Online Ethics Center
FOR ENGINEERING AND SCIENCE

ASME vs. Hydrolevel Corp

Conflicts Of Interest And Engineering Codes Of Ethics

Year

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Description

A summary of a conflict of interest case involving the professional society ASME and its decisions regarding boiler control equipment made by the Hydrolevel Corp.

Abstract

Hydrolevel suseveral parties including the ASME arguing that they were motivated by a conflict of interest and violated the Sherman Anti-Trust Act. The litigation against ASME went all the way to the Supreme Court where the case was settled for $4.75 million in favor of Hydrolevel.

This case may be integrated into any level engineering course as it concerns conflicts of interest and the operation of engineering professional societies.

Body

Introduction To The Case

"A conflict of interest is like dirt in a sensitive gauge," one that cannot only soil one person's career, but can also taint an entire profession. Thus, as professionals, engineers must be ever alert to signs of conflict of interest. The case of the American Society of Mechanical Engineers (ASME) vs. Hydrolevel Corp. shows how

easily individuals, companies, and professional societies can find themselves embroiled in expensive legal battles that tarnish the reputation of the engineering profession as a whole. The following case is appropriate for all engineering curricula, for it discusses not only conflicts of interest and various engineering codes of ethics, but also illustrates the various roles engineers play in their professional societies.

In 1971, the engineering firm of McDonnell and Miller requested an interpretation of the ASME Boiler and Pressure Vessel ("BPV") Code from the ASME Boiler and Pressure VesselCodes Committee. Although initially undisclosed by them, McDonnell and Miller used the response to their inquiry to show that a boiler control device competitor, the Hydrolevel Corp., was selling a device not in compliance with the ASME BPV Code.

T.R. Hardin, chairman of the ASME committee and employee of the Hartford Steam Boiler Inspection and Insurance Company in Connecticut, wrote the original response to McDonnell and Miller's inquiry. ASME's interpretation was used by McDonnell and Miller salesmen as proof of Hydrolevel's noncompliance. Subsequently, Hydrolevel never acquired sufficient market penetration for sustaining business, and eventually went bankrupt.

As a result, Hydrolevel sued McDonnell and Miller, the Hartford Steam Boiler Inspection and Insurance Company, and ASME on the basis of restraint of trade. Hydrolevel's lawyers argued that two key ASME subcommittee members acted not only in the self-interest of their companies, but also in violation of the Sherman Anti-Trust Act.

McDonnell and Miller and the Hartford Steam Boiler Inspection and Insurance Company settled out of court, but the litigation against ASME went all the way to the Supreme Court where, on a 6-3 decision, the Court found in favor of Hydrolevel on the liability issue. Following a damages retrial, the case was settled for $4.75 million in favor of Hydrolevel.

Essays #1 through #4 appended at the end of the cases in this report will have relevant background information for the instructor preparing to lead classroom discussion. Their titles are, respectively: "Ethics and Professionalism in Engineering: Why the Interest in Engineering Ethics?;" "Basic Concepts and Methods in Ethics;" "Engineering Design: Literature on Social Responsibility Versus Legal Liability."

Guidelines For Presentation

1) Read the student handout for a detailed description of the case.

2) At the class preceding the case discussion, distribute the student handouts, American Society of Mechanical Engineers vs. Hydrolevel Corp., which includes literature on conflicts of interest and engineering codes of ethics and an annotated bibliography.

3) Ask the students to come to the follow-up discussion class prepared to address the ASME vs. Hydrolevel case in light of the ethical issues raised in the student handout.

4) Discuss with the students questions such as:

- How could McDonnell and Miller have avoided the appearance of a conflict of interests (both Eugene Mitchell and John James)?
- What was T.R. Hardin's responsibility as chairman of the BPV Code Heating Boiler Subcommittee? How could he have handled things differently to protect the interests of ASME?
- What can engineering societies do to protect their interests once a conflict of interest is revealed? Was the final judgment against ASME fair? Why or why not?
- Have ASME's revised conflict-of-interest procedures addressed the problem fully? Why or why not?

5) End the discussion with the overhead: ASME vs. Hydrolevel: EthicalIssues of the Case. Discuss the ethical questions raised by the case: What are the responsibilities of each individual engineer as a professional? What role can societies play in protecting the integrity of the engineering profession as a whole?

Recommended Overheads For Use In Classroom Discussion

1) *ASME vs. Hydrolevel* Cast of Characters

2) Two Types Of Fuel Cutoffs

3) Chronology of the Boiler and Pressure Vessel Codes

4) ASME Code of Ethics of Engineers

5) IEEE Code of Ethics (Revised October 1990)

6) *ASME vs. Hydrolevel*: Ethical Issues Of The Case

Notes

1. Wells, Paula, Jones, Hardy and Davis, Michael, "Conflicts of Interest in Engineering," *Module Series in Applied Ethics*, **Center for the Study of Ethics in the Professions**, Illinois Institute of Technology, Dubueque, Iowa: Kenall/Hunt Publishing Company, 1986, p. 20.

ASME vs. Hydrolevel Overheads

1) *ASME vs. Hydrolevel* Cast of Characters (2 pages)

2) Two Types of Fuel Cutoffs

3) Chronology of the Boiler and Pressure Vessel Codes (2 pages)

4) ASME Code of Ethics of Engineers

5) IEEE Code of Ethics

6) *ASME vs. Hydrolevel*: Ethical Issues Of The Case

The following graphic shows the ASME BPV Code Heating Boiler and Pressure Vessel Subcommittee relationships with McDonnell and Miller, Hartford Steam Boiler Inspection Insurance Company and the Hydrolevel CORP.

American Society Of Mechanical Engineers (ASME)

- B-PV Code Heating Boiler and Pressure Vessel Committee

- Secretary, Committee - W. Bradford Hoyt
- Chairman, Heating Boiler Subcommittee - T.R. Hardin
- Member, Heating Boiler Subcommittee - John James
- Hartford Steam - McDonnell
- Boiler Inspection - Miller

Insurance Company

- Vice President for Sales - Eugene Mitchell
- Vice President - T.R. Hardin
- Vice President for Research - John James

ASME vs. Hydrolevel Cast Of Characters

- **Eugene Mitchell**: Mitchell was Vice President for Sales, McDonnell and Miller. He initially had the idea of appealing to ASME BPV Committee, and he took this idea to John James, Vice President for Research at McDonnell and Miller.
- **John James**: James was Vice President for Research, McDonnell and Miller. He was also on the ASME BPV Code Subcommittee which was responsible for heating boilers. He recommended that he and Mitchell discuss their idea with T.R. Hardin, Chairman of the ASME BPV Code Heating Boiler Subcommittee, at a dinner meeting in Chicago. The meeting was originally scheduled for other business.
- **T.R. Hardin**: Hardin was both Chairman of the BPV Code Heating Boiler Subcommittee and Vice President for Hartford Steam Boiler Inspection and Insurance Company. He wrote the original response to McDonnell and Miller's inquiry. McDonnell and Miller salesmen used Hardin's response to imply that the Hydrolevel cutoff valve was dangerous.
- **W. Bradford Hoyt**: Hoyt was Secretary of the Boiler and Pressure VesselCommittee. He directed the letter of inquiry from McDonnell and Miller to the Subcommittee Chairman, T.R. Hardin.

Two Types Of Fuel Cutoffs

Chronology Of The Boiler and Pressure Vessel Codes

- 1971: Hydrolevel receives contract from Brooklyn Union Gas.
- McDonnell and Miller, Inc., request an interpretation of the ASME Boiler and

Pressure Vessel(B-PV) Code from the ASME Boiler and Pressure Vessel Codes Committee.

- April 1971: Dinner meeting between James, Mitchell, and Hardin, where discussion of code interpretation was discussed.
- April 12, 1971: McDonnell and Miller make a formal request, in writing, for ASME code interpretation.
- April 29, 1971: Hardin responds to McDonnell and Miller request.
- March 23, 1972: Hydrolevel requests an ASME review and ruling correction.
- May 1972: ASME Subcommittee meets to discuss Hydrolevel inquiry.
- June 9, 1972: ASME makes a second response to code in question.
- August 23, 1975: Hydrolevel files suit against McDonnell and Miller, Inc., ASME and the Hartford Steam Boiler Inspection and Insurance Company, charging them with conspiracy to restrain trade under the Sherman anti-trust law. All but ASME settle out of court.
- February 2, 1979: Jury returns guilty verdict. Hydrolevel Chief Executive Officer dies of heart attack when the news reaches him in the hospital.
- April 1981: ASME takes the case to the Supreme Court.
- May 17, 1982: High Court votes 6-3, finding ASME guilty of anti-trust violations.

ASME 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; and***
- ***III. striving to increase the competence and prestige of the engineering profession.***

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 areas of their competence.
3. Engineers shall continue their professional development throughout their

careers and shall provide opportunities for the professional development of those engineers under their supervision.
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 issue public statements only in an objective and truthful manner.

Board, Professional Practice and Ethics

IEEE Code Of Ethics (Revised October 1990)

We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

1. to accept responsibility in making engineering decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
3. to be honest and realistic in stating claims or estimates based on available data; 4. to reject bribery in all its forms;
4. to improve the understanding of technology, its appropriate application, and potential consequences;
5. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;
6. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
7. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;
8. to avoid injuring others, their property, reputation, or employment by false or malicious action;
9. to assist colleagues and coworkers in their professional development and to

support them in following this code of ethics.

ASME vs. Hydrolevel: Ethical Issues Of The Case

1. On the lookout for conflict of interests: what are the responsibilities of every engineer?

2. What are the roles of professional societies and their codes of ethics in protecting the integrity of the engineering profession?

Synopsis

"A conflict of interest is like dirt in a sensitive gauge," one that cannot only soil one person's career, but can also taint an entire profession. Thus, as professionals, engineers must be ever alert to signs of conflict of interest. The case of the American Society of Mechanical Engineers (ASME) vs. Hydrolevel Corp. shows how easily individuals, companies, and professional societies can find themselves embroiled in expensive legal battles that tarnish the reputation of the engineering profession as a whole.

In 1971, the engineering firm of McDonnell and Miller, Inc. requested an interpretation of the ASME Boiler and Pressure Vessel("BPV") Code from the ASME Boiler and Pressure VesselCodes Committee. Although initially undisclosed by them, McDonnell and Miller used the response to their inquiry to show that a boiler control device competitor, Hydrolevel Corp., was selling a device not in compliance with the ASME BPV Code.

T.R. Hardin, chairman of the ASME committee and employee of the Hartford Steam Boiler Inspection and Insurance Company in Connecticut, wrote the original response to McDonnell and Miller's inquiry. ASME's interpretation was used by McDonnell and Miller salesmen as proof of Hydrolevel's noncompliance. Subsequently, Hydrolevel never acquired sufficient market penetration for sustaining business, and eventually went bankrupt.

As a result, Hydrolevel sued McDonnell and Miller, the Hartford Steam Boiler Inspection and Insurance Company, and ASME for restraint of trade. Hydrolevel's lawyers argued that two key ASME Subcommittee members acted not only in the self-interest of their companies, but also in violation of the Sherman Anti-Trust Act.

McDonnell and Miller and the Hartford Steam Boiler Inspection and Insurance Company settled out of court, but the litigation against ASME went all the way to the Supreme Court where, on a 6-3 decision, the Court found in favor of Hydrolevel on the liability issue. Following a damages retrial, the case was settled for $4.75 million in favor of Hydrolevel.

Individuals Involved In The ASME vs. Hydrolevel Case

The following graphic shows the ASME BPV Code Heating Boiler and Pressure Vessel Subcommittee relationships with McDonnell and Miller, Hartford Steam Boiler Inspection and Insurance Company (both shown in shaded boxes), and the Hydrolevel Corp.

American Society Of Mechanical Engineers (ASME)
B-PV Code Heating Boiler and Pressure Vessel Committee

Secretary, Committee - W. Bradford Hoyt

Chairman, Heating Boiler Subcommittee - T.R. Hardin

Member, Heating Boiler Subcommittee - John James

Hartford Steam McDonnell And Boiler Inspection - Miller

Insurance Company

Eugene Mitchell- Vice President for Sales

T.R. Hardin - Vice President

John James - Vice President for Research

Hydrolevel Corp.

The four key players involved in the ASME vs. Hydrolevel case are:

Eugene Mitchell: Mitchell was Vice President for Sales, McDonnell and Miller. He initially had the idea of appealing to ASME BPV Committee, and he took this to John James, Vice President for Research at McDonnell and Miller.

John James: James was Vice President for Research, McDonnell and Miller. He was

also on the ASME BPV Code Subcommittee, which was responsible for heating boilers. He recommended that he and Mitchell discuss their idea with T.R. Hardin, Chairman of the ASME BPV Code Heating Boiler Subcommittee, at a dinner meeting in Chicago. The meeting was originally scheduled for other business.

T.R. Hardin: Hardin was both Chairman of the BPV Code Heating Boiler Subcommittee, and Vice President for Hartford Steam Boiler Inspection and Insurance Company. He wrote the original response to McDonnell and Miller's inquiry. McDonnell and Miller salesmen used Hardin's response in arguing that the Hydrolevel cutoff valve was dangerous.

W. Bradford Hoyt: Hoyt was Secretary of the Boiler and Pressure VesselCommittee. He directed the letter of inquiry from McDonnell and Miller to the Subcommittee Chairman, T.R. Hardin.

Boiler and Pressure Vessel Codes and Conflicting Self-Interest

One role of the American Society of Mechanical Engineers (ASME) is the development of voluntary safety codes and standards. These standards are specified for a myriad of mechanical devices, ranging from nuts and bolts, to elevators, cranes and boilers. ASME Codes and Standards are regularly referred to by federal, state and local government regulatory authorities. In addition, they are often given force of law, ensuring buildings and the equipment inside them are safely designed and built. By 1984, 46 U.S. states and the 10 Canadian provinces had incorporated the ASME Boiler and Pressure VesselBPV Code as law.2

In 1971, Eugene Mitchell, Vice President for Sales at McDonnell and Miller, Inc., located in Chicago, was concerned about his company's ability to persist in its dominance of the market for heating boiler low-water fuel cutoff valves. Heating boilers must have a low-water fuel cutoff to ensure that boilers cannot be fired without sufficient water in them, for deficient water could cause an explosion.

Hydrolevel Corporation entered the low-water cutoff valve market with an electronic low-water fuel supply cutoff that included a time delay on some of its models. Hydrolevel's valve had won important approval for use from Brooklyn Gas Company, one of the largest installers of heating boilers. Some Hydrolevel units added the time delay devices so the normal turbulence of the water level at the electronic probe would not cause the fuel supply to be turned on and off in rapid cycles. Mitchell felt that McDonnell and Miller's sales could be protected if he could

secure an interpretation stating that the Hydrolevel time-delay on the cutoff violated the ASME BPV Code. He referred to the following section of the ASME code:

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.3

Thus, Mitchell asked for an ASME interpretation of the mechanism for operation of the Hydrolevel device as it pertained to the above section of the code. He did not, however, specifically mention the Hydrolevel device in his request.

Mitchell discussed his idea several times with John James, McDonnell and Miller's Vice President for Research. In addition to his role at McDonnell and Miller, James was on the ASME subcommittee responsible for heating boilers and had played a leading role in writing the part of the Boiler Code which Mitchell was questioning.

James recommended that he and Mitchell approach the chairman of the ASME Heating Boiler Subcommittee, T.R. Hardin. Hardin was also Vice President of the Hartford Steam Boiler Inspection and Insurance Company. When Hardin arrived in Chicago in early April, 1971 on other business, the three men went to dinner at the Drake Hotel. During dinner, Hardin agreed with Mitchell and James that their interpretation of the code was correct.

Shortly after the meeting with Hardin, James sent ASME a draft letter of inquiry, and sent Hardin a copy. Hardin made some suggestions, and James incorporated Hardin's suggestions in a final draft letter. James' finalized draft letter of inquiry was then addressed to W. Bradford Hoyt, Secretary of the BPV Boiler and Pressure Vessel Committee.

Hoyt received thousands of similar inquiries every year. Since Hoyt could not answer James's inquiry with a routine, response, he directed the letter to the appropriate Subcommittee Chairman, T.R. Hardin. Hardin drafted a response without consulting the whole Subcommittee, a task he had authorization for if the response was treated as an "unofficial communication."

Hardin's response, dated April 29, 1971, stated that a low-water fuel cutoff must operate immediately. Although this response did not say that Hydrolevel's time-delayed cutoff was dangerous, McDonnell and Miller's salesmen used Hardin's conclusion to argue against using the Hydrolevel product. This was done at

Mitchell's direction.

In early 1972, Hydrolevel learned of the ASME letter through one of its former customers who had a copy of the letter in his possession. Hydrolevel then requested an official copy of the letter from ASME. On March 23, 1972, Hydrolevel requested an ASME review and ruling correction.

ASME's Heating and Boiler Subcommittee had a full meeting to discuss Hydrolevel's request, and confirmed part of the original Hardin interpretation. James, who had replaced Hardin as Chairman of the Subcommittee, refrained from participating in the discussion but subsequently helped draft a critical part of the Subcommittee's response to Hydrolevel. The ASME response was dated June 9, 1972.

In 1975, Hydrolevel filed suit against McDonnell and Miller, Inc., ASME and the Hartford Steam Boiler Inspection and Insurance Company, charging them with conspiracy to restrain trade under the Sherman anti-trust law.

Hydrolevel reached an out-of-court settlement with McDonnell and Miller and Hartford for $750,000 and $75,000, respectively. ASME took the case to trial. ASME officials believed that, as a society, ASME had done nothing wrong and should not be liable for the misguided actions of individual volunteer members acting on their own behalf. After all, ASME gained nothing from such practices. ASME officials also believed that a pre trial settlement would set a dangerous precedent that would encourage other nuisance suits.

Despite ASME arguments, however, the jury decided against ASME, awarding Hydrolevel $3.3 million in damages. The trial judge deducted $800,000 in prior settlements, and tripled the remainder in accordance with the Clayton Act. This resulted in a decision of $7,500,000 for Hydrolevel.

On May 17, 1982, ASME's liability was upheld by the Second Circuit. The Supreme Court, in a controversial 6-3 vote, found ASME guilty of anti-trust violations. The majority opinion, delivered by Justice Blackmun, read as follows:

ASME wields great power in the nation's economy. Its codes and standards influence the policies of numerous states and cities, and as has been said about "so-called voluntary standards" generally, its interpretations of guidelines "may result in economic prosperity or economic failure, for a number of businesses of all sizes throughout the country," as well as entire segments of an industry...ASME can be

said to be "in reality an extra governmental agency, which prescribes rules for the regulation and restraint of interstate commerce."When it cloaks its subcommittee officials with the authority of its reputation, ASME permits those agents to affect the destinies of businesses and thus gives them power to frustrate competition in the marketplace.4

The issue of damages was retried in a trial lasting for approximately one month. In June, the jury returned a verdict of $1.1 million which was tripled to $3.3 million. Parties involved were claiming attorney's fees in excess of $4 million, and a final settlement of $4,750,000 was decreed.

Following the decision, ASME revised its procedures as follows:

In the wake of the Hydrolevel ruling, the Society has changed the way it handles codes and standards interpretations, beefed up its enforcement and conflict-of-interest rules, and adopted new "sunset" review procedures for its working bodies.

The most striking changes affect the Society's handling of codes and standards interpretations. All such interpretations must now be reviewed by at least five persons before release; before, the review of two people was necessary. Interpretations are available to the public, with replies to nonstandard inquiries published each month in the Codes and Standards section of ME or other ASME publications. Previously, such responses were kept between the inquirer and the involved committee or subcommittee. Lastly, ASME incorporates printed disclaimers on the letterhead used for code interpretations spelling out their limitations: that they are subject to change should additional information become available and that individuals have the right to appeal interpretations they consider unfair.

Regarding conflict-of-interest, ASME now requires all staff and volunteer committee members to sign statements pledging their adherence to a comprehensive and well-defined set of guidelines regarding potential conflicts. Additionally, the Society now provides all staff and volunteers with copies of the engineering code of ethics along with a publication outlining the legal implications of standards activities.

Finally, the Society now requires each of its councils, committees and subcommittees to conduct a "sunset" review of their operations every two years. The criteria include whether their activities have served the public interest and whether they have acted cost-effectively, in accordance with Society procedures.5

The ASME case raises serious questions about how engineers know when they are involved in a conflict of interest. There are various forms of conflict, as well as divergent interests associated with being an engineer.

Ethical Issues Of The ASME vs. Hydrolevel Case Points For Discussion

Conflict of interest cases quickly become a mare's nest, as the following questions illustrate:

- How could McDonnell and Miller have avoided the appearance of a conflict of interest? This applies to both Eugene Mitchell and John James.
- What was T.R. Hardin's responsibility as chairman of the BPV Code Heating Boiler Subcommittee? How could he have handled things differently to protect the interests of ASME?
- What can engineering societies do to protect their interests once a conflict of interest is revealed? Was the final judgment against ASME fair? Why or why not?
- Have ASME's revised conflict-of-interest procedures addressed the problem fully? Why or why not?

In a retrospective review of the *ASME vs. Hydrolevel* case, two brief paragraphs on roles played by Hardin and James clearly illuminate the conflict of interest issues:

On The Lookout for Conflict of Interests: The Responsibility of Every Engineer

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 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 $75,000.6

The Role Of Societies In Protecting The Integrity Of The Engineering Profession

We may leave evaluation of James's 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 VesselCommittee 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 McDonnell and Miller)? Why?7

Engineering students must consider these questions, for similar ethical issues will confront them, in one form or another, during their professional careers. Furthermore, that confrontation may come sooner rather than later. The important lesson from the *ASME vs. Hydrolevel* case is that each individual's actions has an influence on the profession as a whole. Therefore, engineers must be cognizant of their roles as professionals. And as we have seen from this case, societies can be held liable for the actions of their members, as the following statement asserts:

What is crucial for the ascription of the duty in the case we have been considering is that the public proclamation of ASME created an expectation on the part of the public concerning ASME's review of product safety. The less vigilant attitude by members of the public concerning such products as those manufactured by Hydrolevel was in direct response to the proclaimed assumption of the role of product safety inspection on the part of ASME. By failing to guarantee that its members carry out that function properly, ASME has been negligent, and to that extent blameworthy for the harm that results.8

Annotated Bibliography

American Society of Mechanical Engineers, "Boiler and Pressure Vessel Code, Section IV, paragraph HG605a.", Contains the safety requirements for the manufacture of boiler and pressure vessels, as specified by the appropriate ASME committee members.

Davis, Michael, "Conflict of Interest," in Johnson, Deborah G., **Ethical Issues In Engineering**, Englewood Cliffs, N.J.: Prentice Hall, 1991, pp. 317-326. In this article, Davis uses legal precedents to make engineering generalizations about categories

of conflict of interest.

Dzienkowski, John S., "Taking Positional Conflicts of Interest Seriously," **Business and Professional Ethics Journal**, Vol. 9, Spring-Summer 1990, pp. 109-128. Dzienkowski's paper is an excellent overview of problems associated with conflicts of interest.

Luebke, NeilR., "Conflict of Interest as a Moral Category," **Business and Professional Ethics Journal***,* Vol. 6, Spring 1987, pp. 66-81. Luebke's argument focuses on the philosophical underpinnings of conflict of interest.

The following articles demonstrate the diverse analyses of the *ASME vs. Hydrolevel* case:

"Hydrolevel Briefing Packs ASAE Conference Center," **Association Management**, Vol. 34, September 1982, p. 5.

Beardsley, Charles W., "The Hydrolevel Case A Retrospective," **Mechanical Engineering**, June 1984, pp. 66-73.

May, Larry, "Professional Action and the Liabilities of Professional Associations: ASME. v. Hydrolevel Corp.," **Business and Professional Ethics Journal**, Vol. 2, No. 1, Fall 1982, pp. 1-14.

Webster, George D., "Conflict of Interest on Association Boards," **Association Management**, Vol. 41, May 1989, pp. 147-148.

Wells, Paula, Hardy Jones and Michael Davis, "Conflicts of Interest in Engineering," Module Series in Applied Ethics, **Center for the Study of Ethics in the Professions,** Illinois Institute of Technology, Dubueque, Iowa: Kenall/Hunt Publishing Company, 1986, p. 20.

Zeitland, Kim, "How to Build Safeguards Into Your Standard-Setting Program," **Association Managemen**t, Vol. 35, January 1983, pp. 79-80.

Notes

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