction to the study of conflicts of interest in engineering. We shall begin by examining in detail a recent case of such conflict, bringing out the relevant principles and discussing their importance for engineers as professionals *and* as moral agents. The case is both historically important and an absorbing cautionary tale. But it is given pride of place here primarily because we know more about it than we know, or are likely to know, about most other instances of conflict of interest in engineering.

Having presented the relevant principles in this way, we shall consider four applications. These are all drawn from the "opinions" of the Board of Ethical Review, the ethics committee of the National Society of Professional Engineers.<sup>1</sup> They should both help the reader get used to the relevant principles and demonstrate the need for engineers to understand them. Ten more such cases are included at the end of this text for use in classroom discussion.

## I. *Hydrolevel*: The Facts

On May 17, 1982, the United States Supreme Court upheld a civil judgment against the American Society of Mechanical Engineers (ASME) for violating the Sherman Anti-Trust Act.<sup>2</sup> *Hydrolevel* (as the case is commonly called) may be to engineering ethics what Watergate was to legal ethics. Most

\*We should like to thank the staff of the Center for the Study of Ethics in the Professions and this project's Advisory Panel for all the help given us both in formulating the project and in carrying it to completion.

of the individuals involved were engineers, persons holding high office in industry and in ASME. Some may in fact have engaged in conduct they knew to be unlawful. Certainly it is widely believed that they did. But the special interest of *Hydrolevel* here is that there was something seriously wrong with the way the principals conducted themselves, even supposing all acted with the best motives and without realizing that what they were doing was illegal. Whatever else *Hydrolevel* is, it is a case of conflict of interest. To understand what the principals did wrong (even supposing them to have acted with the best motives) is to understand much about conflict of interest. So, let us begin our study of conflict of interest by looking at *Hydrolevel* in detail.

On April 12, 1971, ASME received an inquiry concerning a 43-word paragraph in its 18,000 page "Boiler and Pressure Vessel Code." The Code is one of about 400 model standards ASME maintains. While only advisory, these standards have a powerful influence. Federal regulations have incorporated many of them by reference, as have many cities, states, and Canadian provinces. Because of the influence and complexity of the codes, there is often need to have them interpreted. ASME responds to at least 10,000 requests for interpretation each year. Like the codes themselves, these interpretations are only advisory.<sup>3</sup>

The inquiry concerned paragraph HG-605a which provides in part: "Each automatically fired steam or vapor system boiler shall have an automatic low-water fuel cutoff, so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest visible part of the water-gauge glass."<sup>4</sup> The purpose of the paragraph is to prevent the "dry firing" that can damage (or even cause an explosion of) a boiler with too little water in it. The inquiry came from McDonnell and Miller, Inc. of Chicago (M&M), which had for decades dominated the market for low-water fuel cutoffs. The inquiry simply asked, "Is it permissible to incorporate a time-delay feature in the cutoff so that it will operate after the boiler water level reaches some point below the visible range of the gauge glass?"<sup>5</sup>

The inquiry was signed by Eugene Mitchell, M&M vice president for sales. Mitchell made the inquiry because a competing firm, Hydrolevel Corporation of Farmington, New York (Hydrolevel), had entered the low-water cutoff market a few years before with a cutoff that included a time delay and early in 1971 had won a contract from the Brooklyn Gas Company, an important M&M customer. If ordinary use of Hydrolevel's time-delay cutoff were consistent with ASME safety standards (and were commonly believed to be consistent), M&M might well lose its predominance in the market. If, however, there were even some doubt about the safety of Hydrolevel's cutoff, M&M sales staff could easily protect M&M's share of the market. Mitchell knew that Hydrolevel's cutoff *could* be installed safely. But he also thought the cutoff could not be installed so as to cut off before the water level fell below the visible range of the gauge glass without being positioned much higher than other cutoffs.<sup>6</sup> If he could get ASME to say that HG-605a meant that the

water level in the gauge could not drop from sight without *immediately* triggering a fuel cutoff, M&M salesmen could argue that the Hydrolevel cutoff would violate ASME standards if positioned in the ordinary way. They might also argue that it would violate ASME standards wherever positioned. The same sixty-second delay that could prevent unnecessary cutoffs could, it seemed to Mitchell, also allow a hot and suddenly almost waterless boiler to crack or explode.

Mitchell discussed this sales strategy several times with John W. James, M&M's vice president for research. James had been a member of the ASME subcommittee responsible for heating boilers (the "Heating Boiler Subcommittee of the Boiler and Pressure Vessel Committee") since 1950 and had also had a leading part a few years before in rewriting the Code of which HG-605a was part. James suggested a meeting with T. R. Hardin, chair of the Heating Boiler Subcommittee. The meeting occurred in late March 1971. Hardin (in town for other business) came by the M&M office and the three (along with M&M's president) went to dinner. During dinner, Mitchell asked Hardin about HG-605a. Hardin answered that he believed it meant what it said: the water level should not drop from sight without triggering the cutoff immediately. Soon after that meeting James drafted a letter of inquiry to ASME, sending a copy to Hardin, who made some suggestions which were incorporated into the final draft.

The inquiry was addressed to W. Bradford Hoyt, secretary of the Boiler and Pressure Vessel Committee. Hoyt treated it as a routine inquiry, directing it to the appropriate subcommittee's chair, T. R. Hardin. Hardin then prepared a response without referring his action to the whole subcommittee for approval. He was entitled to do this provided the response was treated as an "unofficial communication." Hoyt signed the unofficial communication Hardin drafted and sent it out on ASME stationary. That letter, dated April 29, 1971, advised that a low water cutoff must "operate immediately" when the water level falls below the lowest visible point of the gauge glass and that a cutoff with a time delay gave "no positive assurance that the boiler water level would not fall to a dangerous point during a time delay period."<sup>7</sup> While the response did not say that Hydrolevel's time delay was dangerous, that was a plausible inference. M&M used the ASME letter to discourage potential customers from buying Hydrolevel's cutoff. The strategy seemed to work.

Hydrolevel learned of the ASME letter early in 1972 through a former customer and immediately requested a copy from ASME. This was duly sent on February 8, 1972, the name of the inquirer (Mitchell) being omitted as ASME policy required (to preserve confidentiality).

Hydrolevel was, of course, not happy with the interpretation. On March 23, Hydrolevel wrote Hoyt a nine-page letter explaining why ASME should correct its ruling. Hoyt sent Hydrolevel's request to the Heating Boiler Subcommittee. On May 4, the subcommittee voted to confirm the intent of the original response. James, who had by then replaced Hardin as chair of the

subcommittee, abstained from participation in the subcommittee deliberations on that question but reported the vote to the Boiler and Pressure Vessel Committee. The full committee voted to send Hydrolevel an "official communication." Dated June 9, 1972, it "confirmed the intent" of the letter of April 29, 1971, but advised Hydrolevel that, while cutoffs with time delay were *not* expressly forbidden, they had to be positioned to cut off before the water level fell from sight.<sup>8</sup> While James took no part when his committee decided how to respond to Hydrolevel, he did (at the drafting committee's request) help to draft a critical sentence of that response.<sup>9</sup>

Hydrolevel seems to have found the response insufficient to permit it to compete successfully with M&M. There still seemed to be doubt about the safety of Hydrolevel's low-water cutoff.

That is where events stood until July 9, 1974, when the *Wall Street Journal* published an article describing Hydrolevel's difficulty trying to sell a fuel cutoff many in the industry thought to be in violation of ASME's Code. The article suggested "close ties between a dominant company in an industry and the professional society that serves as its watch dog." The only "close tie" the article noted was that James, an M&M vice president, had been vice chair of the appropriate ASME subcommittee when M&M made its original inquiry and chief drafter of the Code involved.<sup>10</sup>

The article produced an uproar within ASME. For example, the vice president of ASME's Region 11 wrote that "If the facts are as stated in the article, it would seem that Mr. James should not only be relieved of his duties on the Board of Codes Committee but he should also be kicked out of ASME for unethical conduct."<sup>11</sup> ASME's Professional Practices Committee then investigated, found nothing improper or unethical in James' conduct, and commended him for conducting himself in a forthright manner as chair of his subcommittee. The Professional Practices Committee did not, however, have all the facts. James had not informed the Committee of his meeting in Chicago with Hardin, of his (or Hardin's) part in drafting the original inquiry, or of his part in drafting the June 9 response to Hydrolevel. None of this came out until March 1975 during hearings before the Senate's Subcommittee on Antitrust and Monopoly.<sup>12</sup> Hydrolevel filed suit a few months after those hearings, charging M&M, ASME, and Hardin's employer, Hartford Boiler Inspection and Insurance Company, with unlawful restraint of trade.

#### Names to Remember

**Hardin** .....chair of Heating Boiler Subcommittee (of ASME Boiler and Pressure Vessel Committee) and vice president of Hartford Boiler Inspection and Insurance Company.

**Hoyt**.....secretary of ASME Boiler and Pressure Vessel Committee, in charge of correspondence for that committee and its subcommittees.

**Hydrolevel** .....Hydrolevel Corporation of Farmington, New York, the company M&M wanted to put out of business, the plaintiff in *Hydrolevel*, the legal case.

**James**.....M&M vice president for research, a drafter of relevant sections of the Boiler and Pressure Vessel Code, vice chair of Heating Boiler Subcommittee when Hardin was chair, and chair of that subcommittee after Hardin retired.

**M & M** .....McDonnell and Miller, Inc. of Chicago, makers of the low-water cutoff dominating the market before the entry of Hydrolevel's time-delay cutoff.

**Mitchell** .....M&M vice president for sales.

## II. What Did They Do Wrong?

So, assuming that Hardin and James acted from the best of motives,<sup>13</sup> what (if anything) was wrong with what they did? There are at least three ways we might try to answer that question.

One way would point to the consequences of what Hardin and James did, for example, that they may have driven Hydrolevel out of business or prevented an improvement in boiler safety. Let us call this way of explaining what makes an act wrong "consequentialist."

A second way to explain what makes an act wrong would be to point to a violation of some social rule, for example, to the violation of an ASME procedure or federal law. We might call this way of explaining what makes an act wrong "ethical relativism" (because it makes the ethics of a situation relative to what the *social* rules happen to be).

A third way to explain what makes an act wrong is to point to something about the act itself (given the context in question) which makes the act objectionable whatever its actual or probable consequences and whether this or that social rule permits it or not. For example, an act might be wrong simply because it is an instance of lying or a betrayal of trust. This way of answering our question is sometimes called "ethical absolutism" because the answer is not relative to this or that social rule. But it is probably less misleading to call it "duty-based" (or "deontological") because it relies on considerations of *duty* directly (even though the duties may themselves be defended in part at least by appeal to the overall consequences of having such duties). These duties are sometimes called "natural" (or "absolute") to distinguish them from the "conventional" (or "relative") duties imposed by law or other merely social rules.

Which of these three ways of explaining why an act is wrong should we employ to determine what, if anything, Hardin and James did wrong? Let us consider these ways one at a time.

## A. Consequences

What Hardin and James did certainly had consequences. For example, M&M printed ASME's April 29 response in a booklet entitled "The Opposition - Who They Are, How to Beat Them." The booklet, distributed to sales staff late in 1971, included a message from Mitchell describing Hydrolevel's time-delay cutoff and stating that such a device "would defeat the intent of the ASME Code and this should definitely be brought to the attention of anyone considering a device which included a time delay in the low water cutoff circuitry."<sup>14</sup> The ASME letter gave legitimacy to Mitchell's opinion and seems to have had much to do with driving Hydrolevel out of business.<sup>15</sup>

So, on the one hand, what Hardin and James did had some bad consequences. Their acts helped to drive Hydrolevel out of business and that was bad for Hydrolevel. On the other hand, what they did helped M&M keep its share of the cutoff market and that was certainly good for M&M. But the evaluation of consequences cannot end with that. The consequences of what Hardin and James did went on. Hydrolevel sued. M&M settled out of court for \$750,000. Hartford also settled. They paid Hydrolevel \$75,000. ASME went to trial and lost. The judgment against ASME, \$7,500,000, was equal to three-fourths of its annual budget. That was bad for M&M, Hartford, and ASME but good for Hydrolevel. ASME appealed, lost on the decision but won rehearing on the damages. The case was settled when ASME agreed to \$4,750,000 in damages.<sup>16</sup> In the end, Hydrolevel (or rather its owners) may have gained more than it lost (ignoring what must be very substantial attorneys' fees). Its winnings in court amounted to far more than its profits over a decade. But how should we balance all these good and bad consequences to decide whether what Hardin and James did was right? Do they merely balance out (since one side's loss seems to be another's gain)? Or do they total up to a bad outcome overall? Or to a good one? Consequentialism requires some method of balancing consequences one against another to reach an overall evaluation. What method should we use?

Might there have been some further consequences? Certainly. For example, driving Hydrolevel out of business might have suppressed a new boiler cutoff which, if widely used, would have substantially reduced boiler explosions and otherwise substantially improved boiler operation. Driving Hydrolevel out of business would then have had consequences so bad that few people would think they could be outweighed by any advantage to M&M or Hydrolevel.

Was Hydrolevel's cutoff that much better than M&M's? If that is the sort of question we must answer before we can say what (if anything) was wrong with what Hardin and James did, we cannot say what was wrong with what they did. We do not have the answer and we are not likely to get it. Laboratory tests are only suggestive and we are not likely ever to get a good "field test."

So, any decision we make based on the consequences of Hydrolevel's demise must rely either on educated opinion or on something less reliable. Educated opinion is the judgment of those whose experience and learning have made them relatively reliable guides in answering questions of the sort posed. Educated opinion seems to be divided. Both Hydrolevel and ASME had outside experts at trial, some testifying to the superiority of Hydrolevel's cutoff, others testifying to the possible dangers of its use.<sup>17</sup> When outside experts disagree, we naturally turn to some body of experts capable of sorting out the opinions of individuals and arriving in that way at some authoritative consensus. Because our concern here is boiler safety, the natural place for us to turn for such an authoritative statement on boiler safety would, of course, ordinarily be ASME's boiler Code and the committee with authority to interpret it. Unfortunately, that Code and committee are part of our problem.

But there is one more alternative to consider. The market itself is a possible source of the information we need. Victory in a free market is good evidence that the victorious product is better than its competitors. M&M's victory over Hydrolevel is, however, not good evidence that M&M's cutoff was safer than Hydrolevel's. There are two reasons why not. First, the market measures overall value, not safety as a distinct factor. One product might be less safe than another but sell better for other reasons, for example, because its low cost more than pays for the higher insurance premiums its use entails. Second, Hydrolevel in effect charged that M&M used unfair means to win its victory. If M&M did rig the market, the market cannot tell us even whether overall M&M's cutoff was better than Hydrolevel's. The verdict of this market would not have been the verdict of a *free* market. Did M&M rig the market? We don't know. If ASME's letter of April 29 was a sensible reading of the Code and the Code itself was correct, then M&M's use of that letter to discredit Hydrolevel would not have been unfair (unless there was something wrong with the *way* M&M obtained the letter). All else equal, information should not distort the market.<sup>18</sup>

So, it seems, we cannot make a reliable judgment that Hydrolevel's demise served or disserved the public good. If we cannot do that, we cannot make a reliable judgment that overall the consequences of ASME's response of April 29, 1971 and June 9, 1972 were bad (or good). Without such a judgment, we cannot provide an appealing consequentialist explanation of what was wrong with what Hardin and James did. So, if we are to explain what was wrong with what Hardin and James did, we must, it seems, do it by showing that they violated a social rule or that they failed to act in accordance with some natural duty.

## B. Social Rules and Individual Conscience

"Rule" (as used here) includes standards of conduct evident from practice (that is, so called "unwritten rules") as well as those standards expressly adopted. A "social rule" is a rule that may vary from one society to another

just because one society chooses one rule while another chooses another rule. We can distinguish at least three sorts of social rule Hardin or James might be thought to have violated: 1) ASME rules, 2) rules governing all engineers (in the United States), or 3) federal law. Let us consider these three possibilities one at a time.

1. *ASME Rules.* Did Hardin or James violate any ASME rule? Hardin did meet with M&M executives to discuss a question likely to come before him as chair of the Heating Boiler Subcommittee. Indeed, he expressed his opinion on the question and helped draft an inquiry so as to obtain that opinion from ASME. The Senate subcommittee investigating the Hydrolevel case found that objectionable. But ASME officials did not. For example, Melvin R. Green, Managing Director, Research Codes and Standards section of ASME, defended what Hardin did in this way:

I think you must recognize that you are trying to get words in a letter, so that you clarify a provision in the code. And to get the proper words, I do not really see that there was anything wrong with that, because I, when I was secretary of the Boiler and Pressure Vessel Committee, had people who would telephone inquiries to me and they would say—I would give an answer on the telephone and then they would say, “Well, how can I get this in writing?” I would suggest the wording for the inquiry, so that they could get the response to clarify that particular part of the code.<sup>19</sup>

Hardin’s meeting with M&M executives and his help in drafting the inquiry to his own committee are thus so far from violating an express or tacit ASME rule that they appear to be part of ASME’s ordinary procedures.

Hardin’s other acts also seem to be consistent with ASME rules. As noted earlier, Hardin was entitled to answer M&M’s inquiry if he thought it sufficiently routine (provided his response was treated as an “unofficial communication”). He apparently thought the inquiry was sufficiently routine, a case of the Code meaning just what it said.<sup>20</sup> And it is not clear even now that he was wrong to think so. The Heating Boiler Subcommittee and the whole Boiler and Pressure Vessel Committee later “confirmed the intent” of his original response. Hardin treated the response as an unofficial communication just as ASME rules required. Hardin did not, it is true, reveal to the Professional Practices Committee his meeting with M&M executives or his part in drafting the inquiry. We do not know why he did not. The most favorable explanation is that he was not asked directly and did not see why he should raise the matter himself. If ordinary ASME procedure was as Green indicates, the Professional Practices Committee would not have cared what part Hardin had in drafting the original inquiry (and so, they probably would not have found that revelation worth the trouble of a hearing). Indeed, Green told the Senate subcommittee that he considered Hardin’s conduct perfectly ethical, even taking into account what the subcommittee had uncovered.<sup>21</sup>

ASME rules seem to be equally kind to what James did. Green defended James’ self-effacing part in drafting the April 12 inquiry in this way:

Well, here again, I think you must understand the voluntary standard system. Many people, who serve a great deal of their time in a code activity, try to identify themselves with the code activity. And there is another part [of their life] where they would be in the Government or employed by industry. If they have [to make] an inquiry from that Government agency or that company, they will have an associate, within the [agency or] company, who will sign the inquiry and send it to us. . . . [It] is just a matter of trying to keep their house in order.<sup>22</sup>

In other words, having someone else sign the letter was James’ way of keeping his work on the Heating Boiler Subcommittee distinct from his work at M&M. That he wrote the inquiry should be irrelevant to the response it received. If signed by Mitchell, the inquiry would not have an authority that might come from having the name of the subcommittee’s vice chair subscribed to it. *Should* James have signed the inquiry? Nothing in ASME rules required him to. Indeed, Green makes it sound as if ASME practice would have condemned James for signing the inquiry had he done so. James would not have “kept his house in order.” Even according to ASME practice, there was no reason for James to inform ASME’s Professional Practices Committee of his part in drafting the original letter.

What about James’ part in drafting the official ASME communication of June 9, 1972? Again, James seems to have done as ASME rules allowed. A subcommittee chair would *not* normally have stepped down even though he helped to draft the inquiry the response to which was under review (and, it seems, even though he worked for a company that had an interest in the outcome). According to Hoyt, James stepped down *only* because Hydrolevel’s letter to ASME had complained that ASME seemed to be out to destroy a new product. That James should help draft the June 9 response to Hydrolevel was, Hoyt said, “perfectly normal because the chairman is in the best position, on the basis of experience, to know what the intent of his subcommittee is.”<sup>23</sup> James was “merely trying to be helpful in selecting words that would be appropriate to clarify the subject.”<sup>24</sup> Green concurred. As far as he was concerned, there was nothing in what James did contrary to ASME practice.<sup>25</sup>

2. *NSPE Code of Ethics.* That Hardin and James did not violate any ASME rule does not mean that they did what was professionally proper. As engineers, their conduct is also subject to evaluation under the Code of Ethics of the National Society of Professional Engineers (NSPE)—at least insofar as the Code itself expresses a well articulated standard of conduct for engineers. (ASME, like many other engineering societies, also has a Code of Ethics of its own, but at the time their Code had no general provision concerning conflict of interest.) A cursory reading of the present Code may seem to provide several provisions Hardin or James violated.<sup>26</sup> But a closer reading makes everything much less clear. Let us consider those potentially relevant provisions one at a time beginning with the most specific.

a. "*Faithful Agent.*" The Senate subcommittee investigating the Hydro-level complaint suggested that Hardin and James each did something wrong because each had a conflict of interest that should have stopped him from doing what he did. A federal court of appeals made the same point.<sup>27</sup> Section III.5 of the NSPE Code of Ethics specifically discusses conflicting interests. "Engineers shall not," it says, "be influenced in their professional duties by conflicting interests". This *seems* clear enough, but the only examples the Code gives of such conflicting interests are a) accepting "financial or other considerations, including free engineering designs, from material or equipment suppliers for specifying their products", and b) accepting "commissions or allowances, directly or indirectly, from contractors or other parties dealing with clients or employers of the Engineer in connection with work for which the Engineer is responsible." So, if this is all NSPE means by "conflicting interests", neither Hardin nor James had a conflict of interest. They accepted no consideration from material or equipment suppliers for specifying their product. They also accepted no commission in connection with work for which they were responsible. Is there any reason to limit the term "conflicting interests" (or "conflict of interest") to cases like those expressly listed in Section III.5? Well, that depends on considerations beyond the mere letter of this section, doesn't it? We shall have to look further.

Section II.4 also deals with matters most people would think involve conflict of interest. "Engineers shall," it says, "act in professional matters for each employer or client as faithful agents or trustees." Would a "faithful" agent or trustee allow himself to act as Hardin or James did? There are really three questions here. First, can one be a faithful agent or trustee and yet have a conflict of interest of the sort Hardin or James had? (Of course, we haven't yet concluded that Hardin or James had any conflict of interest as the Code defines that term.) Second, how would a faithful agent or trustee act if he had such a conflict? And, third, did Hardin or James act differently?

Section II.4(a) provides at least a partial answer to the first two of these three questions. "Engineers shall," it says, "disclose all known or potential conflicts of interest to their employees or clients by promptly informing them of any business association, interest, or other circumstance which would influence or appear to influence their judgment or the quality of their services." Section II.4(a) thus understands the term "conflict of interest" to include more than the two examples of conflicting interests mentioned under Section III.5. A conflict of interest can, it seems, be *any* business association, interest, or other circumstance that *could* influence or even just *appear* to influence an engineer's judgment or the quality of his service. Both Hardin and James had conflicts of interest in this sense (that is, a bias). That Hardin had given his opinion on the cutoff inquiry informally (and perhaps without due consideration) *could* reasonably be supposed to have influenced his judgment when he

later actually undertook to respond more formally (and, because that can reasonably be supposed, there is at least an *appearance of such influence*). Similarly, James could not be certain that his contribution to the ASME letter of June 9, 1972, was not influenced in part by how the exact wording might affect his company's prosperity.<sup>28</sup>

Section II.4(a) does not, however, rule out conflicts of interest. All it requires is that a faithful agent or trustee *disclose* any conflict he has to his employer or client. A faithful agent or trustee may have a conflict of interest and still be faithful, but only if he discloses the conflict to his employer or client.

What then can we conclude from these rules? Neither Hardin nor James seems to have concealed any conflict of interest from their respective employers (M&M and Hartford). Both, it is true, concealed conflicts from ASME (or, at least, failed to disclose them to anyone at ASME). So, Section II.4(a) and Section II.4 itself—would condemn both Hardin and James if, but *only* if, serving as a volunteer on an ASME committee constituted "acting in professional matters" and ASME was their "employer" or "client." Is it proper to interpret "professional matters" to include working as an unpaid volunteer for an engineering society? (Must not a professional be paid if he is to act as a professional?) Is it proper to interpret "employer" or (more likely) "client" to include ASME?

The Code provides little help with these questions. Among the other examples of being a "faithful agent and trustee" listed under Section II.4, only two seem worth noting. Section II.4(d) provides that "Engineers in public service as members, advisors, or employees of a governmental body or department shall not participate in decisions with respect to services solicited or provided by them or their organizations in private or public engineering practice." Section II.4(e) adds that "Engineers shall not solicit or accept a professional contract from a governmental body on which a principal officer of their organization serves as member." There is nothing under Section II.4 about professional societies or other *nongovernmental* bodies.

Only one conclusion of interest to us seems to follow from these two examples of being a faithful agent or trustee. There *may* be enough of a distinction between "employer" and "client" so that ASME could reasonably be thought Hardin's or James' "client" (even though ASME could *not* be the employer of either in any but the most strained sense). Though Section III.4 itself only refers to "employer or client," (d) refers to "service" as a "member" of a governmental body or as an "advisor" (as well as of "service" as a governmental "employee"). So, it seems that if an engineer is a member of a governmental body (or even an unpaid advisor of one), the body might be his "client" (in the appropriate sense) even though he is not being employed that is, paid as an engineer. On the other hand, the section can also be read so that "client" is just another word for "employer" or at most for someone whom an engineer is *paid* to serve in some professional capacity (for example, when serving the customer of his employer).



Section III.4(c) does not help clarify which interpretation is intended. According to (c), an engineer does something wrong if he solicits or accepts a professional contract from a governmental body on which he serves. But the section does not tell us why that would be wrong. There are at least two reasons why soliciting or accepting such contracts might be wrong. The reasons point to different interpretations of "client." One reason soliciting or accepting such contracts might be wrong is that the engineer would have failed to be a faithful agent or trustee of the *government* in question. He would have taken advantage of someone, the government, that is already his client (because he is serving on one of its bodies). The other reason soliciting or accepting such contracts on behalf of a client might be wrong is that an engineer cannot be a faithful agent or trustee of a *private* client he is working for if he risks getting that client into trouble by obtaining governmental contracts for the client through misuse of his public trust. Section III.4(e) also does not help us to understand whether just any service on a governmental body—and so, by analogy, on an ASME committee—is acting in a "professional matter" (so that the duty to act as a faithful agent or trustee applies at all). For example, is helping your committee draft a letter a case of acting in a *professional* matter?

b. *Miscellaneous Provisions.* Three other seemingly promising provisions of the Code turn out to be even less helpful. Section II.3(c) provides that "Engineers shall issue no statements, criticisms or arguments on technical matters which are inspired or paid for by interested parties, unless they have prefaced their comments by explicitly identifying the interested parties on whose behalf they are speaking, and by revealing the existence of any interest the engineers may have in the matters." This section would certainly condemn what Hardin and James did if, for example, Hardin responded as he did in part because he hoped to benefit his employer (or because M&M bought him dinner) and James helped to draft the ASME response of June 9, 1972, because he hoped that by so doing he could benefit M&M (or because he hoped to postpone his own overdue retirement from M&M by proving himself especially useful). The statements Hardin and James made would then have been "inspired" (if not exactly "paid for") by interested parties they had not explicitly identified. We are, however, assuming that both Hardin and James acted from the best motives, that is, that the acts in question were not paid for by an interested party or inspired by anything but concern for the public safety and welfare. So, Section II.3(c) cannot help us decide what was wrong with what Hardin or James did.

Section III.1 may, in contrast, seem likely to be more helpful just because it is more general. "Engineers shall," it says, "be guided in all their professional relations by the highest standards of integrity." Section III.1(f) gives as an example of being so guided that "Engineers shall avoid any act tending to promote their own interests at the expense of the dignity and integrity of the profession." These two sections seem promising because, if Hardin and

James *improperly* misled others about their intentions, their interest in M&M's inquiry, or their part in ASME's response, they could not have been guided by the "highest standards of integrity." If, in addition, they did all that to endear themselves to their respective employers, they would also have promoted their own interests at the expense of ASME and so at the expense of the profession as a whole. If, however, what Hardin and James did was not "improper," their acts could still be consistent with the "highest standards of integrity" and so not something the Code condemns. So, were their acts proper or improper? That depends on what the "highest standards of integrity" are. We must look elsewhere in the Code for guidance concerning that.

Section III.3(a) may seem to provide such guidance. This section provides that "Engineers shall avoid the use of statements containing a material misrepresentation of fact or omitting a material fact necessary to keep statements from being misleading . . ." Hardin and James both omitted statements of fact necessary to keep others (for example, the Professional Practices Committee) from drawing false conclusions (for example, that Hardin had no part in drafting the original inquiry or that James had no part in drafting the response of June 9, 1972). But were these facts "material," that is, were they facts that should have been revealed to keep others from drawing conclusions they had a right to be protected against (for example, the conclusion that Hardin or James had acted properly when in fact they had not)? Well, that depends on what the ultimate conclusion should have been, does it not? If, for example, Hardin and James would have been judged to have acted just as properly had all the facts they failed to reveal been revealed, would we consider those unrevealed facts "material"? It seems not. So, it seems we cannot know that their conduct fell below "the highest standards of integrity" until we know whether what they did was proper. Appeal to the NSPE Code thus seems to have led us to a dead end just as appeal to actual or probable consequences did.

But that is not quite true. There remains one turn we have yet to take. Written rules are seldom self-interpreting. We must bring to the "letter" of a rule an understanding of the "spirit," that is, the underlying purposes, policies, and principles that provide a context we can use to understand what the rule is supposed to do. For example, to understand what is ruled out by a general prohibition of "conflicting interests," we need to know what the community that prohibited such interests means by the term. We also need to know what reasons it had for such a prohibition and how the rule would have to be interpreted to do what the community wants done.

c. *BER as Authority.* Where then should we go for help with interpreting the NSPE Code of Ethics? One place is NSPE's Board of Ethical Review (BER). That brings us to the most difficult problem generated by trying to provide a relativist explanation of what makes an act wrong. What if we do not find the BER's interpretation convincing? What if we think engineers should *not* do as the BER says they should? Are we necessarily wrong either

about what the Code says or about what engineers should do? The relativist answer is plain. If what makes an act right is that it is permitted or required by the appropriate social rule, and if the appropriate social rule means what those with authority to interpret it say it means, then of course we *must* be wrong if we disagree with the BER's interpretation of the Code. The BER has authority to interpret the Code (because the NSPE gave the BER that authority). We are disagreeing with those who speak for the society in question.

So, here is the problem with relativism. Certainly it seems that the BER (or even the NSPE as a whole) can be wrong. The BER might, for example, issue an opinion interpreting the Code in a certain way. Everyone might agree that this is in fact how the Code should be interpreted if, say, "read strictly." Yet a majority of the society might think that the Code should *not* be read strictly in cases of this sort. The BER itself might eventually change its mind about how the Code should be interpreted (or undergo a change of membership leading to a changed interpretation). And even if the BER did not change its interpretation, the NSPE might itself change the Code to prevent such "strict" interpretation. Now, if the BER (or NSPE) can be wrong about what engineers should do, there must be a standard of what engineers should do beyond what the BER (or NSPE) says, some standard of right action for engineers beyond what this or that engineering society happens to say. What might that standard be?

d. *Conscience as Authority.* One answer often given is "individual conscience." We have (it is said) an inborn sense of right and wrong. We need only be "true to ourselves" to do right. We must do what we "feel" to be right whatever anyone else thinks. That is all we can require of ourselves and all we should require of one another. The right act is (it is said) simply that act the individual feels to be right.

Though this appeal to individual conscience may appear the very opposite of appeal to social rules, it really is very similar. If the appeal to social rules for a standard of rightness can accurately be described as "group-centered ethical relativism," this appeal to individual conscience might, with equal accuracy, be called "individual-centered ethical relativism."

Individual-centered relativism (or "subjectivism") is not without attractions. We all recognize that individuals are beings not to be operated entirely from the outside. Each must do what *she* chooses, and each should choose by her own standards. What right have we to ask a person to do other than she thinks right? We often go out of our way to respect each other's moral integrity. We sometimes let others do what we think wrong because each "has a right" (as we say) to act on her own conception of the good. We sometimes even excuse wrong acts (in part at least) because the person who did them "meant well." Nevertheless, there are at least two reasons to reject individual conscience as the ultimate standard of right and wrong.

One reason for rejecting individual-centered ethical relativism is that it makes it impossible for an individual to do wrong so long as he feels what he is doing is right. The distinction between an act appearing right (to the actor) and its being right dissolves if the ultimate standard of right and wrong becomes how the act appears to the actor, how he "feels" about it. That someone feels no horror at the prospect of committing murder, no remorse or regret afterward, would (according to individual-centered relativism) be enough to show that he did not do wrong. A person's moral insensitivity would be a guarantee of the propriety of what he did. That certainly seems inconsistent with our understanding of right and wrong.

The other reason for rejecting individual-centered relativism is related to this first one. We began this paper by assuming that all the engineers involved in *Hydrolevel* acted from the best motives, that they all felt that what they were doing was right. There is no evidence that any of them had a pang of conscience beforehand or that they experienced any remorse or regret afterward. If we accepted individual-centered ethical relativism, we would have to agree that Melvin Green's concluding remarks to the Senate subcommittee constituted the last word on the professional propriety of what Hardin and James did. "Every professional works by a canon of ethics," he explained, "and I think it is up to the professional who is serving in that position at that time to make this kind of a judgment."<sup>29</sup> Hardin and James made their judgment and (according to Green) that is all we can require of them. Case closed.

Individual-centered relativism thus cuts off ethical discussion as soon as it has begun. So long as Hardin and James acted in a way they judged best, there is nothing to criticize in what they did. Indeed, even if they had asked *in advance* what to do, the best advice anyone could have given them would have been to do what they felt proper, whatever that might be. Telling them any more would have been telling them what *we* should do were we in their place, not what *they* should do. Individual-centered ethical relativism makes most reasoning about right and wrong a lonely and pointless activity. The work of the BER, indeed, the work of all those who advise others what to do, could be helpful only insofar as it helped the individual to reach some judgment, whatever it might be. One might as well throw dice as ask the BER. That too seems inconsistent with our understanding of right and wrong.

3. *Laws.* It may seem that the problems of group-centered ethical relativism noted earlier could be resolved simply by appealing from the rules of the NSPE to those of some more inclusive society, for example, the laws of the United States. But that is not so. All the problems simply follow along. The law in question here, the Sherman Anti-Trust Act, prohibits "[unreasonable] restraint of trade." "Unreasonable" is a word leaving plenty of room for the sort of interpretative problems we have already encountered in the NSPE's Code of Ethics. Courts do, of course, have authority to interpret laws (just as the BER has authority to interpret the Code). But, though they have such authority, their interpretation is not necessarily right (no more so than the

BER's is). Not only do courts sometimes change their mind and "overturn" precedent, they may also find the rules they laid down repudiated by the legislature. There is nothing unreasonable about telling a court that it made a mistake and should decide differently next time. Nor is there anything unreasonable about telling Congress that it was wrong to pass a certain law. There appear to be standards of right and wrong independent of the particular rules of this or that society, even if the society is a whole nation. If we are to explain what (if anything) Hardin and James did wrong, we must, it seems, eventually appeal to such an independent standard.

### C. Natural Standards

What standards of right and wrong could there be beside social rules? The traditional answer is "rules of reason" (or "natural laws"). What is a rule of reason? That is not an easy question to answer if the answer must be a definition everyone would agree to in every detail. But, for our purposes, the following rough definition will do: A rule of reason is a statement of how one should act that all rational persons support, advocate, endorse, or recognize as somehow binding (or, at least, would recognize as binding if they were to consider the statement *in a certain way*, for example, impartially or in a "cool hour"). There are many such rules. The rules of arithmetic are, for example, rules of reason (as defined here). They state the principles every rational person recognizes (or, at least, would recognize if she gave them much thought) as the way to add, subtract, multiply, and divide if she wants to get answers other rational persons can accept as accurate. Rules of prudence, though quite different from rules of arithmetic, are also rules of reason. Prudence is choosing actions most likely to serve one's overall (longterm) interests. All rational persons recognize their own interests as relevant to determining what to do (relevant but, of course, not necessarily decisive).

Rational persons (as rational persons) support, advocate, endorse, or recognize rules of reason only because (and only insofar as) there is good reason for so doing. (Acting for good reason is a large part of what it means to be rational.) So, another way to understand what a rule of reason is is to understand it as a rule that, all things considered, is better supported by good reasons than any alternative. Rational persons support, advocate, endorse, or recognize certain rules as rules of reason (at least in part) because the weight of evidence and argument support treating them (rather than any alternative) as binding.

Among rules of reason, the most important for our purposes are moral rules. What is a "moral rule"? A moral rule is (let us say) any rule instructing rational persons how to act, which each rational person would want all others to follow even if their following it meant that he would have to follow it too.<sup>30</sup> Moral rules (so defined) do not necessarily state what people in fact do (except insofar as they are good people). Moral rules tell us only what rational persons

have good reason to want each other to do, what it would be in a rational person's overall interest to have others do (whether he followed the rules himself or not). Unlike the rules of arithmetic or prudence, moral rules presuppose that rational persons are able to help or harm one another if they choose. Moral rules lay down requirements for the treatment of others, acts due others as persons, our "natural" duties.

We must, however, be careful to distinguish between the reasons for supporting, advocating, endorsing, or recognizing moral *rules* in general (*their* justification) and what may lead us as individuals to follow (or ignore) this or that rule in a certain case (*our* reason or motive for acting as we do). What justifies moral rules is that having them is in everyone's interest. But people may in fact do what morality requires (when they do) for any number of reasons. Some may act as morality requires because they were brought up to do so and doing wrong has no appeal. They act morally because they are of (morally) good character. Some may act morally because they wish others well. Such persons act morally because they possess the special virtue of altruism or benevolence. Others may do what morality requires because, though tempted to do wrong, they try to do what they believe right (and succeed). Such persons act morally in order to preserve their moral integrity. Others may do what morality requires because they fear criticism, prison, or divine wrath. Such persons act morally because they are prudent.

Most people probably act morally from a combination of these or other motives. So long as they do what is required (with the appropriate intention), what they do is right and their motive will be relevant only in assessing their character or moral worth. If, however, they do something wrong, their motive may be relevant in another way. "He meant well" cannot justify an act (that is, show it to have been right), but it may provide a reason for not blaming someone as much as would otherwise be appropriate. For example, the man who steals bread to feed his family is still a thief, but he does not deserve as much blame (or punishment) as the man who steals the same amount to gamble or because he enjoys the thrill of crime.

Moral rules are, in one sense, absolute. They take precedence over any consideration conflicting with them. But they take precedence not in the sense that they in fact will always win out in the deliberations of any rational person. They may not. Winning out in the deliberations of even the most rational person involves considerations other than those that justify moral *rules*. (I may, for example, benefit from breaking my promise to you even though I would suffer were there no general practice of keeping promises. It would then be in my interests both to support promise-keeping in general and to break my promise in this case.) Moral rules take precedence over other considerations only in the sense that we want them to win out in general, that we want everyone else to be taught that they should win out all the time, that we would help make them win out by condemning those who do not give them precedence, and so on. Moral rules are, in this sense, absolute almost by definition.

There are, however, also two senses in which moral rules are *not* absolute. They are, first, not absolute in the sense that would be caught by saying that “reason requires” them to take precedence. Reason does not require that much. Moral rules are those rules everyone wants everyone *else* to follow. They are not necessarily the rules any *rational* person, merely because he is rational, wants to follow *himself*. His following them is not itself necessarily desirable (unless he is a person of good character). For example, when I keep an expensive promise I wish I had not made, I (ordinarily) do it not because it is rational to “want to” but because I “must.” Reason requires moral rules to take precedence over other considerations (and so, to be “absolute”) only from “the moral point of view.” (The moral point of view is the way rational persons must look at things when laying down rules to guide all rational persons in their relations with one another.) The merely prudent person (the person not moved by benevolence or his own moral dignity) may break her promise without being irrational—if she can get away with it—though a person of good character or high purpose may not. Good character or high purpose can change what it is rational to do.

That brings us to the second sense in which moral rules are not absolute. They are not *exceptionless*. The rule “Don’t kill” might, for example, better be written “Don’t kill except. . . .” While all rational persons can agree that killing should *in general* be prohibited, none would agree that *all* killing should be prohibited. Perhaps the easiest exception to justify is one for killing in self-defense. If the reason we support a general prohibition against killing is that we fear involuntary death at the hands of others, the exception for self-defense might be justified by reasons much like those justifying the general prohibition: an exception for self-defense would in general be invoked only against those breaking the rule against killing, would tend to discourage rule-breaking by making rule-breaking more risky than it would be if people of good character or moral integrity could not in good conscience kill in self-defense, and would otherwise serve our rational interest in a safe life. Exceptions to moral rules help make it easier to do what is right, heading off possible conflicts between morality and prudence.

Our quest for a standard of right and wrong by which to evaluate what Hardin and James did has, it seems, led us to ask whether Hardin or James did anything morally wrong. The answer we must now consider is that they did do something wrong *because* each had a conflict of interest making it *morally* wrong to do what he did. Since the NSPE Code includes a general prohibition of conflicts of interest, justifying that answer will in effect provide a moral justification for a certain reading of the Code.<sup>31</sup> And because moral considerations take precedence over all others (in the sense explained earlier), that answer would take precedence over those already considered even if they had not proved inconclusive.

### III. What Is Morally Wrong with a Conflict of Interest?

Section II.4(a) of the NSPE Code of Ethics assumes a certain understanding of conflict of interest. Let us begin by trying to make that understanding explicit. The section assumes, on the one hand, that an engineer will be acting for an “employer” or “client” and, on the other, that he will be exercising “judgment” or providing a “service” of a certain sort the quality of which might be influenced (for the worse) by certain associations, interests, or circumstances. The sort of “judgment” or “service” of concern to the Code is that judgment or service an engineer provides when “acting in a *professional* matter,” that is, when exercising the special skills, powers, or authority he has *because* he is an engineer rather than, say, a mere citizen, business person, or employee. Though competent to provide the judgment or service, his ability to do so is nevertheless compromised because he has a conflict of interest. His judgment (or other ability to serve) is “influenced” by improper considerations or, at least, appears to be. There is reason to believe he will not do what a “faithful agent or trustee” with his skills, powers, and authority (as engineer) would ordinarily do for the person in whose interests he is supposed to be acting.

The Code limits its concern to “professional matters.” That very limitation suggests that an engineer might have a conflict of interest even when *not* acting as an engineer. The Code seems to apply an analysis of conflict of interest more general than engineering ethics. The notion of conflict of interest the Code assumes is, it seems, one any rational person should be able to understand, engineer or not. So, let us try to state that general analysis of conflict of interest first, see how it works in a case with which we are all familiar (and about which we have relatively settled opinions), assure ourselves that the analysis implicit in the Code is one we can accept (if indeed it is), and only then try to understand what it tells us about Hardin and James.

#### A. General Analysis of Conflict of Interest

We might generalize the Code’s analysis of conflict of interest in this way: *A conflict of interest is any situation in which a) you (for example, as an engineer) are in a relationship with another person (for example, a client or employer) requiring you to exercise judgment on behalf of that other person (or to perform some other service for him or her) and b) there is good reason to believe that, though competent to provide that judgment (or other service), you will not do it as you should (for example, as an equally competent agent or trustee of that client would do) because of some special interest, obligation, or other concern of yours.* Does this analysis fit our settled opinions about conflict of interest in general? Can we provide a moral justification for those opinions? Let us consider a relatively clear case of conflict of interest having nothing to do with engineering.

Suppose that a judge is to hear a case between two large corporations, that she is known to be a good judge in general and an expert in the law affecting this case. But suppose, too, that she has substantial holdings in one of the two corporations. Such a judge certainly has a conflict of interest. Does she have a conflict of interest according to the analysis we derived from the Code? The answer seems to be: yes. She is in a relationship with another requiring her to exercise judgment. Her role as judge puts her in the position of having to decide the case before her according to her judgment of what the law requires. She is supposed to provide both the parties to the case with impartial judgment. And that is exactly what there is reason to believe she cannot do. The circumstances are such that, though she is exceptionally competent to judge cases of this kind, she may nevertheless be unable to judge this one as she should. Her interest in one of the corporations *may* bias her judgment in favor of that corporation. Money talks.

Of course, there is no guarantee that *she* will listen. This judge might, for example, be able to allow for her natural bias when deciding the case. She may be able to “bend over backwards” to cancel its effect. But, even if she can in fact cancel the effect of her bias, there remains the question how she or anyone else is to know that she has succeeded. This is not the sort of bias judges routinely cancel out. Cancelling the bias of pecuniary interest is not part of ordinary judicial training or skill. We cannot then rely on our judge’s judgment that she has cancelled the effect of her bias because her judgment of that may itself be biased by the same influences. It is also unlikely that she will be able to show in some other way that she has succeeded in cancelling the effect of that bias. Judging is (in part) a matter of forming an informed opinion about controversial questions. There is no mechanical way to check such judgments for the effect of bias. (If there were, we could replace judges with clerks.) We can, of course, bring in other judges to examine the same evidence our judge examined and form opinions of their own. But beside being impractical (why not just replace her instead?), such double checking would simply produce other opinions. We would learn that other judges would agree or disagree with our judge, but not whether she succeeded in cancelling the effect her bias had on her judgment. There would remain the question of whether *she* would have decided differently had she not had that conflict of interest. So, her ownership of the stock will make her *appear* biased even if she is not. Since that appearance is itself a good reason to doubt her judgment, she will have a conflict of interest even if she decides the case “correctly” and for all the right reasons.

## **B. Responding to Conflict of Interest**

A conflict of interest is like dirt in a sensitive gauge. For the same reason rational persons want reliable gauges, they want those upon whose judgment they rely to avoid conflict of interest (insofar as practical). We would, for example, ordinarily want our judge to decline to hear the case (or to sell her

stock before hearing it). We do not want her “bending over backwards” to compensate for her bias because we have no way to know how such bending will turn out. Will she bend over far enough? Will she bend over too far?

So, if that is what conflict of interest is, what can we do about it? Most conflicts of interest can be avoided. We can take care not to put ourselves in a position where contrary influences or divided interests might undermine our ability to do what we are supposed to do. But, however much care we take, we shall not always succeed in that. Our relations with one another are too many, and too varied, for us to keep track of them all. We cannot always foresee how they will effect one another and so cannot take the precautions necessary to prevent all conflicts of interest. Still, though conflicts of interest cannot always be avoided, they can always be escaped. We can end the association, divest ourselves of the interest, or otherwise get beyond the influence that might otherwise compromise our judgment.

But is it always practical to do that? Do we really want people never to act for us just because they have an interest that might make their judgment somewhat less reliable than it would otherwise be? Should there be an absolute prohibition on acting with a conflict of interest? These are not hard questions. Consider our judge again. Suppose she retires. Some time later the two corporations have a similar dispute but this time agree to arbitrate rather than endure the expense of another trial. They come to our judge because of her reputation and the integrity she displayed during their previous dispute. She has not sold the stock. Would we want her either to refuse to arbitrate or to sell off the biasing stock?

One might suppose that the answer is clearly: yes, she should refuse or sell. After all, the ownership of the stock is still a consideration that could influence her judgment and an arbitrator—like a judge—is expected to provide unbiased judgment. On the other hand, the two corporations may be willing to run the risk of that influence in order to benefit from the judge’s special insight into their problem (just as we might prefer to use a sensitive but slightly unreliable gauge rather than one which, though fully reliable, is too crude for the measurements we want to make). The general rule against conflict of interest protects the person who properly relies on the judgment (or other service) of another. If such protection were sometimes to make people worse off *and* there were some other way to provide much the same protection without making the people involved worse off, would it not be reasonable to make an exception to the general prohibition? Would this not be like treating self-defense as an exception to the general prohibition of killing?

Consider our retired judge once more. Suppose she reasons in this way: “I could not have agreed to such an arrangement when I was a judge because the public as well as these two parties were relying on my judgment. My decision in the case would have been a precedent for others. Here there is no question of precedent, no one relying on my judgment but these two corporations. They have come to me because they trust me and because they want

to save money. They have not asked me whether I still own the stock. Obviously, they don't care. They trust me. If I were to sell off the stock now, I would lose a lot of money, much more than they are willing to pay for this job. So, I must keep the stock. I can, however, do the job fairly even if I own the stock. I'm quite sure of that. So, there's no reason why I should not accept the arbitration without further ado."

Is there anything troubling about the judge reasoning in this way? Certainly there is. The judge seems to be taking too much upon herself. She has decided that the reason the corporations did not ask about the stock is that they did not care about it rather than, say, that they forgot about it or expected the judge to inform them if she still owned it. She has also decided that she can arbitrate the case fairly even if she has a conflict of interest, rather than leaving that decision to those whose agent or trustee she is to be. She has decided what *they* will risk (and, however "sure" she is, there remains a reasonable chance that she is wrong). Her reasoning is, in a word, "paternalistic." She has assumed that it is morally permissible for one rational person (without the other's informed consent) to decide significant aspects of the other's life because she believes herself at least as able to judge such things as the other is.

It is easy to see what is wrong with our judge's reasoning. Each rational person wants to live according to his own conception of the good, not according to someone else's. We do not want people deciding what is best for us simply because they believe they know best. That is true even when they may in fact know best and their decision does not impose any significant risk of harm. How much more true when, as usually happens, they lack the information about us that we ourselves have and the decision would impose significant risks on us! Since it is something all rational persons would generally oppose, imposing risks on another rational person for that other's good but without the other's informed consent must in general be morally wrong.

It seems, then, that before our retired judge agrees to arbitrate the case, she should disclose her conflict of interest. Indeed, she should disclose *any* information that might cast doubt upon her ability to perform as the two parties would otherwise reasonably expect. She may advise them that she believes she can overcome the conflict (since she does believe that). But she must be sure that they are fully informed of what the conflict is and fully appreciate the risks of putting their case to an arbitrator laboring under such a disability. Only then can she be reasonably sure that, if they go ahead with the arbitration, the decision will be "theirs, not hers", that is, the result of their informed judgment, not in part the result of her not revealing information they would have found relevant. Disclosure has another benefit as well. It allows our judge to discuss with the two corporations ways to compensate for any bias she might have.

To sum up: You have a conflict of interest if a) you are in a relationship with another justifying that other's reliance upon the proper exercise of your

judgment (or proper performance of some other service) in that other's interest and b) you have an interest tending to interfere with the proper exercise of that judgment (or performance of that service). In general, conflicts of interest should be avoided or, if unavoidable, ended as soon as possible. In special cases, however, a conflict may be tolerated if tolerating it will benefit the person who is relying on the judgment in question, but then only if there is full disclosure to that person and that person intelligently consents to the relationship nonetheless. Disclosure does not end a conflict of interest. What it ends is the passive deception of allowing one's judgment (or other service) to appear more reliable than it in fact is.<sup>32</sup>

### C. Judges, Hardin, and James

If all this makes sense, it should not be hard to see what was wrong with what Hardin and James did. Let us begin with Hardin. Hardin initially gave his opinion on the interpretation of HG-605a in the friendly atmosphere of dinner with M&M executives. Such an atmosphere does not invite hard thought. We cannot know whether Hardin would have given a different opinion under other circumstances. Indeed, even he cannot know that. We can, however, reasonably conclude that his opinion *might* well have been different if, say, Hydrolevel executives had taken him to dinner first or had been present at the dinner with M&M executives. Having "gone on record" as accepting a certain interpretation of the Code, Hardin would have found it embarrassing to change his mind once the inquiry had been officially submitted in writing. His prior statement thus tended to undermine his ability to consider the written inquiry with the open mind he might otherwise have had. He had, in other words, a conflict of interest from the moment he first gave his opinion at dinner on a question likely to come before his committee. (Because giving one's opinion on a question tends to prejudice one's judgment thereafter, judges generally refuse to discuss any case that might come before them.) Hardin's helping to draft the inquiry may have strengthened further his feeling of owing M&M the opinion he gave at dinner. But, had he not written the response himself, his part in drafting the inquiry would hardly have seemed important.

What should Hardin have done about the conflict of interest once it developed? He could have declined to respond to the inquiry when Hoyt referred it to him, passing it on to his subcommittee (minus James) and leaving it to them to decide what to do with it without his participation. Or he could have informed Hoyt that he had already committed himself on the question informally (and helped to draft the inquiry), leaving to Hoyt the decision whether Hardin should participate. Had Hardin done either, no one would have had reason to doubt his integrity (and his employer might have been saved \$75,000).

Of these two alternatives, however, declining to participate seems much the better. Declining to participate resolves the problem altogether, while disclosing the problem to Hoyt simply makes it Hoyt's problem rather than Hardin's. Whenever there is a conflict of interest, there is someone ("the client")

entitled to rely on the judgment (or service) in question. Conflict-of-interest problems cannot be resolved by disclosure unless the disclosure is made to the client. Sometimes it takes some thought to determine who the client is (or, more often, who *all* the clients are). This is such a case. Who is Hardin's client here? The answer is not ASME—or, at least, not only ASME. ASME holds itself out as an authority on boiler safety. It invites the general public to rely on its safety codes and on the interpretations its committees make of them. And the public does rely on them. ASME, though not a governmental body, is still a "public agency," that is, an agency that purports to serve the public interest. So, Hardin's client (or at least one of his clients) is ultimately the general public. Had Hardin made full disclosure to Hoyt and Hoyt told him to go ahead, Hardin would still not have made full disclosure to his client. He would have allowed Hoyt to act for his (and Hoyt's) client. He would have treated Hoyt as trustee or guardian of the public interest. That may sometimes be necessary, for example, when revealing information to one client would do serious harm to another and withdrawing would do similar harm. (Not all paternalism is morally wrong.) But, given the ease with which Hardin could have escaped the conflict altogether (without any risk of harm to the public interest), it does not seem necessary or even desirable for him to have, in effect, allowed Hoyt to act for the public without the public's informed consent.

Identifying Hardin's (ultimate) client as the general public, not ASME (or M&M), also helps to explain why Hardin should have revealed more to the Professional Practices Committee than he did. The Professional Practices Committee, like Hardin's own Heating Boiler Subcommittee, was acting as trustee of the public, not simply as an agent of ASME. (That is so because ASME implicitly guarantees the integrity of its procedures when it invites the public to rely on its codes and committees.) The standard of disclosure was, then, *not* what was *customary within ASME* but what the *public might think relevant* (or what it was in the interests of the public to know) should it wish to evaluate the reliability of the ASME interpretation in question. Hardin should have revealed his meeting with M&M executives because the meeting *might* have looked suspicious to members of the public. He should not have kept that information to himself just because *he*—correctly—believed ASME officers would agree there was nothing inappropriate about it. The decision whether to trust his judgment was the public's, not his, because he invited their trust by answering the M&M inquiry in his capacity as chair of the Heating Boiler Subcommittee. For the same reason, he should have revealed his part in helping to prepare the original inquiry.

We may leave evaluation of James' conduct as an exercise for the student. Consider in particular the following questions: What (if anything) was wrong with *not* signing the original inquiry? What (if anything) was wrong with reporting to the full Heating and Pressure Vessel Committee the recommendation of his subcommittee concerning the Hydrolevel objection to Hardin's original response? What (if anything) was wrong with helping to draft the

letter of June 9, 1972? What (if anything) was wrong with failing to reveal those acts to the Professional Practices Committee? If there was anything wrong with any of these acts, what should James have done instead (while remaining a faithful employee of M&M)? Why?

#### IV. Four Problems Discussed

The four problems discussed in this section are all taken from opinions of the NSPE's Board of Ethical Review. There are *four* parties to the discussion. One is the BER itself. The other three are the authors of this text. One of the authors, Paula Wells, is a professional engineer and past regional national vice president of the NSPE. The other two, Hardy Jones and Michael Davis, are philosophers specializing in ethics. So, of the four parties to the discussion, two will speak as engineers and two as philosophers.

There is obviously substantial disagreement between the four parties (though there is substantial agreement too). That is no accident. The discussions are included here because the disagreements make them useful. The purpose of this section is to demonstrate *both* that ethical problems are not always open to mechanical solution *and* that there is a way to set about solving them. Each party to the discussion not only presents a solution to each problem; each also gives reasons for adopting that solution rather than any alternative. Some of the reasons are better than others. You should not, then, conclude that because there is disagreement among "authorities," no one's reasons are better than anyone else's and that you are therefore free to believe whatever you like. Keep in mind that most of the parties to this "discussion" did not have the opportunity to weigh each others' reasons. The BER published its opinions before any of the authors of this text read them. Hardy Jones commented without reading what the BER or Paula Wells had to say. Only Michael Davis had the advantage of reading everything. Perhaps if all had met together, they would have reached consensus. One cannot conclude that because there is disagreement before "reasoning together," there must be disagreement afterward too. One must expect disagreement until the weight of reasons clearly rests with one side. But there is no reason to believe that the weight of reasons will not favor one side or another, or that "reasoning together" will not reveal which side that is.

##### A. Stock Ownership<sup>33</sup>

*FACTS:* Engineer A is a partner in an engineering consulting firm which is engaged primarily in the design of electrical systems for clients. Prior to his entry into the consulting field, Engineer A had purchased 20 shares of stock in a company which manufactures electrical products of the type often specified by engineers. His interest in the manufacturing company represents less

than one-tenth of one percent of the total stock outstanding. . . . May Engineer A ethically specify the products of the electrical company in which he holds stock?

*BER:* [The Board referred to sections 8 and 8a of the 1954 Code. See Appendix B.] [We] start from the premise that the duty of the engineer under the Code is not only to avoid a clear conflict of interest, when possible, but also to avoid the appearance of impropriety. This requires a balancing of equities and the ethical obligation weighed against practical situations which may arise in fact circumstances where the conflict of interest arises beyond the control of the engineer.

In [this case], the potential or actual conflict of interest was theoretically present when Engineer A entered the field of electrical design, but not when he acquired the stock. The practical question, then, is whether he is ethically required to dispose of his stock in order to be ethically able to specify the products of the company in which he has a financial interest. If so, he may be required to suffer a financial loss depending on the state of the market at the time of his sale. In the alternative, may Engineer A ethically take the position that to avoid the conflict he will not specify the products of the company in which he holds stock? On this approach he may be doing his client a disservice if he truly believes that the products of that company are the best for the needs of the client.

It would be tempting to conclude that there is no "real" conflict of interest in this situation because the degree of financial gain to Engineer A by the specification of the products of the manufacturing company are so minimal in profit to him that his judgment would not be biased. We reject this rationalization, however, because it is impossible to define that degree of financial gain which would, in the mind of Engineer A, be so small as to not prejudice his decision. We recognize also that there is a subconscious motivation to support the business of a company in which a person holds a financial interest. . . .

Engineer A may not ethically specify the products of the electrical company in which he holds stock.

*JONES:* Engineer A may specify the products of the electrical company in which he holds stock. The mere fact of his holdings may constitute a minor threat to his independent judgment for clients, but it is far from clear that his judgment would be substantially undermined. He may not, however, design systems such that *only* the electrical products of his company are usable. If he were to do that, he would be engaging in unfair competition and exploiting his role as agent of his client. Engineer A would also be engaging in unfair competition and exploiting his role as agent if he made false claims—claims which he knew to be false—on behalf of the merits of the products of the company in which he holds stock.

An important factor that needs to be determined before the case can be most reasonably assessed is his motivation. What are his motives in specifying

particular electrical products? Does he specify them in order to make greater profits for himself? If so, then it seems clear that his conflict of interest could be severely detrimental to his clients and to others. Also, why did he agree to become a consultant? Did he do so because he knew that his position would enable him to improve his earnings through his electrical company holdings? If so, he is in a position of undermined professional judgment and should not be allowed to profit from the conflict of interest situation.

*WELLS:* It is considered common practice for an engineer to name several alternative manufacturers when specifying equipment or materials, providing the client's contractor the opportunity to choose between those which have been evaluated as "equals" in quality and performance. As a matter of fact, in Federal contracts this listing of alternative sources is a design requirement. It seems to me that if Engineer A has revealed his stock ownership to his client and then specifies the electrical products of that company as one of several equal alternatives, he is performing ethically. In fact, he really has an obligation to permit his client to seek competitive prices on equal products and obtain what he needs at the best price. Very rarely, and then only in the case where a patented process is involved, is it considered acceptable engineering procedure to specify a single manufacturer. Perhaps a problem will develop in his ability to evaluate objectively products of companies competitive with the one involving his own financial interest. Generally, however, a close examination of the manufacturer's own specifications and shop or product drawings permit a straightforward technical comparison.

It is apparent that interpretation of conflict of interest caused by ownership by engineers of various types of stock poses difficult questions. In my opinion, the concept of prohibiting an engineer from owning any stock whatsoever in a major industry whose products are utilized in engineering applications is not plausible. A problem does arise, however, in defining where such ownership constitutes opportunity for bona fide conflict of interest arising directly from personal gain. Consequently, I feel that for an engineer responsible for specifying products, ownership unburdened by resultant conflict of interest can only be guaranteed when the ownership is in a generic type of industry such as steel, timber, or Portland cement, where the product is sold to an intermediate company prior to being marketed to the engineer's client either for additional processing, reworking, refinishing, or assimilation into another finished product. Obviously, the engineer must not hold stock in this intermediate company.

*DAVIS:* It seems to be agreed that there is a conflict of interest here. Because Engineer A has an interest in a company manufacturing products he must often judge, he cannot guarantee that his judgment will be as reliable as it would have been did he not have that biasing interest. Hardy Jones considers the threat to Engineer A's reliability "minor." The BER and Paula Wells take it more seriously. I agree with them. I agree with them not because I know what effect the stock ownership will have. I do not (and indeed cannot)



know that. I agree with them because there is too much reason to be suspicious. Jones doubts that an engineer would, in effect, knowingly sell his or her soul for a mess of pottage. But he recognizes the possibility. The BER agrees and raises the added possibility of unconscious effects on judgment. We might also wonder why the engineer did not sell his stock. If the stock's value was not large, any loss suffered because of the forced sale would be correspondingly small. He should certainly be willing to pay such a small price to prevent any doubts arising about his professional integrity. If, on the other hand, the stock's value was great, so great that a forced sale would be a financial disaster for the engineer, then owning that stock is much more likely to influence his judgment. Our loyalty tends to follow our money.

It is because that is how we are that professionals in general make avoiding conflict of interest part of their various codes of ethics. When we hire professionals, we are entitled to get "faithful agents or trustees" (as the Code puts it). We should be able to rely on them without wondering whether their loyalty to us is being diluted by warm feelings for the stocks in their portfolio.

Paula Wells' suggestion that the problem would be resolved if Engineer A disclosed his conflict seems to me less than satisfactory. Disclosure would resolve the problem only if the disclosure permitted the client to compensate for what was disclosed. But, unless the client is a large corporation with engineers of its own to check Engineer A's work, or unless Engineer A is willing, say, to pay to have a second engineer check his recommendations whenever he recommends a product of the industry in which he owns stock, it is hard to see that disclosure will do much. The client will still have to rely on Engineer A's judgment—or get another engineer.

The problem also cannot be resolved by the engineer undertaking never to recommend the products of the company in which he owns stock. It may sometimes be in the client's interest to have those products recommended—just as it may sometimes be in her interest not to have them recommended. A client hires an engineer in part because she needs *him* to tell her which is which.

So, this is a conflict of interest that can only be resolved by selling the stock or leaving the field.

### **B. Ownership of Product Firm<sup>34</sup>**

*FACTS:* Firm A, an incorporated consulting engineering firm with five owners, offers the usual type of consulting engineering services to the public. The owners of Firm A, acting as individuals, organize a new and separate corporation (Company B) for the purpose of marketing several products used in the construction of engineering projects. The products are manufactured by a national company which contracts with Company B for the dealership rights to market its products in a specified geographical area. Company B is operated separately from Firm A by individuals other than the owners of Firm A, but under their general direction.

Firm A specifies by name the products of Company B in its specifications for a project which it designed, but with a provision that products of equal acceptability may be used. The relationship between the ownership of Firm A and Company B is made known to the owner of the project.

In a different but related situation, the principals of Firm A suggested to one of their clients that Company B has some products that the client may wish to use in a development, also disclosing to the client the relationship between Firm A and Company B. . . .

Is the relationship between the engineer-principals of Firm A and Company B a violation of the Code of Ethics? Is the method of operation between the two organizations a violation of the Code of Ethics?

*BER:* [The Board referred to sections 8 and 8a of the 1954 Code. See Appendix B.] The primary mandate of Section 8 is the injunction that the engineer shall endeavor to avoid a conflict of interest. The language of the Code recognizes that conflict of interest may, under some circumstances, be unavoidable, in which case full disclosure of the facts is required.

On the basis of the facts before us, we must conclude that the conflict of interest between Firm A and its clients, which is inherent in the relationship between the engineer-principals of Firm A and Company B, is avoidable.

Even though the engineer-principals of Firm A might be expected to specify only those products or equipment which are best suited to the needs of the client without regard to their proprietary interests in the products of Company B, there would be an unavoidable implication that their professional judgment might have been compromised, even if only by a subconscious process.

The engineer-principals of Firm A indicated their intention to avoid any question of conflict by use of the "or equal" clause, but this is slight protection for the client who may be expected to accept the judgment of the engineer with regard to a particular product in the usual case. The same objection applies to the use of "suggestions" to the client in favor of the products of Company B.

What we have said does not resolve all aspects of this type of conflict of interest problem. There are many situations in which the engineer may be the owner of an interest in a company which produces equipment or material which the engineer might specify in the normal course of his practice. In these situations a minimal or nominal degree of ownership may not represent a conflict of interest sufficient to influence or raise the inference of influence on the part of the engineer in specifying the equipment or material which he considers best for the interests of the clients. . . . Suffice it to say that when an actual or potential conflict of interest arises of which the engineer was unaware when he entered into his relationship with the client, his immediate duty is to disclose all the facts and circumstances to the client.

*JONES:* I see no wrongful conflict of interest in this case. There seems to be no good reason why the persons of Firm A and Company B should not benefit in ways they are seeking to benefit. Who is potentially harmed by what

they do? Other competitors may be "harmed," but not in ways that appear unfair to anyone, since Firm A does not in any way *require* (or seemingly even apply pressure on) their client to use the products of Company B. Moreover, the general public would be harmed only if Firm A had enormous power to have shoddy products of Company B used by their clients. In the absence of any evidence that this is the case, I see no reason not to allow Firm A and Company B to proceed as they wish. Nor do I know of any plausible theories of morality that would condemn either of the businesses. My opinion is that a code of ethics which restricts the freedom of businesses to enter into a relationship like that between Firm A and Company B should be revised.

**WELLS:** I disagree with Dr. Jones in this situation. It appears significant to me that the individuals who are owners of Firm A formed their new Company B for the specific purpose of marketing products in their own geographical area. As the Board points out, this is a deliberate decision with the natural expectation of financial gain. Moreover, I can only assume that the national company who chose to contract with Company B to market its product did so in anticipation that this arrangement could provide them with marketing advantages because of the complementary consulting engineering role of Company B's owners. My firm has been approached with this sort of proposed arrangement because of our "in" with a particular industry. We have seen an inherent conflict of interest and declined to participate. As the Board pointed out, this situation is definitely an "avoidable" opportunity for conflict of interest.

In response to Dr. Jones' comment that Firm A does not *require* (or seemingly even apply pressure on) their clients to use the products of Company B, I must point out that actual procedures in engineering practice often come to the same thing. When a single proprietary name is used in a specification, the "or equal" becomes an implied second choice. The client usually defers to his consulting engineer any final decision as to whether a product is considered "equal." The engineer has been retained, as Dr. Jones states, on the basis that he or she will perform as a competent independent judge. It is difficult for me to believe that the owners of Company B would not (rightly or wrongly) think their products to be superior in some way. If this were not what they thought, why, as experienced engineers, would they have concluded that they should form a new company to market these products?

Another difficulty in a situation of this type lies in the fact that the price for a specific construction product is rarely a separate item in a bid proposal but is usually included in the price for a specific element of the total construction. Because of this, it would be very difficult to determine if the products offered in competition to that marketed by Company B had a price advantage, even if the engineers did concede it was truly "equal." It is conceivable, I suppose, to break out the products in the price proposal, so that this unit cost comparison can be made, but in practice this is rarely done.

In conclusion, I agree with the Board that the relationship between the engineer-principals of Firm A and Company B is not ethical.

**DAVIS:** I agree with the BER and Paula Wells. To be a member of a profession is to hold oneself out as someone on whom others can justifiably rely in a way they cannot rely on an ordinary business person. The connection between Firm A and Company B seems to undercut our ability to rely on Firm A in that way. Disclosure of the conflict of interest to clients would reduce the damage—if it is done forcefully, for example, "When it comes to recommending the products of Company B, you should, of course, trust us about as much as you'd trust a used-car salesman." I doubt that Firm A's disclosure would be of that sort. Indeed, I would guess it would be more like an advertisement, for example, "We believe in this product so much that we are selling it. Trust it. We do." So, what we have here is a classic opportunity for Firm A, without even realizing what they are doing, to betray the trust their clients put in them, because of an undue commitment to the products they sell through Company B. Since this conflict of interest could easily have been avoided, it should have been. Since it is also easily escaped, it should be.

### **C. Binary Service to Same Client<sup>35</sup>**

**FACTS:** Engineers A and B are the sole partners in a consulting engineering firm. They also own and operate Water Services, Inc., a separate corporation. Water Services, Inc., has a management arrangement with a rural water district under which Water Services provides, on a regular full-time basis, such services as meter reading, billing, recommendations for maintenance and repairs, and other general management services, including recommendations from time to time for additions and improvements to the water system. The board of directors of the water district meets regularly and receives the reports and recommendations of Water Services, Inc. When the board approves recommendations from Water Services, Inc., for additions or improvements to the water system, it awards the engineering assignments for the required professional services to the consulting firm of A and B under the terms of a continuing contract.

Is it ethical for A and B to accept and perform professional engineering assignments for the water district which stem from the recommendations submitted by Water Services, Inc.?

**BER MAJORITY OPINION:** [The Board referred to sections 1, 1g, 8, 8a, and 8b of the 1954 Code. See Appendix B.] We cited sections 8 and 8b of the Code as being relevant to the issue of the case, although in the final analysis the primary question is whether Engineers A and B improperly used the management firm to promote work for the engineering firm and, if so, whether this arrangement was at the expense of the integrity of the profession under section 1g.

We note in passing, however, that a point can be made that the arrangement involved a potential conflict of interest which was avoidable, in that A and B were in a position through their management firm to make recommendations that were more for the benefit of their engineering firm than the water district. But we do not rest the result on section 8 in light of the discussion and conclusion in Case 71-6 to the effect that section 8a would not have been included in the Code if the framers had intended an absolute ban on avoidable conflicts of interest.

Likewise, section 8b is not conclusive of the issue because neither Engineer A nor Engineer B was a member or employee of the water district board, and was not an "advisor" in the sense of consulting with the board to guide the board in its decision-making responsibility. They merely offered their advice to the water board through the management firm as an outside organization under an arm's-length contract. On the basis of the facts available to us, we assume the water district board made an independent judgment to accept, reject, or modify the recommendations of the management firm. There is no showing of undue influence on the part of A or B in this relationship.

We come then finally to the controlling question of section 1g. On the face of the facts known to us there is no evidence that there was a collusive arrangement between the water district board and Engineers A and B to promote projects not warranted, or to limit deliberately the engineering design work to the one firm at unreasonable or improper fees.

There may well have been suspicion or doubt on the part of the public about the arrangement in that the water board had entered into what is referred to as a "continuing services" contract with one firm for all the work of the water district. We assume, however, that the water district board had authority to terminate that continuing contract with the engineering firm at any time it determined that the services were inadequate or unsatisfactory on either a technical or economic basis. Continuing service contracts are not unusual and often serve a proper need of clients who may require intermittent services on short notice, with the advantage of having agreed in advance on the general terms and conditions of the agreement. While we might speculate on a number of possible avenues of impropriety arising from this type of relationship in the public area, in the absence of facts to indicate such abuses we cannot reach a conclusion to prevent ethically the practice employed in this case.

It was ethical for A and B to accept and perform professional engineering assignments for the water district which stemmed from the recommendations submitted by Water Services, Inc.

**BER DISSENTING OPINION:** The discussion representing the views of the majority identifies the primary question in the final analysis as being "whether Engineers A and B improperly used the management firm to promote work for the engineering firm and, if so, whether this arrangement was at the expense of the integrity of the profession under section 1g."

The facts presented do not allow us to judge—one way or the other—whether A and B used the arrangement improperly; therefore, we can hardly accept this as the primary question. Moreover, had facts been presented to substantiate "improper use" there should be little doubt that such action would be at the "expense of the integrity of the profession." The question is not one of whether A and B abused the arrangement but rather whether the arrangement per se is a violation of the Code.

Since A and B were paid on a full-time basis to manage the water system and since the rural water district is presumably administered by a group of volunteer lay people who are not expected to be technically knowledgeable, one might suppose that the advice and recommendations of A and B would carry the force of authority with the water district board of directors. In addition, under the circumstances, it is most likely that in the eyes of the board and the local public, the individuals A and B were first and foremost engineers. They did not discard their professional identity when they sat as Water Services, Inc. Indeed, it was their technical competence as engineers which qualified them to manage the water system.

While we might speculate that A and B performed their binary responsibilities in an exemplary fashion, that they were able at all times to completely separate their dual roles so that their every decision was made without consideration of its effect on their other business interests, the facts do not speak to this. The total relationship between A and B and the rural water district is such that section 8b should be conclusive.

It was not ethical for A and B to accept and perform professional engineering assignments for the water district which stemmed from the recommendations submitted by Water Services, Inc.

**JONES:** Is the water district a public agency? *Could* other engineers do the work just as well? If both of these questions are answered "Yes," then I say "No" to the question asked in this case.

This is a clear conflict of interest, a too-cozy arrangement. Potential competitors—under a fair system of selection—are being hurt. The public may be hurt as well.

I believe what Engineers A and B do is wrong. But the water district is also to blame. They agreed to the exclusive contract. It appears to me that this sort of general practice should be forbidden. Once again, a public agency is involved, with the potential of great harm to a large number of people.

**WELLS:** I have ambivalent feelings about the decision of the Board, because I must admit I have been on "both sides of the fence," so to speak.

It is not uncommon for a public entity to retain the engineers designing their water or sewer facility to provide some sort of continuing services intended to insure proper operation. As designer of the system, the engineer possesses a unique knowledge that certainly can be utilized to the client's convenience and benefit. There appears to me, however, a point at which a public entity can become so dependent upon the engineer that it delegates too much decision making.

One aspect that concerns me about this situation is that Engineers A and B provided continuing services as a separate management firm, rather than as an extension of their engineering analysis and design services. This arrangement no doubt presents financial and liability advantages to the principals, but it is not typical of the way engineers normally provide continuing services to a client.

The facts of the case clearly state that the general management of Water Services, Inc., *include recommendations from time to time for additions and improvements to the water system*. The fact that the engineering contracts to perform the work related to these recommended additions and improvements were automatically awarded to Engineers A and B clearly signals ongoing potential for a significant conflict of interest.

It is well established that even if an opportunity is given to other engineers to present statements of interest and qualifications before a body to which one engineering firm provides continuing services, the engineering firm which has had the opportunity to make the initial recommendations leading to a request for proposals has the "inside track" to the job. Consequently, it is unrealistic to expect that Engineers A and B will not receive preferential consideration, if they are doing good work, even if they are made to line up with other qualified firms in an "impartial" selection process.

In some cases where federal funding is involved, the public body will be required by law to go through this selection process. Too often this procedure is a waste of time and money for the engineering firms competing against the "entrenched" engineers. The new firms represent an unknown quality of service, as well as a new set of names. Who is unethical here? It seems unethical to ask engineering firms to go through the charade of selection, when the conclusion is foregone.

In conclusion, I am not comfortable with the Board's decision but feel somewhat at a loss to take an absolute stand concerning the ethical behavior of Engineers A and B. There is certainly potential for conflict of interest and that potential is certainly avoidable. Other engineers providing similar services will maintain the entire situation is ethical. But those engineers who are frustrated in their efforts to gain an opportunity to prove their competence and effectiveness will strongly disagree.

*DAVIS:* The BER Majority has, I think, made a serious mistake here. But, at least they made it clearly. They assumed that the relationship between the rural water district and Water Services, Inc., is at "arm's length," a formal business arrangement like that between two large corporations or two ordinary business people. The reality is probably much more as both the BER Minority and Paula Wells suggest. The water district's board probably embraces Engineers A and B as trusted advisors. The relationship is certainly cozy. But is it, as Hardy Jones put it, "too cozy"?

The conflict of interest is evident. Engineers A and B, while sitting as Water Services, Inc., have an interest in recommending work which, as their engineering firm, they will make money doing. That interest exists even if the work

they recommend is not needed. The water board knows, or at least should know, that. But they are not likely to be technically sophisticated enough to protect against that danger. So, no amount of disclosure can ease the conflict of interest here. The only question is whether the conflict can (and should) be escaped.

We come then to the question whether there are other engineers who can do the jobs Engineers A and B now do when acting as an engineering firm. If there are other engineers who can do the job, then the conflict of interest can be avoided simply enough. Engineers A and B need only refuse to do the work they recommend. If, however, there are no other engineers who can do the jobs, then the water district has no choice but to use A and B, and the conflict of interest is in practice unavoidable. But there is still something Engineers A and B can do to reduce the appearance of a "too cozy" relationship. The division of liability between Water Services, Inc., and the engineering firm invites suspicion. Why this appearance of two entities when in reality there is only one engineering firm? Why not just contract with either Water Services, Inc., or the firm of Engineers A and B for both the routine services and the special work? If the relationship between the two engineers and the water district must be cozy, let it be officially so. I gather from what Paula Wells says that that is the ordinary practice. It seems to me to be a good practice.

#### **D. Membership on Public Agency<sup>36</sup>**

*FACTS:* John Doe, a civil engineer in private practice, is engaged principally in topographical survey work and the design of water and sewer facilities. He is an appointed member of a commission which controls and determines the issuance of water and sewer connection permits to private owners and developers. The commission's authority is of such a nature that its decisions have a decisive impact on land development projects and the construction of facilities of all kinds by private owners. While serving on the commission Doe undertook to perform extensive topographic survey work and the design of the water and sewer systems for a new private facility which had earlier received approval for necessary water and sewer connections from the commission while he was a member of the commission. In response to public criticism of an alleged conflict of interest on his part, Doe noted that he had abstained from the discussion and vote on the permit application.

*BER:* [The Board referred to sections 3, 8b, and 8c of the 1954 Code. See Appendix B.] We believe that the situation in this case is related to the question considered in Case 70-6 in which the engineer in private practice was a member of the state legislature which approved an appropriation for a project, following which the engineer had submitted his qualifications for the engineering work on the project to a local community which was the recipient of part of the appropriation. We said in reaching the conclusion in that case that the engineer could ethically perform the engineering services for the project,

that the controlling factor was that the award was made independently by the local community authorities, but recognizing that the local authorities could have been influenced in favor of the engineer because of his position in the legislature. But in that event, we added, ". . . such indirect influence is too remote to disqualify the firm. Otherwise, engineers in such situations could never be in a position to serve on public bodies."

The fact that Doe had abstained from the discussion and vote may indicate that he had not influenced or played any special role in the granting of the water and sewer permit for the facility on which he later provided some services. This was consistent with the mandate of section 8b, which we interpret to apply to actions of the governmental body both before and after services are provided.

In Case 69-13 we dealt with the related question of whether an engineer with a personal interest in certain land could properly provide services to a client for a water and sewer facility study which might lead to an increase in value in his land. We there held that in addition to full disclosure of his personal interest to the client, the engineer must go further to avoid the conflict of interest by either disposing of his land interest before undertaking the assignment, or if this is not feasible to decline to perform the services. We said in that case that we had reached a harsh result, but that it was necessary to go that far to avoid even an implication of an unethical conflict of interest.

Even though Doe had abstained from voting on the permit which opened the way for him to later provide services for his personal gain, there may still have been a conflict of interest if his relationship as a member of the commission could reasonably be construed as a factor in the granting of the permit or his later choice to perform the services on the project. Clearly, if he had not abstained from voting for the permit he could not ethically have engaged in work flowing from its issuance. And we would reach the same result even with his abstention if there was any showing to any degree that he had influenced the decision on the permit.

Section 8c does not apply directly to these facts because the contract obtained by Doe was from a private client, and not a governmental body. But in context it is pertinent to the principle here involved that an engineer may not personally profit from his service on a public body. Some very thin and difficult lines must be drawn in applying that principle lest we inadvertently hold that an engineer involved in work generally subject to public agency action may never serve on public bodies which even remotely relate to his general field of practice. A controlling fact on a case-by-case analysis may also entail the time frame between the action of a public body and the time the engineer later enters into private relationships made possible by the agency action.

In effect, then, the governing rule is that all of the circumstances must be such that reasonable persons will not conclude, or entertain the suspicion, that the action of an engineer on a public body was related to or intended to bring him personal profit. In the facts before us Doe was aware of a potential conflict

of interest and abstained from the discussion and vote. Further, it is not established that there was any showing to any degree that he had influenced the decision on the permit.

Conversely, if Doe had influenced the decision, even if for purely altruistic motives, he would then be obliged to refrain from providing any engineering services related to or flowing from the issuance of the permit. The Code enjoins engineers to perform public service, but the price in addition to the time and effort for the public service may also include the sacrifice of personal opportunities connected with such public service. If so, such sacrifice is but another cost of the recognition accorded by society to those who choose the path of professionalism.

It was ethical for Doe to perform the engineering and topographical survey work for a private client while serving on the commission when the water and sewer permits were issued.

*BER CONCURRING OPINION:* I agree with the other members of the Board that conflict of interest is not shown in the facts of this case and I certainly agree that engineers generally should be encouraged to membership on such boards and commissions, rather than discouraged from such membership; however it appears to me that this engineer should not serve on the commission. The facts indicate that a great deal of his work is contingent upon favorable decisions by the commission. Under these circumstances, allegations of conflict of interest are almost certain to arise, as they have in this instance, even if the engineer is completely blameless. Further, if he truly abstains from all discussions and decisions which may relate to his future work, then his effectiveness on the commission will be impaired. His involvement is simply too close. I believe that he should resign from the commission in order to conform with the mandate of [section] 3 of the Code.

*JONES:* Was Doe ethical in performing these services for a private client under the circumstances stated? My answer is, "Definitely not." The "appearance" of a conflict of interest is simply too near the reality (or so it appears). *No* member of the commission should do such work. Actually, Doe gives himself away. The facts state, "Doe noted that he had abstained from the discussion and vote on the permit application." If so, he was not doing his job as a member of the commission. Why did he abstain if he had not been planning to do the work? There are also obviously ways to influence the decision of a public agency that do not involve "discussion and vote" (for example, a smile to a friend on the commission or the general knowledge of who might benefit). Indeed, some of these ways are *as pernicious or more pernicious* than openly seeking to influence the outcome.

It seems clear that the public interest is not served well by Doe's actions, and it further seems obvious that his engineering competition would suffer unfairly.

*WELLS:* I personally find this situation very difficult to resolve, particularly because I have served as an appointive member of a municipal planning

commission where such situations occasionally developed. Due to the nature of my work, the situations did not involve me or my firm. However, there was another engineer on the commission who was in the land development business and who periodically did find himself faced with the same dilemma as Engineer Doe. It seemed to be very acceptable to the city administration, to the planning commission, to the press, and apparently to the general public, that this engineer refrain from participation in discussion or voting. As I recall, he generally elected to leave the room entirely. My personal feeling, however, is that some of the commission members, due to a long-time relationship with the engineer, felt some pressure to vote affirmatively for the projects.

Both the BER and Dr. Jones raise an interesting point about this case, one which did not occur to me during my membership on the municipal planning commission. Whenever Engineer Doe refrained from discussion or voting to avoid a conflict of interest, he was not fully fulfilling his responsibilities as a member of the commission. That would be especially true if his refraining resulted in an evenly divided commission unable to resolve the issue.

Because of this possibility, it appears to me that engineers who know that conflicts of interest will arise during their period of service on a public commission, should refuse such an appointment, unless the circumstances leading to the conflicts of interest can be removed or delayed beyond the term of service.

I believe that engineers bring much that is valuable to public bodies on which they serve, especially the application of orderly, logical problem-solving techniques. Consequently, I believe the potential for actual or apparent conflict of interest must be considered by each individual engineer considering such appointments, hopefully permitting him or her to participate in public decisions in an effective, but clearly ethical manner. Here the *appearance* of unethical conduct or questionable motive is the deciding factor.

DAVIS: This is a hard problem in part a) because there is some question whether the Code applies at all and b) because the Code does not directly address the problem even if it does apply. Let us begin with point a).

Engineer Doe is an appointed member of the commission. If he was appointed in part because he is an engineer, then clearly the Code applies. If, however, he was appointed for reasons having nothing to do with his profession, it seems that the Code can govern his conduct on the commission only insofar as what he does is, as section 3 puts it, "likely to discredit or unfavorably reflect upon the dignity or honor of the profession." Would his conduct on the commission be likely to discredit his profession? The BER answers no. Hardy Jones, speaking as an ordinary citizen, answers yes. Paula Wells, speaking as an engineer and former public official, comes close to answering "maybe." This disagreement shows that there is something important the "Facts" do not tell us. We do not know what the *community* expects of those it appoints to office. If the community takes it for granted that those it appoints may now and then have a conflict of interest that will have to be escaped by refusing to participate in the relevant deliberations, then having such

a conflict will not reflect on the dignity of the profession so long as the engineer does not participate in the relevant deliberations. If, however, the community expects its appointees to vote on every question and to arrange their private affairs so that no conflict of interest would interfere with their doing that, then having such a conflict *would* reflect on the dignity of the profession. Engineer Doe would have failed to do the job he was appointed to because he put his private business above the public interest he had sworn to serve.

What then should Engineer Doe have done? Here Wells' comments are suggestive. She notes that in her community there was no outcry from the "city administration, . . . planning commission, . . . press, . . . [or] general public" when the engineer she knew announced that he could not participate because of a conflict of interest. Full disclosure to the "client" is perhaps the best way (in a case like this) to find out what is expected of one. If the "client" does not object after fully appreciating the situation, the public official-engineer can serve without fear that what he does will discredit his profession. Section 8a of the former Code (like II.4(a) of the present Code) in fact required an engineer to make such disclosure to his clients. Should it also have required such disclosure to "clients" such as the public in this case? (Is there any similarity between the conduct in this case and the conduct that caused so much trouble in *Hydrolevel*?)

All that is, of course, premised on the assumption that the Code does not demand more of Engineer Doe than his "client" does. That does appear to be the situation here. Section 8b required Doe not to participate in considerations or actions with respect to services provided by him. He did not participate. Section 8c forbids him to solicit or accept an engineering contract from a governmental body on which a principal or officer of his organization serves as member. He did not do that either. Doe solicited work from a *private* contractor who had earlier received approval for the work from the commission on which Doe was then serving. What he did was two steps removed from what the Code forbids. First, the employer was private, not public. Second, Doe solicited the work only after the permit had been granted. The private employer could not give Doe the work in order to influence Doe's vote. Indeed, he did not owe the work to Doe's participation in the decision, because Doe did not participate.

Yet, there remains something troubling about Doe's position. Apparently, being two steps removed from the express prohibitions of the Code is not good enough. We know too much about the you-scratch-my-back-I'll-scratch-yours world of politics to feel comfortable given only the information contained in the "Facts." The "BER Concurring Opinion" fills in the facts one way and concludes that Doe should resign because he gets too much of his business from permits issued by the commission on which he serves. Hardy Jones fills in the facts another way and concludes that Doe should not serve on the commission because serving on it gives him unfair advantage over his competitors. Paula Wells and the BER fill in the facts in yet other ways and draw yet other

conclusions. Apparently, we cannot decide the professional ethics of Doe's action without making up our minds about the reasonableness, given local practice, of supposing that someone like Doe could influence a certain vote his way even if he walks out of the room when the item comes up on the agenda and remains outside until work on that item is completed. About all that can be said here is that in some places it would be reasonable to suppose that he could while in other places it would not be.

This is not to say that Doe has an actual conflict of interest. He escaped the conflict by excusing himself from the commission's deliberations. The problem that leads even the Concurring Opinion to suggest that Doe resign is that Doe's bare presence on the commission may create a conflict of interest *for his fellow commissioners*. Unfortunately, we are not told enough for us to determine whether our suspicions are sufficiently well-grounded. We are left with the question: Are the circumstances questionable enough to constitute at least an *apparent* conflict of interest (for Doe's fellow commissioners) so that Doe has a duty to resign just to "keep up appearances"? Must Doe resign to avoid doing anything that could (reasonably be expected to) reduce the respect people have for engineers as members of a profession?

Such questions are, I admit, not a satisfactory answer to the questions Doe's case raises. But it does not now seem possible both to be true to the facts and to give a better one. That that is so tells us something both about the limits and importance of a professional code.

We may, I think, best understand the organizing of a profession as an attempt by those with a specific skill or knowledge to establish certain justified expectations about how people with that skill or knowledge will conduct business. In general, what professionals want is to be able to make a decent living without undue pressure to do anything legally or morally improper. A code can help do that by assuring each professional that he will not be at a competitive disadvantage if he acts as he thinks right. The code shows that his fellow professionals agree with him on what the standards of right conduct are and are also committed to disciplining (or at least picking out for condemnation) those who do not follow them.

But, like all other human achievements, professional codes are imperfect. They are likely to be either so general that they give little guidance in hard cases, or so specific that many hard cases are not covered at all, or too general in some respects and too specific in others. They may also contain provisions which in fact are morally *improper*. When a professional finds herself faced with a problem her profession's code does not cover adequately, all she can do is try to determine what people are justified in expecting of her and maintain that minimum standard hoping her fellow professionals will do the same. If she comes to believe that they do not see things as she does and that she is at a competitive disadvantage because of that, she should also seek to have the code amended to provide more guidance. What the questions I asked earlier

suggest to me is that a change in the NSPE Code may in fact be the only fully satisfactory way to answer the questions raised by Doe's bare membership on the commission.

## V. Other Problems for Discussion

All the problems in this section have a conflict-of-interest dimension. But, like most practical problems, they have other dimensions as well. Considerations of loyalty, honesty, cost, law, and the like may also be relevant in determining what should be done. All but one of the problems presented are based on inquiries submitted to the NSPE's Board of Ethical Review during the last twenty years. They represent a sample of problems that practicing engineers have found perplexing enough to require outside advice and that the BER has found interesting enough to deserve formal answer. You may find the NSPE's current Code of Ethics (or the somewhat different codes of other engineering societies or of the NSPE at an earlier time) helpful in identifying relevant considerations. (See, for example, Appendices A through D.) But you should not consider your work done until you have found an argument for your own resolution that could convince any rational person. (That the NSPE's Code or the BER says such-and-such is, of course, not itself such an argument.)

Your preparation of arguments may benefit from reading the relevant opinions of the BER. These are often thought-provoking and always attuned to the practicalities of engineering. For that reason, all problems drawn from BER inquiries include the BER citation. (The number to the left of the hyphen is the year the inquiry was answered—for example, "84" for "1984"—while the number to the right indicates the place that answer had in the sequence of answers issued as formal opinions in that year.) You are, however, cautioned to remember that the facts of some problems have been changed somewhat for editorial reasons. The changes may affect how the problem should be resolved. You are also reminded that some of the opinions were written under a substantially different code and that the concepts of engineering ethics are not yet so settled that the reasoning of even the BER ten or five years ago necessarily corresponds to what the BER would (or should) say today.

**PROBLEM 1: Gifts to Engineers (81-4).** You are an employee of a consulting engineering firm which does extensive design work for private developers. You help prepare lists of contractors to be considered by developers for construction of substantial projects. Usually, the contractors your company recommends get most of the contracts of the developers. The officers of the contracting firm have, over the years, developed close business and personal relations with you and the other engineers in your firm. This Christmas several of them chipped in to give you and the other engineers in the firm substantial presents. You, for example, were given a handsome clock.

Should you and your fellow engineers accept such gifts? Does it matter whether all the contractors you deal with cooperated in such gift-giving or only some? If you decide to accept the gift, should you disclose it to your employer? To anyone else? If you decide you should refuse the gift, what should you tell the contractors? Is refusing the gift enough? (After all, you now know who cared enough to give you something and who did not.)

**PROBLEM 2: Free Engineering (72-2).** AB is a sales engineer for the XYZ Company. XYZ manufactures and sells terminal units used in heating, ventilating, and air-conditioning systems. (A terminal unit determines the final temperature control in an air-conditioned space.) AB offers you, a consulting engineer, "free and without obligation" a computerized design developed by XYZ for complete air-distribution systems. The computer printout specifies not only terminal units but also duct size, duct fittings, air quantities, static pressure, noise levels, sound absorption, and insulation requirements. The printout would be based on information you supplied. Such "free engineering" would, of course, be quite useful to you.

Should you accept such free engineering? Does it matter to your answer whether the printout merely specifies the *kind* of equipment to be used, leaving it to you to choose the brand, or whether it specifies brand as well? If you choose to use XYZ's computerized design, what (if anything) should you tell your clients? Why?

**PROBLEM 3: A Relative's Interest (66-5).** You are the city engineer of Big Prune. Your duties include review of plans and specifications prepared for developers of housing projects. Your wife has an investment in one of the development companies operating in Big Prune (but takes no part in the company's affairs). Plans for one of her company's projects have been submitted to you for review (in your capacity as city engineer) before being submitted to the city council. What should you do? Your wife's investment in the project is not known to any city official (or to the general public) but is, of course, known to you. Would you have been better off if you had not bothered to find out what your wife's investments were?

**PROBLEM 4: Fee Dependent on Costs (76-11).** The state highway commission undertook the design of a major bridge using its own personnel because it supposed an in-house design (and related services during construction) would save the state thousands of dollars over contracting out the design (and related services during construction). After completion of the in-house design but before asking for bids on construction, a private engineering firm with extensive experience in bridge design contacted the commission to urge the use of that firm for design and related services during construction, arguing that use of the firm's expertise would lead to a saving in construction costs exceeding the fee to be paid the firm. In support of its position, the engineering firm offered to perform its services without payment of any fee if its design did not save the state the amount of the fee because of reduced construction costs.

After considerable debate, the commission decided to enter into a contract with the engineering firm. The proposed contract would provide in part that if the lowest acceptable construction bid on the engineering firm's alternative bridge design was not less by at least five percent than the construction bid for the state's design, the commission in its sole discretion could declare the contract null and void and owe the engineering firm nothing for its services. The contract further stipulated that alternative bids would be taken on the basis of the in-house design and the engineering-firm's design. The engineering firm indicated its willingness to sign the contract. But some engineers have complained. The complaints concern both the method of solicitation and the terms of the contract itself.

You are a member of the committee your engineering society has assigned to investigate these complaints. The committee has identified a number of possible ethics issues, assigning one to each member. You are to identify and evaluate any possible conflicts of interest the contract may involve. What would you report back to the committee? Did the engineering firm do anything wrong?

**PROBLEM 5: Contingent Contract (77-12).** You are a consulting engineer practicing primarily in the field of industrial product design for clients. Boo-Boo Manufacturing Company has asked you to review an amplifier design the company has developed. The design has so far not produced an acceptable amplifier. The company is under pressure to deliver a final model to a customer within three months. You spend a few days reviewing the Boo-Boo design and make several recommendations to improve it. You are paid your usual per diem rate, as earlier agreed. Then Boo-Boo tells you that it will need more help to make the amplifier acceptable in time and proposes to retain you for further work, but under different terms. Boo-Boo wants to pay you a fee for the additional service *only* if the amplifier, as a result of your assistance, meets the company's requirements. Should the amplifier not prove acceptable, Boo-Boo would pay you only your out-of-pocket expenses (for example, travel, lodging, and computer time). Would it be ethical for you to enter into such an arrangement?

**PROBLEM 6: A Favor For the Boss.<sup>37</sup>** You are one of several hundred engineers working in a large construction firm. Right now you are responsible for drafting bidding specifications for a small part of a \$17,000,000 hospital, the ventilation ducts for rooms (for example, operating rooms) that must remain "clean." One morning your boss's assistant calls up with a request. The boss (he says) would like you to write the specifications so that only one manufacturer, Kwickleen, will be able to meet them. You're quite surprised. You didn't know that Kwickleen even made the equipment in question. Further discussion reveals, however, that Kwickleen has just entered the field, that your boss is impressed by their product, and that she feels she owes Kwickleen a favor. "Can you put that request in writing?" you ask. "No need," is the answer. What should you do now? Do as the assistant asks? Insist on hearing



it from the boss? Refuse outright? What could be unethical about doing as your boss asks? Would it matter that, upon examining Kwickleen's ventilation system, you found it satisfactory?

**PROBLEM 7: Favoritism (77-9).** You were an engineer in partnership with Richard Jones. On May 10th, you sold your interest in the partnership to Jones and a day later accepted appointment as county director of public works. A few days later (and quite to your surprise) Jones sold your former firm to Octopus Enterprises, Inc., and became an officer of the corporation. It is now May 20th. You have tentatively decided to award an important engineering contract to Octopus. Would there be anything wrong if you did?

**PROBLEM 8: Recommending Former Firm (80-5).** You retired from Smash-Bang Engineers two years ago. You sold your interest in the firm, taking 25% down with the balance to be paid over five years out of the income or capital of the firm. Since retiring, you have offered your services to various clients as an "advisory consultant"—one who is not involved in design or planning but rather assists clients in making decisions. One of your responsibilities is to help clients select a consultant to do design work. You are now involved in interviewing consulting firms for a private client who is considering retaining Smash-Bang. You have informed your client of your previous interest. You have also informed him of the continuing interest represented by the debt Smash-Bang still owes you. And you have recommended Smash-Bang be retained. Have you done anything unethical? Would your answer be any different if your client were a *public* agency instead?

**PROBLEM 9: Former Public Employee (80-6).** Jane Plot, a landscape architect, while employed by a city, prepared a general plan for the development of a city park. Implementation of the plan would involve a mixture of engineering, architecture, and landscape architecture. Soon after preparing the plan, Plot accepted a job with your architecture and engineering firm. Like many other firms, yours submitted qualifications for the park development project Plot had designed. The city selection board placed your firm on the "short list" along with two others and granted an interview at which you proudly pointed out, among the qualifications of your firm, that Plot was in your employ, stressing her expertise in landscape architecture generally and her special familiarity with the particular project. Your firm was eventually selected for the project. The members of the selection board noted that one of the major factors in the selection of your firm was its employment of Plot, who would be assigned to implement the project. You were overjoyed—until Firm X, one of the other firms on the "short list," objected to your firm's selection because Plot's involvement created "undue influence" on the selection commission. Did you do anything you should not have done (for example, create a conflict of interest for the selection board)?

**PROBLEM 10: Using Client Loyalty (81-3).** Engineer Tuff, a vice president of a firm engaged in international engineering work through a wholly owned subsidiary, was placed in charge of the subsidiary. His responsibilities

included developing new business. He spent several years in that capacity and, while overseas, developed personal contacts with many foreign agencies and their representatives. Engineer Tuff was moderately successful in these endeavors. In due course, he reported that he had arranged a very large and desirable contract. According to the practice of the foreign country, the subsidiary had to post a form of security for the advance through furnishing a letter of credit payable to the foreign agency in the event the firm defaulted. This was arranged and work proceeded under the contract.

Later, Tuff demanded of the parent firm that he be promoted to its presidency. If not promoted, he vowed, he would have that large and desirable contract taken from the subsidiary and awarded to another firm which he would establish. The officers of the parent firm are convinced that, because of the personal relationships he developed with the foreign agency, Tuff could have the contract terminated and awarded to another firm. Termination of the contract would constitute a severe financial blow to the parent company.

There are, perhaps, many reasons why Engineer Tuff should not do what he proposes to do. Do any of those reasons involve conflict of interest? (Consider, for example, what would happen if Tuff's method of gaining promotion became common. Would the fact that such a demand could later be made have any effect on how an engineer might negotiate a contract for his employer? Might he, say, not be tempted to include provisions in a contract he otherwise would not have included, provisions that might be disadvantageous to his employer but likely to win favor with a client on whom he might have to rely should he ever decide to do what Tuff did?) Are any of the potential conflicts of interest matters of *engineering* ethics? Is Engineer Tuff "acting in a *professional* matter" rather than simply as a business person who is also an engineer? Does it matter to your answer that the parent firm is also an engineering firm?

## Notes

1. These are published in batches several times a year in *P.E. Professional Engineer*, the official publication of the NSPE. These opinions have also been collected (up till 1976) in four volumes under the title *Opinions of the Board of Ethical Review* (Washington, D.C.: National Society of Professional Engineers).
2. *ASME v Hydrolevel* (1982). The full citation for this and the other case mentioned below are included in the bibliography.
3. *ASME v. Hydrolevel*, p. 559.
4. U.S. Senate (1975, p. 173).
5. *Ibid.*, p. 174.
6. *Ibid.*, pp. 176 and 184-5.
7. *ASME v. Hydrolevel*, pp. 561-2.
8. *Ibid.*, p. 563.
9. The critical sentence reads: "If a means for retarding control action is incorporated in a low-water fuel cutoff, the termination of the retard function must operate to cutoff the fuel supply before the boiler level falls below the visible part of the water gauge glass." That sentence replaced: "It should be carefully noted that regardless of the design of any automatic low water cutoff, the intent of the first sentence in paragraph HG-605(a) is that such low water fuel cutoff devices function so that the fuel supply shall be actually stopped when the surface of the water falls to the lowest visible part of the water gauge glass." U.S. Senate (1975, p. 188 and *Hydrolevel v. ASME*, p. 130). If (as it seems) there is no important difference (but clarity) between these two sentences, why should anyone be concerned about James' part in substituting one for the other?
10. Meyer (1974, p. 44).
11. U.S. Senate (1975, p. 213).
12. *ASME v. Hydrolevel*, p. 564.
13. It is perhaps worth pointing out that this *is* a controversial assumption. The appellate court described Hardin's conduct as "fraud, a willful and knowing misrepresentation of the Code." *Hydrolevel v. ASME*, p. 125. And the legal counsel for the American National Standards Institute lumped James with Hardin as "two renegades." Rockwell (1983, p. 5). On the other hand, in 1975 ASME claimed there was nothing to what Hardin and James did beyond the mere "appearance of wrongdoing." Rueth (1975, p. 36). That also seems to be ASME's position today. Beardsley (1984, pp. 72-73) and Rockwell (1983, p. 4).
14. U.S. Senate (1975, p. 179).
15. *Hydrolevel v. ASME*, p. 123.
16. *ASME v. Hydrolevel*, p. 559; and Beardsley (1984, p. 72).
17. Perry (1982, p. 53).
18. Compare U.S. Senate (1974, p. 214) where ASME's attorney (Mr. Stanton) makes a similar point.
19. *Ibid.*, p. 205.
20. *Ibid.*, p. 175.
21. *Ibid.*, p. 211.
22. *Ibid.*, p. 206.
23. *Ibid.*, p. 210.
24. *Ibid.* Compare James' comment, p. 190.
25. *Ibid.*, p. 211.
26. In what follows, we shall use the current Code of Ethics (Appendix A). The relevant provisions are similar to those of the Code in force during 1971-2 in most relevant respects (though the format is much different). (See Appendix B.) It is

perhaps worth pointing out here that even the current Code, for all its refinements, has yet to be accepted by some major engineering societies. The American Association of Engineering Societies (AAES) has proposed a much briefer alternative (September 1, 1982), but not all the specialized societies have accepted it. (See also Appendix C for the ASME code in effect when *Hydrolevel* was developed and Appendix D for the Code adopted in its wake.)

27. U.S. Senate (1974, pp. 192 and 211-2); and *Hydrolevel v. ASME*, p. 126.
28. See *ASME v. Hydrolevel*, p. 571 n. 8 for evidence that James' employer thought James so influenced (or, at least, was willing to defend James' unpaid activities within ASME on that basis).
29. U.S. Senate (1974, p. 211).
30. There is a family of consequentialist views called "rule utilitarianism" which holds that one should generally follow rules ("rules of thumb", "prima facie rules," or the like) rather than always decide how to act by considering the consequences case by case. The idea is that the rules should be designed so that generally following them maximizes good consequences in the long run. We may ignore this refinement because all forms of rule utilitarianism either fit the definition of moral rules given here or suffer from the same lack of information about consequences as any other attempt to determine what Hardin and James did wrong solely by considering the consequences of their acts. See Lyons (1965).
31. The assumption that engineers can, as moral agents, only be bound by a code insofar as it is itself interpreted in a way consistent with morality may, however, not be altogether uncontroversial. See, for example, Goldman (1980) who argues that some professionals (for example, judges) are exempt from certain moral constraints while acting in their professional capacity. (Note, however, that Goldman does not argue that engineers are exempted in this way.)
32. For a more extensive statement of this analysis, see Davis (1982).
33. *Ibid.*, BER Case 69-13.
34. *Ibid.*, BER Case 69-8.
35. *Ibid.*, BER Case 78-3.
36. *Ibid.*, BER Case 75-7.
37. This case is adapted from American Society of Mechanical Engineers, *Ethics and the Engineer Audiovisual Presentation*, "Segment Two: Conflict of Interest," November, 1984. The conflict of interest presented here is not very realistic. In practice, such conflicts are likely to arise far more subtly in situations far more ambiguous. The engineer might not even be sure that she has been "given to understand" that a certain outcome might be received more favorably than others. Look again at the account of Hardin's involvement with M&M, especially p. 3, for a more realistic example of how an engineer's judgment might be taken captive.

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Philosophical discussion of underlying principles of liability. Interesting here as example of what conclusions can be drawn concerning the acts of participants in *Hydrolevel* case if one does not begin (as we have) by assuming their motives to have been good.
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1974 "Knocking the Competition: How Rival's Use of 'Industrial Code' Report Created Problems for a Tiny Company," *Wall Street Journal* 184 (July 9): 44.  
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- Rueth, Nancy.  
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Interprets events through middle of 1975 as involving only "the appearance of wrongdoing." Interesting as evidence that ASME did not then understand the conflict-of-interest issue even after the Senate subcommittee raised it.
- Shuchman, Hedvah L.  
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Defense of voluntary standard setting in light of *Hydrolevel*.
- U.S. Senate.  
1975 *Voluntary Industrial Standards: Hearing Before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary*, 94th Cong. 1st. Sess.:153-214.  
Surprisingly revealing and dramatic. Contains most of what is known about the events that became *Hydrolevel* and also gives sense of the main participants as human beings.

### Legal Cases

*American Society of Mechanical Engineers, Inc. v. Hydrolevel Corporation* 456 U.S. 556, 72 L. Ed. 2d. 330, 102 S. Ct. 1935 (1982).

The Supreme Court's analysis of what happened.

*Hydrolevel Corporation v. American Society of Mechanical Engineers, Inc.* 635 Fed. 2d. 118 (1980).

The appellate court decision which was appealed to the Supreme Court.

### II. Conflict of Interest

Bayles, Michael D.

1981 *Professional Ethics* (Belmont, Calif.: Wadsworth Publishing Company), pp. 77-83.

Good general introduction to professional ethics. Intelligent discussion of conflict of interest with some references to engineering.

Davis, Michael.

1982 "Conflict of Interest," *Business and Professional Ethics Journal* 1(4): 17-27.9

Provides a general analysis of conflict of interest and criticism of Margolis (1979).

Kipnis, Kenneth.

1986 "Conflict of Interest: Conceptual and Ethical Issues," *Ethics and the Legal Profession*, Michael Davis and Frederick Elliston (eds.) (Buffalo, N.Y.: Prometheus Books), pp. 285-300.

Margolis, Joseph.

1979 "Conflict of Interest and Conflicting Interests," *Ethical Theory and Business*, Tom L. Beauchamp and Norman B. Bowie (eds.) (Englewood Cliffs, N.J.: Prentice-Hall), pp. 161-172.

Argues that conflict of interest requires conflict between roles.

Rotunda, Ronald D.

1977 "Law, Lawyers, and Managers," in *The Ethics of Corporate Conduct*, Clarence Walton (ed.) (Englewood Cliffs, N.J.: Prentice-Hall), pp. 127-145.

Gives good sense of the conflicting expectations likely to undermine independent judgment in a large corporation. Though concerned with lawyers and managers, analogy with engineers is quite easy to see.

### III. Ethical Theories

Brandt, Richard B.

1959 *Ethical Theory* (Englewood Cliffs, N.J.: Prentice-Hall).

Chapter Eleven provides a relatively readable criticism of ethical relativism.

Davis, Michael.

1986 forthcoming "The Moral Authority of a Professional Code," *NOMOS XXIX: Authority Revisited*, J. Roland Pennock and John W. Chapman (eds.) (New York: New York University Press).

Provides a general theory of professions explaining the moral claims professional codes seem to have on members of the profession.

Gert, Bernard.

1970 *The Moral Rules* (New York: Harper).

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Goldman, Alan H.

1980 *The Moral Foundations of Professional Ethics* (Totawa, N.J.: Rowman and Littlefield).

Important discussion of professional ethics generally.

Kant, Immanuel

1785 *Foundations of the Metaphysics of Morals*. Translated by Lewis White Beck. Robert Paul Wolff (ed.) (Indianapolis: Bobbs-Merrill Co., 1969).

Difficult deontological classic which emphasizes "universalizability" test for rightness of one's conduct.

Lyons, David.

1965 *Forms and Limits of Utilitarianism* (Oxford: Oxford University Press).

Good survey of various kinds of consequentialism. Important but difficult.

Mackie, J. L.

1978 *Ethics: Inventing Right and Wrong* (New York: Penguin).

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Mill, John Stuart.

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A classic statement of a leading form of consequentialism.

Ross, W. D.

1930 *The Right and the Good* (Oxford: Oxford University Press).

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Sartorius, Rolf.

1975 *Individual Conduct and Social Norms* (Encino, Calif.: Dickenson).

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Singer, Peter.

1979 *Practical Ethics* (Cambridge: Cambridge University Press).

Chapter 1 gives a fairly nontechnical defense of a generally consequentialist approach to ethical problems. (Most of book consists of applications of that approach.)

# Appendix A

## CODE OF ETHICS

### For Engineers



#### PREAMBLE

Engineering is an important and learned profession. The members of the profession recognize that their work has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness and equity, and must be dedicated to the protection of the public health, safety and welfare. In the practice of their profession, engineers must perform under a standard of professional behavior which requires adherence to the highest principles of ethical conduct on behalf of the public, clients, employers and the profession.

#### I. FUNDAMENTAL CANONS

1. Hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act in professional matters for each employer or client as faithful agents or trustees.
5. Avoid improper solicitation of professional employment.

#### II. RULES OF PRACTICE

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.
  - a. Engineers shall at all times recognize that their primary obligation is to protect the safety, health, property and welfare of the public. If their professional judgment is overruled under circumstances where the safety, health, property or welfare of the public are endangered, they shall notify their employer or client and such other authority as may be appropriate.
  - b. Engineers shall approve only those engineering documents which are safe for public health, property and welfare in conformity with accepted standards.
  - c. Engineers shall not reveal facts, data or information obtained in a professional capacity without the prior consent of the client or employer except as authorized or required by law or this Code.

- b. Engineers shall not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed to, and agreed to, by all interested parties.
- c. Engineers shall not solicit or accept financial or other valuable consideration, directly or indirectly, from contractors, their agents, or other parties in connection with work for employers or clients for which they are responsible.
- d. Engineers in public service as members, advisors or employees of a governmental body or department shall not participate in decisions with respect to professional services solicited or provided by them or their organizations in private or public engineering practice.
- e. Engineers shall not solicit or accept a professional contract from a governmental body on which a principal or officer of their organization serves as a member.

5. Engineers shall avoid improper solicitation of professional employment.

- a. Engineers shall not falsify or permit misrepresentation of their, or their associates', academic or professional qualifications. They shall not misrepresent or exaggerate their degree of responsibility in or for the subject matter of prior assignments. Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint venturers or past accomplishments with the intent and purpose of enhancing their qualifications and their work.
- b. Engineers shall not offer, give, solicit or receive, either directly or indirectly, any political contribution in an amount intended to influence the award of a contract by public authority, or which may be reasonably construed by the public of having the effect or intent to influence the award of a contract. They shall not offer any gift, or other valuable consideration in order to secure work. They shall not pay a commission, percentage or brokerage fee in order to secure work except to a bona fide employee or bona fide established commercial or marketing agencies retained by them.

- d. Engineers shall not permit the use of their name or firm name not associate in business ventures with any person or firm which they have reason to believe is engaging in fraudulent or dishonest business or professional practices.
- e. Engineers having knowledge of any alleged violation of this Code shall cooperate with the proper authorities in furnishing such information or assistance as may be required.

2. Engineers shall perform services only in the areas of their competence.
  - a. Engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved.
  - b. Engineers shall not affix their signatures to any plans or documents dealing with subject matter in which they lack competence, nor to any plan or document not prepared under their direction and control.
  - c. Engineers may accept an assignment outside of their fields of competence to the extent that their services are restricted to those phases of the project in which they are qualified, and to the extent that they are satisfied that all other phases of such project will be performed by registered or otherwise qualified associates, consultants, or employees, in which case they may then sign the documents for the total project.
  3. Engineers shall issue public statements only in an objective and truthful manner.
    - a. Engineers shall be objective and truthful in professional reports, statements or testimony. They shall include all relevant and pertinent information in such reports, statements or testimony.
    - b. Engineers may express publicly a professional opinion on technical subjects only when that opinion is founded upon adequate knowledge of the facts and competence in the subject matter.
    - c. Engineers shall issue no statements, criticisms or arguments on technical matters which are inspired or paid for by interested parties, unless they have preferred their comments by explicitly identifying the interested parties on whose behalf they are speaking, and by revealing the existence of any interest the engineers may have in the matters.
    4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees.
      - a. Engineers shall disclose all known or potential conflicts of interest to their employer or clients by promptly informing them of any business association, interest, or other circumstances which could influence or appear to influence their judgment or the quality of their services.

#### III. PROFESSIONAL OBLIGATIONS

1. Engineers shall be guided in all their professional relations by the highest standards of integrity.
  - a. Engineers shall admit and accept their own errors when proven wrong and refrain from distorting or altering the facts in an attempt to justify their decisions.
  - b. Engineers shall advise their clients or employers when they believe a project will not be successful.
  - c. Engineers shall not accept outside employment to the detriment of their regular work or interest. Before accepting any outside employment they will notify their employers.
  - d. Engineers shall not attempt to attract an engineer from another employer by false or misleading pretenses.
  - e. Engineers shall not actively participate in strikes, picket lines, or other collective coercive action.
  - f. Engineers shall avoid any act tending to promote their own interest at the expense of the dignity and integrity of the profession.
  2. Engineers shall at all times strive to serve the public interest.
    - a. Engineers shall seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of their community.
    - b. Engineers shall not complete, sign, or seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards. If the client or employer insists on such unprofessional conduct, they shall notify the proper authorities and withdraw from further service on the project.
    - c. Engineers shall endeavor to extend public knowledge and appreciation of engineering and its achievements and to protect the engineering profession from misrepresentation and misunderstanding.
    3. Engineers shall avoid all conduct or practice which is likely to discredit the profession or deceive the public.
      - a. Engineers shall avoid the use of statements containing a material misrepresentation of fact or omitting a material fact necessary to keep statements from being misleading; statements intended or likely to create an unjustified expectation; statements containing prediction of future success; statements containing an opinion as to the quality of the Engineers' services; or statements intended or likely to attract clients by the use of showmanship, puffery, or self-

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(Continued)

laudation, including the use of slogans, jingles, or sensational language or format.

b. Consistent with the foregoing, Engineers may advertise for recruitment of personnel.

c. Consistent with the foregoing, Engineers may prepare articles for the lay or technical press, but such articles shall not imply credit to the author for work performed by others.

4. Engineers shall not disclose confidential information concerning the business affairs or technical processes of any present or former client or employer without his consent.

a. Engineers in the employ of others shall not without the consent of all interested parties enter promotional efforts or negotiations for work or make arrangements for other employment as a principal or to practice in connection with a specific project for which the Engineer has gained particular and specialized knowledge.

b. Engineers shall not, without the consent of all interested parties, participate in or represent an adversary interest in connection with a specific project or proceeding in which the Engineer has gained particular specialized knowledge on behalf of a former client or employer.

5. Engineers shall not be influenced in their professional duties by conflicting interests.

a. Engineers shall not accept financial or other considerations, including free engineering designs, from material or equipment suppliers for specifying their product.

b. Engineers shall not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with clients or employers of the Engineer in connection with work for which the Engineer is responsible.

6. Engineers shall uphold the principle of appropriate and adequate compensation for those engaged in engineering work.

a. Engineers shall not accept remuneration from either an employee or employment agency for giving employment.

b. Engineers, when employing other engineers, shall offer a salary according to professional qualifications and the recognized standards in the particular geographical area.

c. Engineers in sales employment shall not offer, or give engineering consultation, or designs, or advice other than specifically applying to the equipment being sold.

7. Engineers shall not compete unfairly with other engineers by attempting to obtain employment or advancement or professional engagements by taking advantage of a salaried position, by criticizing other engineers, or by other improper or questionable methods.

10. Engineers shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

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

b. Engineers using designs supplied by a client recognize that the designs remain the property of the client and may not be duplicated by the Engineer for others without express permission.

c. Engineers, before undertaking work for others in connection with which the Engineer may make improvements, plans, designs, inventions, or other records which may justify copyrights or patents, should enter into a positive agreement regarding ownership.

d. Engineers' designs, data, records, and notes referring exclusively to an employer's work are the employer's property.

11. Engineers shall cooperate in extending the effectiveness of the profession by interchanging information and experience with other engineers and students, and will endeavor to provide opportunity for the professional development and advancement of engineers under their supervision.

a. Engineers shall encourage engineering employees' efforts to improve their education.

b. Engineers shall encourage engineering employees to attend and present papers at professional and technical society meetings.

c. Engineers shall urge engineering employees to become registered at the earliest possible date.

d. Engineers shall assign a professional engineer duties of a nature to utilize full training and experience, insofar as possible, and delegate lesser functions to subprofessionals or to technicians.

e. Engineers shall provide a prospective engineering employee with complete information on working conditions and proposed status of employment, and after employment will keep employees informed of any changes.

"By order of the United States District Court for the District of Columbia, former Section 11(c) of the NSPE Code of Ethics prohibiting competitive bidding, and all policy statements, opinions, rulings or other guidelines interpreting its scope, have been rescinded as unlawfully interfering with the legal right of engineers, protected under the antitrust laws, to provide price information to prospective clients; accordingly, nothing contained in the NSPE Code of Ethics, policy statements, opinions, rulings or other guidelines prohibits the submission of price quotations or competitive bids for engineering services at any time or in any amount."

a. Engineers shall not request, propose, or accept a professional commission on a contingent basis under circumstances in which their professional judgment may be compromised.

b. Engineers in salaried positions shall accept part-time engineering work only at salaries not less than that recognized as standard in the area.

c. Engineers shall not use equipment, supplies, laboratory, or office facilities of an employer to carry on outside private practice without consent.

8. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice or employment of other engineers, nor shall they maliciously criticize other engineers' work. Engineers who believe other engineers are guilty of unethical or illegal practice shall present such information to the proper authority for action.

a. Engineers in private practice shall not review the work of another engineer for the same client, except with the knowledge of such engineer, or unless the connection of such engineer with the work has been terminated.

b. Engineers in governmental, industrial or educational employ are entitled to review and evaluate the work of other engineers when so required by their employment duties.

c. Engineers in sales or industrial employ are entitled to make engineering comparisons of represented products with products of other suppliers.

9. Engineers shall accept personal responsibility for all professional activities.

a. Engineers shall conform with state registration laws in the practice of engineering.

b. Engineers shall not use association with a nonengineer, a corporation, or partnership, as a "cloak" for unethical acts, but must accept personal responsibility for all professional acts.

#### Statement by NSPE Executive Committee

In order to correct misunderstandings which have been indicated in some instances since the issuance of the Supreme Court decision and the entry of the Final Judgment, it is noted that in its decision of April 25, 1978, the Supreme Court of the United States declared: "The Sherman Act does not require competitive bidding."

It is further noted that as made clear in the Supreme Court decision:

1. Engineers and firms may individually refuse to bid for engineering services.

2. Clients are not required to seek bids for engineering services.

3. Federal, state, and local laws governing procedures to procure engineering services are not affected, and remain in full force and effect.

4. State societies and local chapters are free to actively and aggressively seek legislation for professional selection and negotiation procedures by public agencies.

5. State registration board rules of professional conduct, including rules prohibiting competitive bidding for engineering services, are not affected and remain in full force and effect. State registration boards with authority to adopt rules of professional conduct may adopt rules governing procedures to obtain engineering services.

6. As noted by the Supreme Court, "nothing in the judgment prevents NSPE and its members from attempting to influence governmental action."

#### Note:

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



# Appendix B Code of Ethics



## For Engineers

### Preamble

The Engineer, to uphold and advance the honor and dignity of the engineering profession and in keeping with high standards of ethical conduct:

- *Will be honest and impartial, and will serve with devotion his employer, his clients, and the public;*
- *Will strive to increase the competence and prestige of the engineering profession;*
- *Will use his knowledge and skill for the advancement of human welfare.*

**Section 1**—The Engineer will be guided in all his professional relations by the highest standards of integrity, and will act in professional matters for each client or employer as a faithful agent or trustee.

- a. *He will be realistic and honest in all estimates, reports, statements, and testimony.*
- b. *He will admit and accept his own errors when proven obviously wrong and refrain from distorting or altering the facts in an attempt to justify his decision.*
- c. *He will advise his clients or employer when he believes a project will not be successful.*
- d. *He will not accept outside employment to the detriment of his regular work or interest, or without the consent of his employer.*
- e. *He will not attempt to attract an engineer from another employer by unfair methods.*
- f. *He will not actively participate in strikes, picket lines, or other collective coercive action.*

g. *He will not use his professional affiliations or public office to secure personal advantage and will avoid any act tending to promote his own interest at the expense of the dignity and integrity of the profession.*

**Section 2**—The Engineer will have proper regard for the safety, health, and welfare of the public in the performance of his professional duties. If his engineering judgment is overruled by non-technical authority, he will clearly point out the consequences. He will notify the proper authority of any observed conditions which endanger public safety and health.

- a. *He will regard his duty to the public welfare as paramount.*
- b. *He shall seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of his community.*
- c. *He will not complete, sign, or seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards. If the client or employer insists on such unprofessional conduct, he shall notify the proper authorities and withdraw from further service on the project.*

**Section 3**—The Engineer will avoid all conduct or practice likely to discredit or unfavorably reflect upon the dignity or honor of the profession.

- a. *The Engineer shall not advertise his professional services but may utilize the following means of identification:*
  - (1) *Professional cards and listings in recognized and dignified publications, provided they are consistent in size and are in a section of the publication regularly devoted to such professional cards and listings. The information displayed must be restricted to firm name, address, telephone number, appropriate symbol, name of principal participants and the fields of practice in which the firm is qualified.*
  - (2) *Signs on equipment, offices, and at the site of projects for which he renders services, limited to firm name, address, telephone number and type of services, as appropriate.*
  - (3) *Brochures, business cards, letterheads and other factual representations of experience, facilities, personnel and capacity to render service, providing the same are not misleading relative to the extent of participation in the projects cited, and provided the same are not indiscriminately distributed.*

(4) *Listings in the classified section of telephone directories, limited to name, address, telephone number and specialties in which the firm is qualified.*

b. *The Engineer may advertise for recruitment of personnel in appropriate publications or by special distribution. The information presented must be displayed in a dignified manner, restricted to firm name, address, telephone number, appropriate symbol, name of principal participants, the fields of practice in which the firm is qualified and factual descriptions of positions available, qualifications required and benefits available.*

c. *The Engineer may prepare articles for the lay or technical press which are factual, dignified and free from ostentations or laudatory implications. Such articles shall not imply other than his direct participation in the work described unless credit is given to others for their share of the work.*

d. *The Engineer may extend permission for his name to be used in commercial advertisements, such as may be published by manufacturers, contractors, material suppliers, etc., only by means of a modest dignified notation acknowledging his participation and the scope thereof in the project or product described. Such permission shall not include public endorsement of proprietary products.*

e. *The Engineer will not allow himself to be listed for employment using exaggerated statements of his qualifications.*

**Section 4**—The Engineer will endeavor to extend public knowledge and appreciation of engineering and its achievements and to protect the engineering profession from misrepresentation and misunderstanding.

a. *He shall not issue statements, criticisms, or arguments on matters connected with public policy which are inspired or paid for by private interests, unless he indicates on whose behalf he is making the statement.*

**Section 5**—The Engineer will express an opinion of an engineering subject only when founded on adequate knowledge and honest conviction.

a. *The Engineer will insist on the use of facts in reference to an engineering project in a group discussion, public forum or publication of articles.*

**Section 6**—The Engineer will undertake engineering assignments for which he will be responsible only when qualified by training or experience; and he will engage, or advise engaging, experts and specialists whenever the client's or employer's interests are best served by such service.

**Section 7**—The Engineer will not disclose confidential information concerning the business affairs or technical processes of any present or former client or employer without his consent.

a. *While in the employ of others, he will not enter promotional efforts or negotiations for work or make arrangements for other employment as a principal or to practice in connection with a specific project for which he has gained particular and specialized knowledge without the consent of all interested parties.*

**Section 8**—The Engineer will endeavor to avoid a conflict of interest with his employer or client, but when unavoidable, the Engineer shall fully disclose the circumstances to his employer or client.

- a. *The Engineer will inform his client or employer of any business connections, interests, or circumstances which may be deemed as influencing his judgment or the quality of his services to his client or employer.*
- b. *When in public service as a member, advisor, or employee of a governmental body or department, an Engineer shall not participate in considerations or actions with respect to services provided by him or his organization in private engineering practice.*

c. An Engineer shall not solicit or accept an engineering contract from a governmental body on which a principal or officer of his organization serves as a member.

Section 9—The Engineer will uphold the principle of appropriate and adequate compensation for those engaged in engineering work.

a. He will not undertake or agree to perform any engineering service on a free basis, except for civic, charitable, religious, or elementary nonprofit organizations when the professional services are advisory in nature.

b. He will not undertake work at a fee or salary below the accepted standards of the profession in the area.

c. He will not accept remuneration from either an employee or employment agency for giving employment.

d. When hiring other engineers, he shall offer a salary according to the engineer's qualifications and the recognized standards in the particular geographical area.

e. If, in sales employ, he will not offer, or give engineering consultation, or designs, or advice other than specifically applying to the equipment being sold.

Section 10—The Engineer will not accept compensation, financial or otherwise, from more than one interested party for the same service, or for services pertaining to the same work, unless there is full disclosure to and consent of all interested parties.

a. He will not accept financial or other considerations, including free engineering designs, from material or equipment suppliers for specifying their product.

b. He will not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with his clients or employer in connection with work for which he is responsible.

Section 11—The Engineer will not compete unfairly with another engineer by attempting to obtain employment or advancement or professional engagements by competitive bidding, by taking advantage of a salaried position, by criticizing other engineers, or by other improper or questionable methods.

a. The Engineer will not attempt to supplant another engineer in a particular employment after becoming aware that definite steps have been taken toward the other's employment.

b. He will not offer to pay, either directly or indirectly, any commission, political contribution, or a gift, or other consideration in order to secure work, exclusive of securing salaried positions through employment agencies.

c. He shall not solicit or submit engineering proposals on the basis of competitive bidding. Competitive bidding for professional engineering services is defined as the formal or informal submission, or receipt, of verbal or written estimates of cost or proposals in terms of dollars, man days of work required, percentage of construction cost, or any other measure of compensation whereby the prospective clients may compare engineering services on a price basis prior to the time that one engineer, or one engineering organization, has been selected for negotiations. The disclosure of recommended fee schedules prepared by various engineering societies is not considered to constitute competitive bidding. An Engineer requested to submit a fee proposal or bid prior to the selection of an engineer or firm subject to the negotiation of a satisfactory contract, shall attempt to have the procedure changed to conform to ethical practices, but if not successful he shall withdraw from consideration for the proposed work. These principles shall be applied by the Engineer in obtaining the services of other professionals.

d. An Engineer shall not request, propose, or accept a professional commission on a contingent basis under circumstances in which his professional judgment may be compromised, or when a contingency provision is used as a device for promoting or securing a professional commission.

e. While in a salaried position, he will accept part-time engineering work only at a salary or fee not less than that recognized as standard in the area.

f. An Engineer will not use equipment, supplies, laboratory, or office facilities of his employer to carry on outside private practice without consent.

Section 12—The Engineer will not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice or employment of another engineer, nor will he indiscriminately criticize another engineer's work in public. If he believes that another engineer is guilty of unethical or illegal practice, he shall present such information to the proper authority for action.

a. An Engineer in private practice will not review the work of another engineer for the same client, except with the knowledge of such engineer, or unless the connection of such engineer with the work has been terminated.

b. An Engineer in governmental, industrial or educational employment is entitled to review and evaluate the work of other engineers when so required by his employment duties.

c. An Engineer in sales or industrial employ is entitled to make engineering comparisons of his products with products by other suppliers.

Section 13—The Engineer will not associate with or allow the use of his name by an enterprise of questionable character, nor will he become professionally associated with engineers who do not conform to ethical practices, or with persons not legally qualified to render the professional services for which the association is intended.

a. He will conform with registration laws in his practice of engineering.

b. He will not use association with a nonengineer, a corporation, or partnership, as a "cloak" for unethical acts, but must accept personal responsibility for his professional acts.

Section 14—The Engineer will give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

a. Whenever possible, he will name the person or persons who may be individually responsible for designs, inventions, writings, or other accomplishments.

b. When an Engineer uses designs supplied to him by a client, the designs remain the property of the client and should not be duplicated by the Engineer for others without express permission.

c. Before undertaking work for others in connection with which he may make improvements, plans, designs, inventions, or other records which may justify copyrights or patents, the Engineer should enter into a positive agreement regarding the ownership.

d. Designs, data, records, and notes made by an engineer and referring exclusively to his employer's work are his employer's property.

Section 15—The Engineer will cooperate in extending the effectiveness of the profession by interchanging information and experience with other engineers and students, and will endeavor to provide opportunity for the professional development and advancement of engineers under his supervision.

a. He will encourage his engineering employees' efforts to improve their education.

b. He will encourage engineering employees to attend and present papers at professional and technical society meetings.

c. He will urge his engineering employees to become registered at the earliest possible date.

d. He will assign a professional engineer duties of a nature to utilize his full training and experience, insofar as possible, and delegate lesser functions to subprofessionals or to technicians.

e. He will provide a prospective engineering employee with complete information on working conditions and his proposed status of employment, and after employment will keep him informed of any changes in them.

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



PAR. 1 All members of the Society shall subscribe to the following Canons of Ethics for Engineers as required by the Constitution:

## ARTICLE B15, PROFESSIONAL PRACTICE

## CANONS OF ETHICS FOR ENGINEERS

## FOREWORD

Honesty, justice and courtesy form a moral philosophy which, associated with mutual interest, constitute the foundation of ethics. The engineer should recognize such a standard, not in passive observance, but as a set of dynamic principles guiding his conduct and way of life. It is his duty to practice his profession according to these Canons of Ethics.

As the keystone of professional conduct is integrity, the engineer will 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. He should uphold the honor and dignity of his profession and avoid association with any enterprise of questionable character. In his dealings with fellow engineers he should be fair and tolerant.

## PROFESSIONAL LIFE

Sec. 1 The engineer will cooperate in extending the effectiveness of the engineering profession by interchanging information and experience with other engineers and students and by contributing to the work of engineering societies, schools and the scientific and engineering press.

Sec. 2 He will not advertise his work or merit in a self-laudatory manner, and he will avoid all conduct or practice likely to discredit or do injury to the dignity and honor of his profession.

Sec. 12 He will present clearly the consequences to be expected from deviations proposed if his engineering judgment is overruled by non-technical authority in cases where he is responsible for the technical adequacy of engineering work.

Sec. 13 He will engage, or advise his client or employer to engage, and he will cooperate with, other experts and specialists whenever the client's or employer's interests are best served by such service.

Sec. 14 He will disclose no information concerning the business affairs or technical processes of clients or employers without their consent.

Sec. 15 He will not accept compensation, financial or otherwise, from more than one interested party for the same service, or for services pertaining to the same work, without the consent of all interested parties.

Sec. 16 He will not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with his client or employer in connection with work for which he is responsible.

Sec. 17 He will not be financially interested in the bids as or of a contractor on competitive work for which he is employed as an engineer unless he has the consent of his client or employer.

Sec. 18 He will promptly disclose to his client or employer any interest in a business which may compete with or affect the business of his client or employer. He will not allow an interest in any business to affect his decision regarding engineering work for which he is employed, or which he may be called upon to perform.

## RELATIONS WITH THE PUBLIC

Sec. 3 The engineer will endeavor to extend public knowledge of engineering, and will discourage the spreading of untrue, unfair and exaggerated statements regarding engineering.

Sec. 4 He will have due regard for the safety of life and health of public and employees who may be affected by the work for which he is responsible.

Sec. 5 He will express an opinion only when it is founded on adequate knowledge and honest conviction while he is serving as a witness before a court, commission, or other tribunal.

Sec. 6 He will not issue ex parte statements, criticisms or arguments on matters connected with public policy which are inspired or paid for by private interests, unless he indicates on whose behalf he is making the statement.

Sec. 7 He will refrain from expressing publicly an opinion on an engineering subject unless he is informed as to the facts relating thereto.

## RELATIONS WITH CLIENTS AND EMPLOYERS

Sec. 8 The engineer will act in professional matters for each client or employer as a faithful agent or trustee.

Sec. 9 He will act with fairness and justice between his client or employer and the contractor when dealing with contracts.

Sec. 10 He will make his status clear to his client or employer before undertaking an engagement if he may be called upon to decide on the use of inventions, apparatus, or any other thing in which he may have a financial interest.

Sec. 11 He will guard against conditions that are dangerous or threatening to life, limb or property on work for which he is responsible, or if he is not responsible, will promptly call such conditions to the attention of those who are responsible.

## RELATIONS WITH ENGINEERS

Sec. 19 The engineer will endeavor to protect the engineering profession collectively and individually from misrepresentation and misunderstanding.

Sec. 20 He will take care that credit for engineering work is given to those to whom credit is properly due.

Sec. 21 He will uphold the principle of appropriate and adequate compensation for those engaged in engineering work, including those in subordinate capacities, as being in the public interest and maintaining the standards of the profession.

Sec. 22 He will endeavor to provide opportunity for the professional development and advancement of engineers in his employ.

Sec. 23 He will not directly or indirectly injure the professional reputation, prospects or practice of another engineer. However, if he considers that an engineer is guilty of unethical, illegal or unfair practice, he will present the information to the proper authority for action.

Sec. 24 He will exercise due restraint in criticizing another engineer's work in public, recognizing the fact that the engineering societies and the engineering press provide the proper forum for technical discussions and criticism.

Sec. 25 He will not try to supplant another engineer in a particular employment after becoming aware that definite steps have been taken toward the other's employment.

Sec. 26 He will not compete with another engineer on the basis of charges for work by underbidding, through reducing his normal fees after having been informed of the charges named by the other.

Sec. 27 He will not use the advantages of a salaried position to compete unfairly with another engineer.

Sec. 28 He will not become associated in responsibility for work with engineers who do not conform to ethical practices.

# Appendix D



## The American Society of Mechanical Engineers

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### COUNCIL POLICY

#### ETHICS

ASME requires ethical practice by each of its members and has endorsed the following Code of Ethics of Engineers of the Engineers' Council for Professional Development as referenced in the ASME Constitution, Article C2.1.1.

#### CODE OF ETHICS OF ENGINEERS

##### The Fundamental Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- I. using their knowledge and skill for the enhancement of human welfare;
- II. being honest and impartial, and serving with fidelity the public, their employers and clients;
- III. striving to increase the competence and prestige of the engineering profession; and
- IV. supporting the professional and technical societies of their disciplines.

##### The Fundamental Canons

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Engineers shall perform services only in the areas of their competence.

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3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
6. Engineers shall associate only with reputable persons or organizations.
7. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.

The original Canons were adopted by Engineers' Council for Professional Development, October 25, 1947 and accepted by The American Society of Mechanical Engineers the same year. There have been subsequent revisions. The latest version as presented above was approved by ECPD, October 1, 1974 and ratified by the ASME Council, March 16, 1975.

The ASME criteria for enforcement of the Canons are:

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.
  - a. Engineers shall recognize that the lives, safety, health and welfare of the general public are dependent upon engineering judgments, decisions and practices incorporated into structures, machines, products, processes and devices.
  - b. Engineers shall not approve or seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards.
  - c. Whenever the Engineers' professional judgment [is] over-ruled under circumstances where the safety, health, and welfare of the public are endangered, the Engineers shall inform their clients and/or employers of the possible consequences and notify other proper authority of the situation, as may be appropriate.
    - c.1 Engineers shall do whatever possible to provide published standards, test codes, and quality control procedures that will enable the public to understand the degree of safety or life expectancy associated with the use of the designs, products, or systems for which they are responsible.
    - c.2 Engineers shall conduct reviews of the safety and reliability of the designs, products, or systems for which they are responsible before giving their approval to the plans for the design.

- c.3 Whenever Engineers observe conditions which they believe will endanger public safety or health, they shall inform the proper authority of the situation.
  - d. If engineers have knowledge or reason to believe that another person or firm may be in violation of any of the provisions of these Canons, they shall present such information to the proper authority in writing and shall cooperate with the proper authority in furnishing such further information or assistance as may be required.
    - d.1 They shall advise the proper authority if an adequate review of the safety and reliability of the products or systems has not been made or when the design imposes hazards to the public through its use.
    - d.2 They shall withhold approval of products or systems when changes or modifications are made which would affect adversely its performance insofar as safety and reliability are concerned.
2. Engineers shall perform services only in areas of their competence.
- a. Engineers shall undertake to perform engineering assignments only when qualified by education or experience in the specific technical field of engineering involved.
  - b. Engineers may accept an assignment requiring education or experience outside of their own fields of competence, but their services shall be restricted to other phases of the project in which they are qualified. All other phases of such project shall be performed by qualified associates, consultants, or employees.
3. Engineers shall issue public statements only in an objective and truthful manner.
- a. Engineers shall endeavor to extend public knowledge, and to prevent misunderstandings of the achievements of engineering.
  - b. Engineers shall be completely objective and truthful in all professional reports, statements or testimony. They shall include all relevant and pertinent information in such reports, statements, or testimony.
  - c. Engineers, when serving as expert or technical witnesses before any court, commission, or other tribunal, shall express an engineering opinion only when it is founded upon adequate knowledge of the facts in issue, upon a background of technical competence in the subject matter, and upon honest conviction of the accuracy and propriety of their testimony.
  - d. Engineers shall issue no statements, criticisms, or arguments on engineering matters which are inspired or paid for by an interested party, or parties, unless they preface their comments by identifying themselves, by disclosing the identities of the party or parties on whose behalf they are speaking, and by revealing the existence of any pecuniary interest they may have in matters under discussion.
- e. Engineers shall be dignified and modest in explaining their work and merit, and shall avoid any act tending to promote their own interest at the expense of the integrity, honor and dignity of the profession or another individual.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
- a. Engineers shall avoid all known conflicts of interest with their employers or clients and shall promptly inform their employers or clients of any business association, interests, or circumstances which could influence their judgment or the quality of their services.
  - b. Engineers shall not undertake any assignments which would knowingly create a potential conflict of interest between themselves and their clients or their employers.
  - c. Engineers shall not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed to, and agreed to, by all interested parties.
  - d. Engineers shall not solicit or accept financial or other valuable considerations, for specifying the products of material or equipment suppliers, without disclosure to their clients or employers.
  - e. Engineers shall not solicit or accept gratuities, directly or indirectly, from contractors, their agents, or other parties dealing with their clients or employers in connection with work for which they are responsible.
  - f. When in public service as members, advisors, or employees of a governmental body or department, Engineers shall not participate in considerations or actions with respect to services provided by them or their organization(s) in private or [public] engineering practice.
  - g. Engineers shall not solicit an engineering contract from a governmental body on which a principal, officer, or employee of their organization serves as a member.
  - h. When, as a result of their studies, Engineers believe a project(s) will not be successful, they shall so advise their employer or client.

- i. Engineers shall treat information coming to them in the course of their assignments as confidential, and shall not use such information as a means of making personal profit if such action is adverse to the interests of their clients, their employers, or the public.
    - i.1 They will not disclose confidential information concerning the business affairs or technical processes of any present or former employer or client or bidder under evaluation, without his consent, unless required by law.
    - i.2 They shall not reveal confidential information or finding of any commission or board of which they are members unless required by law.
    - i.3 Designs supplied to Engineers by clients shall not be duplicated by the Engineers for others without the express permission of the client(s).
  - j. The Engineer shall act with fairness and justice to all parties when administering a construction (or other) contract.
  - k. Before undertaking work for others in which the Engineer may make improvements, plans, designs, inventions, or other records which may justify copyrights or patents, the Engineer shall enter into a positive agreement regarding the rights of respective parties.
  - l. Engineers shall admit and accept their own errors when proven wrong and refrain from distorting or altering the facts to justify their decisions.
  - m. Engineers shall not accept professional employment outside of their regular work or interest without the knowledge of their employers.
  - n. Engineers shall not attempt to attract an employee from another employer by false or misleading representations.
  - o. Engineers shall not review work of other Engineers except with the knowledge of such Engineers or unless the assignments or contractual agreements for the work have been terminated.
    - o.1 Engineers in governmental, industrial, or educational employment shall review and evaluate the work of other engineers when so required by their duties.
    - o.2 Engineers in sales or industrial employment shall make fair engineering comparisons of their products with products of other suppliers when required by their duties to make comparisons.
- 5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
    - a. Engineers shall negotiate contracts for professional services on the basis of demonstrated competence and qualifications for the type of professional service required and at fair and reasonable prices.
    - b. Engineers shall not attempt to supplant other Engineers in a particular employment after becoming aware that definite steps have been taken toward the others' employment or after they have been employed.
    - c. Engineers shall not request, propose, or accept professional commissions on a contingent basis under circumstances under which their professional judgments may be compromised.
    - d. Engineers shall not falsify or permit misrepresentation of their, or their associates', academic or professional qualifications. They shall not misrepresent or exaggerate their degrees of responsibility in or for the subject matter of prior assignments. Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint venturers, or their past accomplishments.
    - e. Engineers shall prepare articles for the lay or technical press which are only factual, dignified and free from ostentations or laudatory implications. Such articles shall not imply other than their direct participation in the work described unless credit is given to others for their share of the work.
    - f. Engineers shall not maliciously or falsely, directly or indirectly, injure the professional reputation, prospects, practice or employment of another engineer, nor shall they indiscriminately criticize another's work.
    - g. Engineers shall not use equipment, supplies, laboratory or office facilities of their employers to carry on outside private practice without consent.
  - 6. Engineers shall associate only with reputable persons or organizations.
    - a. Engineers shall not knowingly associate with or permit the use of their names or firm names in business ventures by any person or firm which they know, or have reason to believe, are engaging in business or professional practices of a fraudulent or dishonest nature.
    - b. Engineers shall not use association with non-engineers, corporations, or partnerships as "cloaks" for unethical acts.

7. Engineers shall continue their professional development throughout their careers, and should provide opportunities for the professional development of those engineers under their supervision.
8. Any Engineer accepting membership in The American Society of Mechanical Engineers by this action agrees to abide by this Council Policy on Ethics and the procedures for implementation.

Responsibility: Policy Board, Professional and Public Affairs

Approved: March 7, 1976,  
Revised: December 9, 1976