

2/11/81  
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

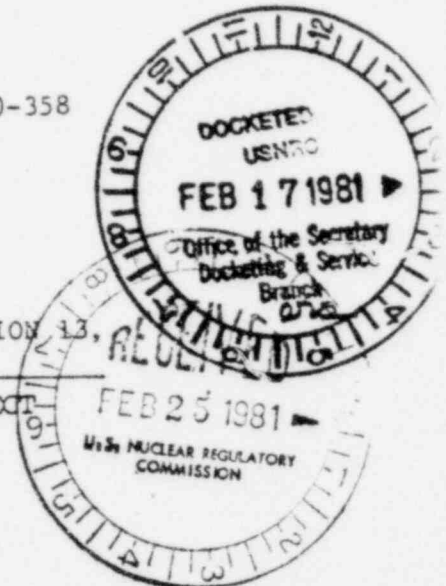
RELATED CORRESPONDENCE

BEFORE THE ATOMIC SAFETY LICENSING BOARD

In the Matter of )  
CINCINNATI GAS AND ELECTRIC COMPANY ) Docket No. 50-358  
(Wm. H. Zimmer Nuclear Power Plant) )

DIRECT TESTIMONY OF RALPH ESTES REGARDING CONTENTION 13,  
APPLICANTS' FINANCIAL QUALIFICATIONS  
TESTIMONY ON BEHALF OF MIAMI VALLEY POWER PROJECT

State of Kansas )  
County of Sedgwick ) ss.



Ralph Estes, having first been duly sworn, hereby states as follows: I am employed by Wichita State University as professor and chairperson of the Department of Accounting, although I am nor representing nor speaking in behalf of Wichita State University in this testimony. My further qualifications are fully delineated in my curriculum vita which is attached hereto and made a part hereof as "Exhibit A."

The Miami Valley Power Project has raised the following Contention:

Contention Number 13, Applicants' Financial Qualifications

The equipment used in the construction and operation of the plant will be excessively costly and, in effect, beyond the financial capability of Applicants. Applicants are financially unqualified to operate the plant because of escalating costs.

My testimony addresses this contention:

Although construction and operation of a nuclear power plant involves many factors that may have a financial impact, one of these factors -- decommissioning costs -- has generally received little attention in past analyses. Presumably this is because decommissioning is expected to occur years in the future, and

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because nonnuclear plants have not involved substantial decommissioning costs. My testimony focuses on the potential financial effects on the applicants of decommissioning the proposed Zimmer Nuclear Power Plant.

In their responses to questions 2 and 3 to Miami Valley Power Project's request for additional financial information, applicants projected data from a study by the Atomic Industrial Forum to arrive at an estimate of total decommissioning costs of \$35,882,146 in 1983 dollars, and further projected that these costs could be met through annual deposits of \$3,551,610 to a sinking fund for a 33-year period. Applicants' estimates are too low because of inadequate allowance for cost escalation, and are unreliable because of problems inherent in using the Atomic Industrial Forum data.

First, with respect to allowance for cost escalation, applicants assumed a 6 per cent annual inflation rate from 1975 through 1979 and a 6.5 per cent rate for all years after 1979 (i.e., from 1980 through the year 2120, when they project that final dismantling and removal will occur). The term "inflation" is usually used to refer to increases in the Consumer Price Index (since 1978 two CPIs have been calculated, with the CPI for all wage earners and clerical workers most commonly referenced). According to the U. S. Department of Commerce the Consumer Price Index increased at an average rate of 7.8 per cent from 1975 to 1979, and increased by 12.4 per cent during 1980 (compared to 11.5 per cent in 1979). Business Week (February 2, 1981, p. 38) projects an increase of 12 to 14 per cent for 1981. A more conservative index, often used by industrial firms, is the Gross National Produce Implicit Price Deflator. This index, according to the Department of Commerce, increased at the rate of 6.5 per cent from 1975

to 1979. My 1981 estimate based on preliminary Department of Commerce figures is 8.1 per cent. The pattern of change in this index is informative:

	Change from previous year
1976	+ 5.3%
1977	+ 5.8%
1978	+ 7.3%
1979	+ 7.5%
1980	+ 8.1%

Because of escalator clauses in many union contracts and the indexation of social security and other retirement benefits to the Consumer Price Index, we now have factors built-in that will prevent the rate of inflation from falling to the historical levels experienced prior to the 1970s.

These general price indexes may not adequately reflect cost inflation associated with construction, operation, and decommissioning of a nuclear power plant. Philadelphia Electric Company projected, in June 1978, capital cost estimates for coal and nuclear plants in 1988 by escalating current costs at approximately 12 per cent per year (per "Electric Power Generation Economics" by Vincent S. Boyer, Vice President-Engineering and Research, Philadelphia Electric Company, June 1978). And cost estimates for the Zimmer plant have escalated much more rapidly than the general price indexes: the estimated cost of the facility has grown from \$288,000,000 in September, 1972 to \$1,067,320,000 in November 1980, a rate of cost inflation of approximately 18 per cent per year; while the estimate of annual operating costs has increased from \$53,000,000 (including decommissioning) in 1977

to \$259,915,200 (not including decommissioning) in 1980, an average annual increase of over 70 per cent per year.

The uncertainty and risks surrounding future decommissioning of nuclear power plants, including questions of federal, state, and local restrictions and regulations, availability of permanent burial sites, possible disallowance of entombment or mothballing, security issues, and the possibility of more stringent safety requirements, combine to make extreme cost inflation more than a mere possibility. My calculations are therefore based on two annual rates for decommissioning cost increases for 1980 and beyond: 8 per cent, reflecting what I believe to be a reasonable projection of industrial cost increases into the future taking into account the cost escalation built into labor contracts; and 10 per cent, reflecting what I believe is a more realistic assessment of the risk and past experience of cost escalation for nuclear power.

Applicants' decommissioning cost estimates may now be recalculated using the actual increase in the Gross National Product Implicit Price Deflator from 1975 to 1979 of 6.5 per cent, and the two rates of 8 per cent and 10 per cent, just discussed, for succeeding years:

Net total annual decommissioning fund deposit required over assumed 33 year operating lifetime:

Per applicants, based on 6.0 per cent inflation 1975-1979 and 6.5 per cent for succeeding years	\$ 3,551,610
Based on actual 6.5 per cent rate of inflation 1975-1979, and 8 per cent for succeeding years	13,901,278
Based on actual 6.5 per cent rate of inflation 1975-1979, and 10 per cent for succeeding years	132,352,407

The foregoing projections are not based on a facility-specific analysis by applicants of decommissioning costs for Zimmer Unit 1; they are derived

instead from estimates published in 1975 by the Atomic Industrial Forum (AIF). AIF estimated the cost of several decommissioning alternatives for a reference 1176 MWe boiling water reactor, and also estimated a percentage reduction factor for a 550 MWe BWR. Applicants have stated that they interpolated between these two capacities to obtain initial estimates, in 1975 dollars, for the Zimmer plant, and these were then escalated to 1983 dollars at the rates previously cited. In other words, applicants' estimates of decommissioning costs are based entirely on estimates developed by another organization in 1976, without reference either to the specific characteristics of Zimmer Unit 1 or to any knowledge or experience concerning decommissioning costs that may have been gained since 1976.

Besides the possibility that the AIF estimates may be outdated, they may have been too low in the first place. The project manager noted that reviewers had expressed concern that the costs appeared to be underestimated, and he further noted that the cost estimates in the study do not include a contingency factor, "typically on the order of 25%" ("An Engineering Evaluation of Nuclear Power Reactor Decommissioning Alternatives - Summary Report," National Environmental Studies Project, Atomic Industrial Forum, Inc., November 1976, p. iv.). When consultant John S. Ferguson applied the decommissioning cost estimates from the AIF report, he factored in an allowance for contingencies at 25 per cent (John S. Ferguson, "The Capital Recovery Aspects of Decommissioning Power Reactors," Public Utilities Fortnightly, September 25, 1980, pp. 34-42).

In light of these questions over the original estimates on which applicants' decommissioning cost projections are based, it would seem prudent to consider other approaches to estimating decommissioning costs. I understand that Connecticut's Public Utility Control Authority has approved a 10 per cent

negative salvage charge to consumers to provide for decommissioning costs of Northeast Utilities' Millstone Nuclear Power Station at Waterford. And Nuclear Engineering International (June 1979, p. 38) recently reported, "The general consensus is that the cost of dismantling a nuclear station will be about 10 to 15 per cent of the original capital cost, escalated to the time of decommissioning." Applying a 10 per cent factor to the November 1980 estimate of \$1,067,320,000 for Zimmer provides a decommissioning cost estimate of \$106,732,000 in 1980 dollars. Assuming a 33-year plant life, 6 per cent tax free return on the decommissioning fund (as used by applicants), and an 8 per cent annual rate of cost escalation, this would require an annual fund deposit of \$17,508,316 in 1983 dollars. At a 10 per cent rate of cost escalation the required annual fund deposit, in 1983 dollars, would be \$33,894,236.

In summary, we can evaluate the potential impact of applicants' underestimation of decommissioning costs on shareholders, ratepayers, and the applicants themselves. The latest data available to me indicates that common shares outstanding, earnings per share, and percentage participation in the Zimmer plant for the three participating companies were as follows:

	<u>Common shares outstanding (12/31/79)</u>	<u>Earnings per share (1979)</u>	<u>Per cent of Zimmer</u>
Cincinnati Gas & Electric	27,233,399	\$2.59	40%
Columbus & Southern Ohio Electric Company	16,345,951	\$2.84	28.5%
Dayton Power & Light	23,835,462	\$2.01	31.5%

Consumption by an average size residential consumer is assumed to be 7000 kilowatt hours per year (actual consumption by applicants' customers is not known but should be reasonably close to this estimate). An average plant capacity factor of 65 per cent will be assumed, in accordance with the U. S. General Accounting Office's suggestion ("Analysis of Estimated Cost for Three Pacific Northwest Nuclear Power Plants," U. S. General Accounting Office, July 30, 1979, p. 4 of cover letter to Congressman Weaver). Since it is not clear at this time as to who will bear the cost of decommissioning, and especially the excess cost due to underestimation and underprovision by applicant companies, these data will be used to project the impact on the different decommissioning cost estimates on each group (all amounts are in 1983 dollars):

	<u>Cost to shareholders</u>			<u>Charge per year to average residential customer for decommissioning cost</u>
	<u>CG&amp;E</u>	<u>C&amp;SOEC</u>	<u>DP&amp;L</u>	
1. AIF data, 8 per cent cost escalation (\$13,991,278 annual deposit)				\$ 21.50
Cost per share	\$0.21	\$0.24	\$0.18	
Per cent of 1979 EPS	8%	8%	9%	
2. AIF data, 10 per cent cost escalation (\$132,352,407 annual deposit)				\$203.39
Cost per share	\$1.94	\$2.31	\$1.75	
Per cent of 1979 EPS	75%	81%	87%	
3. 10 per cent of facility cost, 8 per cent cost escalation (\$17,508,316 annual deposit)				\$ 26.91
Cost per share	\$0.26	\$0.31	\$0.23	
Per cent of 1979 EPS	10%	11%	11%	
4. 10 per cent of facility cost, 10 per cent cost escalation (\$33,894,236 annual deposit)				\$ 52.09
Cost per share	\$0.50	\$0.59	\$0.45	
Per cent of 1979 EPS	19%	21%	22%	

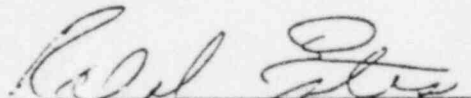
The preceding calculations show the amounts that will have to be either collected from an average residential customer each year, or absorbed by each share of stock annually, to provide for required annual decommissioning fund contributions under each cost estimate.

Applicants have indicated that they believe an annual deposit of \$3,551,610 will be sufficient to provide for all possible future decommissioning costs. What will be the financial impact on applicants if they do deposit only this amount annually? The following tabulation shows the shortfall or fund deficit in the year 2016 (at the anticipated shutdown date with a 33-year life beginning in 1983), in both 2016 and 1983 dollars, under the four cost estimates developed herein:

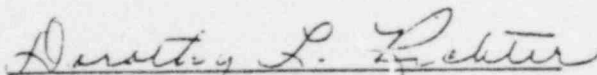
	<u>Fund balance required (year 2016)</u>	<u>Fund provided by applicants' estimate</u>	<u>Deficit (2016 dollars)</u>	<u>Deficit (1983 dollars)</u>
1. AIF data, 8 per cent cost escalation	\$ 1,361,955,283	\$345,724,958	\$ 1,016,230,325	\$ 80,169,324
2. AIF data, 10 per cent cost escalation	12,883,602,200	345,724,958	12,537,877,242	539,840,426
3. 10 per cent of facility cost, 8 per cent cost escalation	1,704,314,894	345,724,958	1,358,589,936	107,177,707
4. 10 per cent of facility cost, 10 per cent cost escalation	3,299,372,209	345,724,958	2,953,647,251	127,174,494



I have taken an essentially conservative approach to estimating the financial impact of decommissioning costs on applicants. I have not allowed for possible property taxes charged during a possible 104-year entombment period. I have not considered the tremendous financial impact of premature shutdown. I have not dwelt on the difficulties of obtaining access to permanent burial sites nor the possible charges for such sites. I have based my calculations on the assumption that the funds collected from ratepayers to provide a decommissioning fund will be exempt from income taxes, although I understand this is not currently the position of the Internal Revenue Service. The cost escalation rates I have used do not reflect the much higher escalation rates experienced in recent years for nuclear facilities generally. My purpose has not been to exaggerate the potential financial impact of decommissioning costs, but to provide calculations that show the potential impacts on applicants and their ratepayers and/or shareholders from very reasonable alternative possibilities.

  
Ralph Estes

Subscribed and Sworn to before  
me this 11 day of February 1981.

  
Notary Public

My Commission expires: 9-25-84

DOROTHY L. RICHTER  
NOTARY PUBLIC  
STATE OF KANSAS  
MY APPT. EXP. 9-25-84

RALPH ESTES  
 Professor of Accounting  
 Wichita State University

Curriculum Vita

EDUCATION

POOR ORIGINAL

D.B.A., Indiana University (1967)  
 M.B.A., University of Kentucky (1963)  
 B.S., University of Kentucky (1959)

ACADEMIC EXPERIENCE

Wichita State University, Professor (1973-present)  
 University of Texas at Arlington --  
 Professor (1971-1973)  
 Associate Professor (1968-1971)  
 Assistant Professor (1966-1968)  
 Northeastern University, Visiting Professor (Summer 1969)  
 Indiana University, Teaching Associate (1963-1965)  
 University of Kentucky, Instructor (1962-1963)

BUSINESS EXPERIENCE

Accounting and management consulting (1966-present)  
 Federal Election Commission (on public impact of campaign audit procedures and financial reporting requirements; also to monitor, at the FEC's request, a review by Arthur Andersen & Co. of FEC procedures, to insure freedom from bias)  
 Environmental Protection Agency (on economic value of noncompliance with pollution control requirements)  
 Arthur Andersen & Co. (on corporate social accounting)  
 State Senate of Kansas (on the state budget)  
 Kansas Department of Planning and Research (on cost determination)  
 Volunteer consulting to numerous minority-owned businesses, public interest groups, and anti-poverty organizations, generally on systems and procedures  
 Practicing CPA (1963-1965)  
 Staff accountant, Owens Owens & Hisle, Lexington, Ky. (1962-1963)  
 Staff accountant, Arthur Andersen & Co., St. Louis and Chicago (1959-1962)  
 Administrative clerk, United States Air Force (1953-1956)

PROFESSIONAL ACTIVITIES AND MEMBERSHIPS

Certified Public Accountant  
 Accountants for the Public Interest --  
 President (1979- )  
 Vice President (1978-1979)  
 Executive Committee (1977- )  
 Board of Directors (1977- )  
 Chair, Executive Director Search Committee (1979)  
 Chair, Membership Committee (1978-1979)  
 Chair, Committee on Relations with Colleagues and Students (1977-1978)  
 Long-Range Planning Committee (1978)

POOR ORIGINAL

PROFESSIONAL ACTIVITIES AND MEMBERSHIPS (continued)

American Institute of Certified Public Accountants  
 American Accounting Association --  
 Committee to Nominate Outstanding Contributions to Accounting Literature (1978-1979)  
 Research Editorial Board (1976-1977)  
 Committee on Accounting for Social Performance (1974-1975)  
 Editorial Board, The Accounting Review (1973-1974)  
 Accounting Educator Award Committee (1972-1973, 1973-1974)  
 International Accounting Committee (1971-1972)  
 Committee on Application of Learning and Communication Theory to Accounting Instruction (1970-1971)  
 Committee on International Aspects of Accounting Teaching and Research (1968-1969, 1969-1970)  
 Research Committee on International Accounting (1966-1967)  
 Research Project Consulting Committee (Simmons & Barrett project)  
 AAA Delegate to Ninth International Congress of Accountants, Paris (1967)  
 American Institute for Decision Sciences  
 Financial Executives Institute (1970-1973) --  
 Chair, Dallas Chapter Education Committee  
 Greater Wichita Area Chamber of Commerce --  
 Community Livability Committee  
 Legislative Committee  
 Chair, Education and Culture Committee

PUBLICATIONS

## Books and Monographs:

Dictionary of Accounting (Cambridge: The MIT Press, forthcoming), cloth and paperback editions.

Corporate Social Accounting (New York: John Wiley & Sons, 1976), 166 pages. Japanese edition published by Chuo Keizai Co., Ltd., 1979; translated by Kiyoshi Aoyagi and Takatsugu Nato. Taiwan edition published by Modern Book Co., Taipei, 1977.

Accounting and Society (Los Angeles: Melville Div. of John Wiley & Sons, 1973), 411 pages; cloth and paperback editions.

An Introduction to Financial Control and Reporting in Multinational Enterprises (Austin: Bureau of Business Research, The University of Texas, 1973), 89 pages. Coauthored.

Accounting for Excellence: An Evaluation of the Relative Quality of Programs in Accounting (New York: Laventhol Kiekstein Horwath & Horwath, 1970), 20 pages.

PUBLICATIONS (continued)

## Journal Articles:

"The Profession's Changing Horizons: A Survey of Practitioners on the Present and Future Importance of Selected Knowledge and Skills," The International Journal of Accounting Education and Research, Spring 1979, pp.

"Accounting and Public Service," The Accounting Review, April 1979, pp. 402-408. With Gerald Zeisel.

"An Experimental Study of the Differential Effect of Standard and Qualified Auditors' Opinions on Investors' Price Decisions," Accounting and Business Research, Spring 1979, pp. 157-162. With Marvin Reimer.

"On the Present and Future Importance of Accounting History," The Accounting Historians Journal, Fall 1978, pp. 63-65.

"Achieving Practical Relevance in Accounting Education: A Survey of Public Accountants on the Present and Future Importance of Curricular Areas," The Woman CPA, October 1978, pp. 7-12.

"Social Accounting in a Manufacturing Company: An Action Research Study," The Journal of Contemporary Business, Winter 1978, pp. 33-43. With Nicole Zenz.

"Social Accounting in Japan," Accounting: Kigyo Kaikei (Japan), April 1978, pp. 45-50. With Hiroshi Yoshida.

"Corporate Social Accounting," Accounting: Kigyo Kaikei (Japan), January 1978, pp. 65-69. With Hiroshi Yoshida.

"Improving Executive Decisions by Formalizing Dissent: The Corporate Devil's Advocate," The Academy of Management Review, October 1977, pp. 662-667. With Theodore Herbert.

"A Study of the Effect of Qualified Auditors' Opinions on Bankers' Lending Decisions," Accounting and Business Research, Autumn 1977, pp. 250-259. With Marvin Reimer.

"Standards for Corporate Social Reporting," Management Accounting, November 1976, pp. 19-22, 26.

"A Comprehensive Corporate Social Reporting Model," The Federal Accountant, December 1976, pp. 9-19.

"Caveat Executor: A Warning on the Misuse of Linear Regression," Managerial Planning, January-February 1974, pp. 29-34. Coauthored.

"The Joint Probability Approach and Reorder Point Determination," Production and Inventory Management, 2nd Quarter 1973, pp. 50-56.

## Journal Articles (continued):

"Socio-Economic Accounting and External Diseconomies," The Accounting Review, April 1972, pp. 284-290.

"Application of Communication Theory to Accounting Instruction," in Report of the Committee on Application of Learning and Communication Theories to Accounting Instruction, The Accounting Review, Supplement to Vol. XLVII (1972), pp. 268-275.

"A Ranking of Accounting Programs," The Journal of Accountancy, July 1970, pp. 86-90.

"The Accountant's Social Responsibility," The Journal of Accountancy, January 1970, pp. 40-43.

"An Assessment of the Usefulness of Current Cost and Price-Level Information by Financial Statement Users," The Journal of Accounting Research, Autumn 1968, pp. 200-207.

"Professional Education for the Mature Accountant," Canadian Chartered Accountant (now CA), March 1968, pp. 193-195.

"Comparability and Flexibility: A Proposed Solution to the Uniformity Dilemma," The Financial Analysts Journal, May-June 1966, pp. 65-68. With Homer Brown.

## Other Articles:

"Social Reporting in Japan," in The Status of Social Reporting in Selected Countries (Center for International Education and Research in Accounting, The University of Illinois, 1978), pp. 73-80.

"The Corporate Social Accounting Model: An Information System for Evaluating the Impact of Corporations on Growth, Resource Use, and Specific Constituent Groups Within Society," in Accounting and Corporate Social Responsibility (The University of Kansas, 1978), pp. 103-109.

"Social Accounting -- Where Are We and Where Are We Going?" 1976-1977 Distinguished Speaker Series (The University of Kentucky, 1977), pp. 15-28.

"Evaluation of a Proposed Social Reporting Model," in Accountancy in the 1980s - Some Issues (Reston: The Council of Arthur Young Professors, 1977), pp. 159-167.

"The Inefficient Markets Theorem, or Why There Will Always be a Need for Social Accounting," in Bridging the Gap, Gary John Previts, editor (The University of Alabama, 1976), pp. 153-162.

"Social Measurement in the Accounting Curriculum -- Where and Why?" in Researching the Accounting Curriculum: Strategies for Change, William L. Ferrara, editor (Education Series No. 2, American Accounting Association, 1975), pp. 203-217.

## Other Articles (continued):

"A Comprehensive Social Accounting Model for Corporations and Other Entities," Proceedings of the Southwest Regional Meeting of the American Accounting Association (Houston, 1975), pp. 238-252.

"A Comprehensive Corporate Social Reporting Model," in Social Accounting by Lee J. Seidler and Lynn L. Seidler (Los Angeles: Melville Div. of John Wiley & Sons, 1975), pp. 185-204.

"Social Accounting," Wichita State University Magazine, Winter 1975, pp. 4-7.

"Advanced Principles of Auditing," in Accounting Trends VIII, Thomas J. Burns, editor (New York: McGraw-Hill, 1974), pp. 38-40.

"What's All This About Social Accounting -- or Can I Make It to Retirement Without Having to Learn?" Elmer Fox & Company '74, pp. 10-11.

"Education for the Mature Professional," Proceedings of the Second International Conference on Accounting Education (London, 1970), pp. 27-33.

"The Decision Scientist: 1984," Proceedings of the First Annual Meeting of the American Institute for Decision Sciences (New Orleans, 1970), pp. 181-293. With Lee Smith.

## Book Reviews:

Trevor Gambling, Societal Accounting (London: George Allen & Unwin Ltd., 1974); in The Accounting Review, April 1976, pp. 457-458.

J. E. Smyth, The Accounting Model (Toronto: The Ryerson Press, 1970); in The Accounting Review, October 1971, p. 836.

INVITED PAPERS AND PROGRAM APPEARANCES

## National/International Meetings:

"An Experimental Study of the Behavioral Impact of the Auditor's Standard Opinion," Annual Meeting of the American Institute for Decision Sciences, New Orleans, November 1979.

"Fads, Foibles and the Future: Social Accounting in the Twenty-First Century," Annual Conference of the Order of Chartered Accountants of Quebec, Pointe-au-Pic, June 1979.

"The Profession's Changing Horizons: A Survey of Practitioners on the Present and Future Importance of Selected Knowledge and Skills," Annual Meeting of the American Accounting Association, Denver, August 1978.

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National/International Meetings (continued)

"Monetary Measures of Performance," Annual Conference of Accountants for the Public Interest, Miami, November 1977.

"Accounting in the Twenty-First Century: The Road to Gnomologica," Annual Meeting of the American Accounting Association, Portland, August 1977.

"The Now and Future Accountant's Need for Decision Sciences," Annual Meeting of the American Institute for Decision Sciences, San Francisco, November 1976.

Panel discussant, "How Can We Utilize Student Volunteers More Effectively?" Annual Conference of Accountants for the Public Interest, San Francisco, November 1976.

"A Model for Measuring and Evaluating the Social Impact of Multinational Corporations," XXIInd International Meeting of The Institute of Management Sciences, Kyoto, July 1975.

Session chair, "The Measurement of the Social Impact of Multinational Corporations on Host Countries," XXIInd International Meeting of The Institute of Management Sciences, Kyoto, July 1975.

Session chair, "Social Accounting: Cases in Social Measurement," Annual Meeting of the American Institute for Decision Sciences, Atlanta, October 1974.

"Social and Environmental Accounting," Twenty-Third Annual Symposium of the Federal Government Accountants Association, Dallas, June 1974.

"Social Accounting and Accounting Education," American Accounting Association Symposium on Accounting Education, Chicago, May 1974.

"A Comprehensive Corporate Social Reporting Model," XXth International Meeting of The Institute of Management Sciences, Tel Aviv, June 1973.

"Application of Communication Theory to Accounting Instruction," Annual Meeting of the American Accounting Association, Lexington, August 1971.

"Accounting for Social Costs," Annual Meeting of the American Accounting Association, University of Maryland, August 1970.

"The Decision Scientist: 1984," Annual Meeting of the American Institute for Decision Sciences, New Orleans, October 1969. With Lee Smith.

"Education for the Mature Professional," Second International Conference on Accounting Education, London, August 1967.

Other Meetings:

"Public Interest Accounting: Putting the 'P' in CMA," Wichita State University Chapter of Beta Alpha Psi, October 1979.

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Other Meetings (continued):

"The Present and Future Importance of Selected Knowledge and Skills," Second Annual Kansas Society of CPAs Accounting Educators Conference, Manhattan, March 1979.

"The Value of Virtue: Can Corporate Morality be Measured?" University of Notre Dame, invited lecture sponsored by the Joint University Committee on Business, Theology and Philosophy, April 1978.

Discussant, "The Role of Fact and Interpretation in the Evolution of the Auditing Method," by Florence Sneed, Annual Meeting of the American Accounting Association Southwest Region, Dallas, March 1978.

"The Corporate Social Accounting Model: An Information System for Evaluating the Impact of Corporations on Growth, Resource Use, and Specific Constituent Groups Within Society," Social Accounting Symposium sponsored by Arthur Andersen & Co. and the University of Kansas, Lawrence, May 1977.

Panel Discussant, "Corporate Social Responsibility and Social Accounting," on Market Place, public television program produced for national syndication, Kansas City, May 1977.

"Social Accounting -- State of the Art and the Future Outlook," University of Kentucky Distinguished Speaker Series, October 1976.

"Total Performance Accounting: A New Tool for Evaluating Your Social Performance," Wichita State University Community Leaders' Luncheon, Wichita, September 1976.

"Social Accounting in the Curriculum: How Much, Where, Why?" Annual Meeting, Coordinating Council of Accounting Educators of Minnesota, Winona, April 1976.

"Evaluation of a Corporate Social Reporting Model," The Arthur Young Professors' Roundtable, University of Illinois, Urbana, March 1976.

"Social and Environmental Accounting," Robert Morris Associates, St. Louis Chapter, February 1976.

"The Inefficient Markets Theorem, or Why There Will Always be a Need for Social Accounting," University of Alabama Accounting Research Convocation, November 1976. Also served as a member of the convocation faculty.

"Social Accounting," AICPA's Faculty Summer Seminar for Representatives of Accounting Departments in the Traditionally Black Colleges and Universities, Florida A & M University, Tallahassee, June 1975.

"Measuring the Unmeasurable: Social Accounting for Social Responsibility," Emporia Kansas State University Annual Accounting Club Banquet, Emporia, April 1975.



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Other Meetings (continued):

"Integrating Economic and Social Effects in a Comprehensive Corporate Reporting Model," American Accounting Association Southwest Regional Meeting, Houston, March 1975.

"A Proposed Corporate Social Reporting Model," The University of Minnesota, invited lecture for faculty, Ph.D. candidates, and area business executives, Minneapolis, February 1975.

"A Corporate Social Reporting Model," The University of California, invited lecture for faculty and Ph.D. candidates, Berkeley, November 1974.

"Social Accounting: Progress and Prospects," U. S. Civil Service Commission Seminar for Financial Executives, Dallas, October 1974.

"Social Accounting," Annual Meeting of the Kansas Society of Certified Public Accountants, Dodge City, September 1974.

"Social Accounting and the CPA," Wichita Chapter of Kansas Society of CPAs, Wichita, January 1974.

"Innovation in Accounting Instruction," State Convention of Community Colleges in Kansas, Wichita, January 1974.

"Corporate Social Accounting," Wichita State University Accounting Club, Wichita, January 1974.

"Corporate Social Accounting," Annual Professional Banquet of the University of Houston Chapter of Beta Alpha Psi, October 1973.

"Accounting in the Executive Suite," Golden Triangle Chapter of the National Secretaries Association, Arlington, August 1973.

"Social Accounting," three-day seminar for Arthur Anderson & Co. partners, Chicago, May 1973. Directed by R. Lee Brummet.

"Quantitative Systems for Social Performance Evaluation," Seminar on Measurement of Corporate Social Performance sponsored by the California CPA Foundation for Education and Research and the University of Southern California, Monterey, April 1973.

"The Future of Accounting Education," Seminar on Accounting Education, jointly sponsored by American Institute of Certified Public Accountants, American Accounting Association, and North Texas State University, Denton, November 1972.

"Mathematical Communication Theory and Accounting," Annual Meeting of the American Accounting Association Southeast Region, Baton Rouge, May 1972.

"Public Interest Accounting," Texas Christian University Chapter of Beta Alpha Psi, Fort Worth, December 1971.

Other Meetings (continued):

"Information Theory," Dallas Chapter of the Institute of Internal Auditors, Dallas, October 1971.

"Are Accountants Relevant?" Annual Meeting of the Fort Worth Chapter, Texas Society of CPAs, Fort Worth, January 1971.

Discussant, "Feasibility of Obtaining Current Cost Data: A Case Study," Annual Meeting of the American Accounting Association Southwest Region, Dallas, March 1970.

"Business and Social Change," Southwestern Bell Telephone Company College Faculty Conference, Arlington, November 1968.

"International Financial Reporting," Annual Meeting of the American Accounting Association Southwest Region, Dallas, March 1967.

OTHER RESEARCH COMPLETED

"A Discriminant Analysis of Career Choice Decisions Among Accountants, Attorneys, Engineers, and Physicians," research report submitted to The Accounting Review.

"An Investigation of Intergenerational Socioeconomic Status Change Among Four Professions," research report submitted to The Accounting Review.

A series of controlled experiments, extending over a five-year period, to investigate the effects of different audit opinion forms on stockholders, financial analysts, institutional investors, and business persons in general; will be prepared for publication as a research monograph.

"Accounting Problems of the Multinational Enterprise," for the American Accounting Association's International Accounting Committee, 1971-1972.

"Resources for Research in International Accounting," for the American Accounting Association's Committee on International Aspects of Accounting Teaching and Research, 1968-1970.

"International Accounting and the AAA Basic Standards," for the American Accounting Association's Research Committee on International Accounting, 1966-1967; results published in The Accounting Review, Supplement to Vol. XLVIII (1968), pp. 3-14.

International Accounting: With Particular Reference to Application of Price-Level Adjustment and Future Service Valuation Concepts (Doctor of Business Administration dissertation, Indiana University, May 1967).

HONORS AND AWARDS

Honored by student and alumni groups (Omicron Delta Kappa, Mortar Board, and Student-Alumni Association) for "Leadership in Service to Wichita State University," February 1978.

Listed in Outstanding Educators in America, 1970 and 1974-1975.

Listed in American Men and Women of Science.

Beta Alpha Psi, accounting professional and honorary organization.

Beta Gamma Sigma, business honorary.

Phi Alpha Theta, history honorary.

Earhart Fellow, 1962, 1963, and 1964.

UNIVERSITY SERVICE

Chair, University Committee on Credit for Experience

Moderator and member of Planning Committee, WSU Annual Accounting/Auditing Conference

Faculty advisor to several student organizations, including Beta Alpha Psi

Elected member, University Graduate Assembly

University Curriculum Committee

University Computer Board

University Goals Committee

University Humanities Committee

University Human Research Review Committee

University DELTA Project Advisory Committee

College Graduate Studies Committee

College Doctoral Program Committee

College Tenure and Promotion Committee

College Research Committee

College Retrenchment Committee

College Management Science Committee

College Honors Committee

Chair, College Computer Requirements Committee

College Dean Evaluation Committee

College MBA Accreditation Committee

College Dean Search Committee

Chair, Department Chairperson Search Committee

Developed following new courses:

Management Accounting for Public Administration (graduate)

Advanced Public Accounting Practice (graduate)

Information Systems Analysis (graduate)

Business and Society (graduate)

Accounting Research Seminar (graduate)

International Accounting and Financial Analysis (graduate)

Electronic Data Processing (undergraduate)

Electronic Business Systems (undergraduate)

COMMUNITY SERVICE

Community service has included service as officer or board member of numerous community and public interest organizations; volunteer consulting to Federal Election Commission, Environmental Protection Agency, State Senate of Kansas, and numerous other government agencies, minority-owned businesses, public interest groups, and anti-poverty organizations; over one hundred addresses to community, educational, and religious organizations; and service as finance chairperson for a Kansas gubernatorial candidate.

OTHER INFORMATION

Date of birth: August 13, 1935.

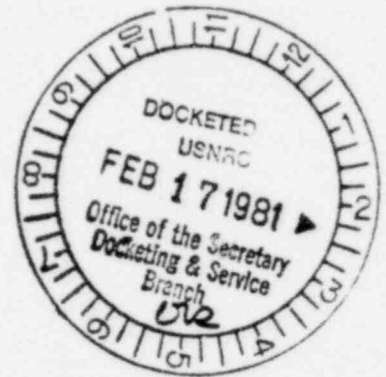
Married to Sue Ellen Horn; no children.

Personal and professional goals include continued efforts to advance knowledge through personal scholarly activities and by stimulating other scholars including Ph.D. candidates and younger professors; and efforts to serve the public interest through the application of accounting and economic skills and knowledge.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Charles Bechhoefer, Chairman  
Dr. Frank F. Hooper, Member  
Glenn O. Bright, Member



In the Matter of :  
: CINCINNATI GAS AND ELECTRIC :  
COMPANY, ET AL, : DOCKET NO. 50-358  
(William H. Zimmer Nuclear : APPLICATION FOR  
Power Station) : OPERATING LICENSE.

CERTIFICATE OF SERVICE

I hereby certify that copies of The Direct Testimony of  
Ralph Estes Regarding Contention 13, Applicants' Financial Qualifications  
\_\_\_\_\_ in the above-captioned proceed-  
ing have been served on the following persons by posting the same  
in the U.S. Mails, postage prepaid, this 13 day of February  
1981.

Charles Bechhoefer, Esq., Chairman  
Atomic Safety and Licensing Board  
Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Mr. Glenn O. Bright  
Atomic Safety and Licensing Board  
Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

~~Dr. Frank F. Hooper~~  
~~SCHOOL OF Natural Resources~~  
~~University of Michigan~~  
~~Ann Arbor, Michigan 48109~~

Troy B. Conner, Esq.  
Conner, Moore & Corber  
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Washington, D.C. 20006

~~William J. Moran, Esq.~~  
~~General Counsel~~  
~~Cincinnati Gas & Electric Co.~~  
~~P.O. Box 968~~  
~~Cincinnati, Ohio 45201~~

John D. Woliver, Esq.  
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550 Kilgore Street  
Batavia, Ohio 45103

W. Peter Heile, Esq.  
Assistant City Solicitor  
Room 214, City Hall  
Cincinnati, Ohio 45220

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Atomic Safety and Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Charles A. Barth, Esq.  
U.S. Nuclear Regulatory Commission  
Room MNBB 9604  
7735 Old Georgetown Road  
Bethesda, Maryland 20014

Chase Stephens  
Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Richard S. Salzman, Esq.  
Chairman  
Atomic Safety & Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Lawrence Quarles  
Atomic Safety & Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Michael C. Farrar, Esq.  
Atomic Safety & Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. Frank Hooper  
Apartment 204  
105 Inn Lane  
Oak Ridge, TN 37836

Chairman  
Atomic Safety and Licensing Board  
Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

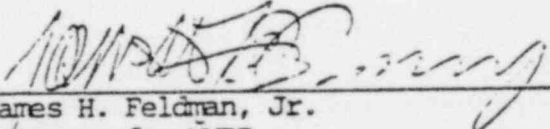
Mary Reder  
Box 270  
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David K. Martin, Esq.  
Assistant Attorney General  
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209 St. Clair Street  
Frankfort, Kentucky 40601

Andrew B. Dennison  
200 Main Street  
Batavia, Ohio 45103

Robert Jones  
Prosecuting Attorney  
Clermont County  
154 Main Street  
Batavia, Ohio 45103

I further certify that I have served a copy of the foregoing on Mr. William J. Moran, CG&E, by personally delivering it to his office this 13 day of February, 1981.

  
James H. Feldman, Jr.  
Attorney for MVPP  
216 East Ninth Street  
Cincinnati, OH 45202  
(513) 621-6151