

FRANK B. FRIEDMAN

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Frank Friedman, a consultant in environment, health and safety (EHS) and risk management, has been a professional in these areas for more than forty years. He has broad experience in the chemical, oil and gas exploration and production, petroleum refining and marketing, mining and pipeline industries and as a consultant has been advising utility and power companies on program management, strategies and energy issues and chemical, manufacturing, consumer products, pharmaceutical, power and energy, mining, service companies and hospitals on program management and compliance. He is also available as an expert witness on EHS management systems and their historical development, including management of Superfund liabilities. He has recently served or is serving as an expert or expert witness in cases involving process safety management; alleged environmental malpractice; standard of conduct in managing TCE; class action involving alleged personal injuries and other damages arising from the sale of pesticides; class action involving alleged dioxin exposure and contamination; a dispute between two companies involving management standards; and a compliance matter involving underground tanks.

Friedman is also a Managing Director of Carbon Finance Strategies LLC, a firm based in Washington, DC and Boston, Massachusetts (www.carbonfs.com), a position he has held for the last four years. The organization is a start-up which prequalifies sites and potential solar photovoltaic (PV) facilities to investor-grade standards on technical, financial and regulatory dimensions.

Among its projects, the firm has implemented a 1.6 MW Solar PV “direct install” project at a client-owned hazardous waste landfill as an initial test project for multi-site, multi-state client portfolio of candidate solar sites; evaluating the technical, legal and financial feasibility of siting a solar PV facility on a client-operated hazardous waste landfill, as the first in a potential series of client sites; performed an in-depth “foundational” analysis defining the range of objectives and implementing means available for cost-effective management by a trade association and its members of airport/airline financial risks and opportunities presented by regulation of greenhouse gases; and for a major airport owner and operator, is evaluating near-term Renewable Energy (“RE”) development opportunities at client-operated commercial airport representing the first in a potential portfolio of rooftop or ground-mounted solar projects at client sites. We have

completed several ground-mounted projects in the 6 MWp range on a develop/sell basis in Massachusetts and are presently in discussion on other projects.

Friedman was appointed by the U.S. Department of Justice in 2003 as the consultant to the probation officer in the settlement of an environmental criminal case involving Ashland, Inc., overseeing Ashland's compliance in its facilities throughout the U.S.

Friedman is presently serving as a member of the four person Standards Board of the Board of Environmental, Health & Safety Auditor Certifications. The Standards Board has recently significantly revised the auditing standards for the Board of Environmental, Health & Safety Auditor Certifications and the Auditing Roundtable.

Friedman started as an attorney in the U.S. Department of Justice in what is now the Environment and Natural Resources Division in the late 1960's, where he worked on some of the early cases in this area. He began his corporate career in 1970 and for almost twenty years was a senior (Senior VP and VP level) corporate EHS officer with large multinational corporations. He is recognized as a worldwide leader in developing and rapidly implementing leading edge EHS programs. He has organized and managed both centralized and decentralized departments requiring rapid decision making, turnarounds and integration into business plans. He has engaged in extensive troubleshooting at facilities and operations worldwide, including Latin America, China, Singapore, Thailand and Europe. His book, Practical Guide to Environmental Management (Environmental Law Institute, 11th edition, 2011), is widely viewed as the standard reference and teaching text on its subject. That book also contains detailed discussions relating to the integration of environment, safety, health and process safety/risk management.

He was named by the National Law Journal as one of a small group "who stand out not only for their success in representing their clients' interest, but also for their influence on the law." He has been a member of the Executive Committee and Chairman of the Finance and Audit Committee of the Board of Directors of the Environmental Law Institute, as well as having served as a Visiting Scholar, working with the Institute on various management issues. He also has advised the U.S. Department of Justice and EPA on environmental management systems, most recently as a Distinguished Speaker to the Office of Enforcement and Compliance Assurance.

He recently served as Co-Chairman of the Climate Change, Sustainable Development, and Ecosystems Committee of the American Bar Association's Section on Environment, Energy and Resources (2009-2011).

He received his AB in 1962 from Columbia College and his JD in 1965 from Columbia Law School.

PROFESSIONAL EXPERIENCE

Vice-President, Health, Safety and Environment, ELF AQUITAINE, INC. (1998 through May 2000)

Newly created position for U.S. holding company of Elf Aquitaine to build a higher profile presence in the U.S. in the environment, health and safety (EHS) areas.

- Advised Elf Aquitaine and its subsidiaries on important EHS issues in the U.S. affecting worldwide regulatory policies, programs, strategic planning and other impacts.
- Involvement in leadership position in organizations and with individual contacts in critical government, industry and non-governmental organizations.
- Regular memoranda on key issues such as global warming, fuel composition, mobile source regulations, exploration and production, refining issues and other U.S. regulatory issues.
- Heavy involvement in global warming issues both domestic and international.
- Involvement in leadership role and advice on policies and programs that are viewed as effective leadership vehicles in the EHS area.
- Developed or assisted in developing U.S. positions for advocacy as required.
- Monitor EHS programs of U.S. subsidiaries.

Senior Vice President, Environment, Health and Safety and Special Counsel, ELF ATOCHEM, North America, Inc. (now Arkema) (1994 - 1998)

Newly created position reporting to the President and CEO to establish programs and improve compliance of a recently formed chemical company with significant environment, health, safety and risk management compliance and management issues.

- Established management accountability and moved from achieving compliance to state of the art management systems and significant reduction of legal costs
- Reorganized and built an effective health, environment and safety staff at Corporate Headquarters and plants.
- Implemented sophisticated data management systems and program to review overall costs of EHS programs and to determine long-term appropriate staffing.

- Active involvement in management of the Company as a member of the Executive Committee and Manufacturing Committee.
- Broadly communicated the compliance and management system improvements at programs sponsored by EPA, the American Bar Association and others as well as in the 7th edition of my book, Friedman, Practical Guide to Environmental Management, Environmental Law Institute, (1997).

Partner, McClintock, Weston, Benschhoff, Rochefort, Rubalcalva and MacCuish (now Alston & Bird), Los Angeles, California (1993 - 1994)

Los Angeles law firm with one of the largest environmental law practices in California.

- Appeared before EPA on behalf of clients and counseled national and international companies and industry coalitions in California and Washington, D.C. on Clean Air Act and environmental compliance issues.

Vice President – Health, Environment and Safety and Special Counsel, OCCIDENTAL PETROLEUM CORPORATION, Los Angeles, California (1981 - 1993)

Developed and implemented an environmental, health, safety and risk engineering program for worldwide operations of \$11-billion diversified company (oil and gas, chemicals, coal and pipelines). The program gained international recognition as a leading edge model for other companies to follow.

- Recognized by The National Law Journal as one of ten lawyers who represent industry "who stand out not only for their success in representing their clients' interest, but also for their influence in the shaping of environmental law"
- Direct involvement as corporate counsel, including litigation and hearings in major permitting and regulatory concerns relating to environment, health and safety. These included:
 - Handling major acquisitions, including review of documents, site visits, interviews and preparation of documents.
 - Obtaining California Coastal Commission offshore drilling permit over the objection of the commission's staff, increasing value of offshore leases by millions of dollars.
 - Breaking 2-year logjam after failure by outside counsel, obtaining reversal of recommendation of EPA regional staff through personal contract and advocacy, and securing energy-from-waste PSD permit within 60 days.

- Contacting Department of Justice directly after year-long settlement negotiation by outside counsel and acting as catalyst for settlement of major Superfund case within 6 months.
- Reviewing major environmental cases for general counsel and outside counsel, recommending defense strategies which saved many millions of dollars.
- Negotiated extensive agreement with Chinese partners in the largest surface mine in the world to secure major improvements in process safety, environmental and safety procedures and management, after extensive failures of equipment and major accidents.
- Frequent writer and lecturer on the Clean Air Act including the annual ALI/ABA Conference on Environmental Law (1973 through 1993); ABA/EPA Workshops on Air Quality; the Annual Conference on Environmental Law of the ABA's Section of Natural Resources, Energy and Environmental Law (SONREEL) (most recently in 1993); the Los Angeles portion of SONREEL 's Teleconference on the Clean Air Act Amendments of 1990 (1992); and the Los Angeles County Bar Association's Annual Conference on Environmental Law (1992)

ATLANTIC RICHFIELD COMPANY, Los Angeles, California (1970 - 1981)

Manager, External Affairs, Occupational & Environmental Protection, Corporate Headquarters (1979 – 81)

Corporate responsibility for legislative and regulatory issues relating to environment, health and safety. Built credibility of ARCO with EPA, Department of Justice and environmental organizations.

Director, Environment, Health and Safety, ARCO Chemical Co., Philadelphia, Pennsylvania (1978 - 1979)

Developed and implemented integrated programs for environmental, health and safety, including regulatory and legislative advocacy. Reported directly to President of Arco Chemical Company.

Counsel, Corporate Headquarters (1973 - 78)

Extensive involvement in litigation and administrative matters; supervised environmental legal work for chemical, oil and gas, pipeline, coal and mineral operations and served as corporate counsel for public affairs.

Attorney, Oil and Mineral Operations, Denver, Colorado (1971 - 73)

Extensive litigation involvement; responsibility for all legal work relating to oil shale operations, and served as environmental counsel for all mineral operations.

Attorney, Eastern Region Headquarters, Philadelphia, Pennsylvania (1970 - 71)

Primary responsibility for environmental legal matters relating to Atlantic Richfield Company's eastern operations (refining, marketing, distribution, pipelines, etc.).

U.S. DEPARTMENT OF JUSTICE Washington, DC (1967 - 1970)

Trial Attorney, Appellate Section, Land & Natural Resources (now Environment & Natural Resources Division)

- Briefed and argued over 30 major natural resource, energy and environmental cases throughout the United States.
- Recommendations to Office of the Solicitor General on appeal of cases to U.S. Courts of Appeal and petitions for certiorari to the U.S. Supreme Court.

U.S. FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. (1965 - 1967)

Attorney

- Hearings and administrative issues.

EDUCATION

J.D., 1965 Columbia Law School, New York, NY;

A.B., 1962 Columbia College, New York, NY (History)

BAR ADMISSIONS

Washington, D.C.; California; Colorado; Pennsylvania; U.S. Supreme Court; and various federal courts.

PUBLICATIONS/BOOKS

- Practical Guide to Environmental Management (Environmental Law Institute 1988, 11th Edition, 2011)
- Gayle Environmental Almanac (Russ Hoyle, editor) Chapter 6, Business and the Environment, an Unheralded, Unfinished Revolution (1994)

- Practical Guide to Environmental Law (with David Sive) (ALI/ABA 1987). Also author of chapters on Dealing with Federal State and Local Agencies and Citizen Organizations and Environmental Auditing (with David Giannotti) (see also 3 Practical Real Estate Lawyer 53 (November 1987))
- Editorial Advisory Board, treatise on Environmental Protection Law (ELI and Clark Boardman and Co., 1989, revised 1995, 1996. 1997, 2003, 2008, 2011 and 2013). Also author of chapter on Environmental Auditing
- Editorial Advisory Board, treatise on Sustainable Development Law (ELI and Clark Boardman & Co 1992)

REPRESENTATIVE PUBLICATIONS/ARTICLES

1990 – Present

Teaching the Business Case (with James K. Vines), 31 Environmental Forum 34 (November/December 2014)

Climate Change and Legal Issues for Auditors (with Jean H. McCreary, Sharon A. Snyder and Henry Balikov), Auditing Roundtable Newsletter (December 2007)

Integration and Culture, the Linchpins for Success in a Scary World, Auditing Roundtable (September 2004))

Environmental Management Systems-Managing Cost Effectively While Assuring Compliance, 10 Corporate Environmental Strategies, 2-117 (June 2003)

NEPA, An Industry Perspective, Environmental Impact Assessment, ALI-ABA Course of Study Materials (April 23-25, 2003) at p.481

Environmental Management Systems-Managing Cost-Effectively While Assuring Compliance, Proceedings of 32nd Annual Conference on Environmental Law, at p.45, Section of Environment, Energy and Resources, American Bar Association (March 13-16, 2003)

After all those texts, the writer finally speaks (Discussion of 9th Edition of Practical Guide to Environmental Management), 20 Environmental Forum 60 (January/February 2003)

Management Systems and Forest Products, Proceedings of 10th Section Fall Meeting at p. 93, Section of Environment, Energy and Resources, American Bar Association (October 9-13, 2002)

Profile-He Wrote The Book On It (Interview with Frank B. Friedman), 19 Environmental Forum 36 (September-October 2002)

Managing Environmental Operations in a Foreign Country, International Environmental Law at p. 161, ALI-ABA Course of Study Materials (April 4-5, 2002)

ABA Resolution Encouraging Environmental Management Systems, 2 Second Generation Issues Committee Newsletter 17, Section of Environment, Energy and Resources, American Bar Association (September 2001)

Green Arthritis (with Richard MacLean), 17 Environmental Forum (November/December 2000), p. 36

ISO 14001 And Related Environmental Management System Developments 3 International Environmental Law Committee Newsletter 3, Section of Environment, Energy and Resources, American Bar Association (September 2000), p. 2

The Changing Scope of Environmental Management, Environmental Management, (January 2000), p.38

EPA's Parallel Track Proposal-Is It Going to the Right Station, 16 Environmental Forum, (November/December 1999), p. 49

The Clean Development Mechanism, Can It Become a Reality? Earth Technologies Forum (1999)

Corporate Environmental Strategies Develop Cross-Border Finesse, Legal Times, Business without Borders (December 1999), p. 8

The Party is Over – The Changed Practice of Environmental Law, 31 Trends, ABA Section of Environment, Energy and Resources Newsletter (November/December 1999), p 5

Risk Management Program Rewards Good Planning, Chemical Processing (February 1996), p. 34

Accounting for Unascertainables, Corporate Environmental Strategy, (October 1993), p. 59

Presidential Involvement in Clean Air Act Implementation (with E. Rosenberg), 7 Natural Resources & Environment 28 (1992)

The Perils of Self-Assessment or No Good Deed Goes Unpunished, Global Environmental Management Initiative Corporate Quality/Environmental Management Conference (March 16-18, 1992)

The Changing Role of the Environmental Manager, 35 Business Horizons 25 (March/April, 1992)

Is This Job Worth It?, 8 Environmental Forum 21 (May/June, 1991)

Environmental Management for the Future: Environmental Auditing Is Not Enough, 12 Cardozo Law Review 1314 (April, 1991)

Potential Legal Liability Issues Resulting From Quality Measurement Tracking Systems, Global Environmental Management Initiative Corporate Quality/Environmental Management Conference (January 9-10, 1991)

1980-1989

Why Industry Needs A New Clean Air Act (with E. Rosenberg), 6 Environmental Forum 6 (May/June 1989)

Effective and Turf-Free Organization and Management of the Environmental Function (with J. Wilkenfeld), Environmental Management Report (3rd Quarter, 1987), p. 11

Corporate Environmental Programs and Litigation. ~ Role of Lawyer Managers in Environmental Management, 45 Public Administration Review 768 (December 1985)

Managing and Resolving Corporate Environmental Issues, 3 Environmental Forum 28 (February, 1985)

NEPA - An Industry Perspective, 3 Environmental Forum 39 (January 1985)

Organizing and Managing Effective Corporate Environmental Protection Programs, 3 Environmental Forum 40 (May 1984)

60's Activism and 80's Realities, 2 Environmental Forum 9 (July 1983)

1973 –1979

Practical Considerations of Hazardous Waste Management Under RCRA (with J. DiNal), 1 Environmental Regulation Analyst 10 (December 1979)

Environmental Problems Relating to Uranium Mining and Milling, 11 Nat. Res. L. 277 (1978) and 16 Public Land and Resources Law Digest 95 (1979)

Oil and Air Do Not Mix. The Clean Air Act Amendments of 1977, 29 Southwestern Legal Foundation 333 (1978)

Recent NEPA Effects On Industrial Development, 9 Nat. Res. L. 479 (1976)

Operational Impact of NEPA and Related Environmental Laws, Regulations and Orders on Mineral Operations, 19 Rocky Mountain Mineral Law Institute 47 (1974)

A Summary of Land Use Regulations in Colorado, State Land Use Programs, Committee Print, Senate Committee on Interior and Insular Affairs, 93rd Cong. 2nd Sess. (1974)

The National Environmental Policy Act of 1969, The Brave New World of Environmental Legislation, 6 Nat. Res. L. 44 (1973)

REPRESENTATIVE GOVERNMENTAL COMMITTEES AND TESTIMONY

EPA Workshop on Integrated Permitting in the UK (2007)

EPA Workshop-Tailored Audit Policy for New Owners (2007)

EPA Environmental Audit Policy, (lead -off speaker) (1994)

Member, Panel on Administrative Factors Associated with the Implementation of Market-Based Environmental Programs, National Academy of Public Administration (1992 - 1994)

Chairman, Energy and Natural Resources Committee, Water Quality 2000 (1989) and Member, Steering Committee (1989 - 1993)

Co-Chairman, EPA, Joint Agency Industry Program on Improving Environmental Management (1989)

Office of Technology Assessment (Clean Air Act Amendments) (1987)

EPA Enforcement Division, Washington, D.C. (Oxy management programs) (1986)

EPA Workshops on Environmental Auditing (1983 – 1984)

EPA Workshop on Groundwater (1980)

National Commission on Air Quality Workshops on Regulatory Reform (1980 – 1981)

U.S. Senate S. 1480 (Superfund) (1980)

EPA Consolidated Permit Regulations (1980)

Presidential Public Forum on Domestic Policy (1974)

Council on Environmental Quality National Environmental Policy Act Guidelines (1974)

Federal Energy Administration Workshops (1974)

REPRESENTATIVE TRADE ASSOCIATIONS

Founding Member and Member, Steering Committee, Corporate Environmental, Health and Safety Management Roundtable (East) (1988-2000), Chairman (1999-2000) and alumni/participant (2000 through present)

Member, EH&S Officers Council, Conference Board (1995- 2000)

Environmental, Health and Safety Management Roundtable (West) (1992 - 1994) Chairman, Los Angeles Chamber of Commerce Air Quality Committee (1986 –1988)

Member, American Petroleum Institute, Health and Environment General Committee (1986 – 1994; 1999-2000)

International Petroleum Industrial Conservation Association, Environmental Coordinating Committee (Global Climate Change) (1999-2000)

Conference Board, Reputation Council (1998-2000)

Chairman, Hazardous and Solid Waste Committee and Member, Executive Committee, Environmental Quality Committee, U.S. Chamber of Commerce (1983-1984)

Member, Air and Water Committees, National Environmental Development Association (1977 - 1992) and Clean Air Regulatory Project (1995-1999)

Member, Environmental Management Committee, Chemical Manufacturers Association (1978-1980)

BAR ASSOCIATIONS

American Law Institute (Life Member) (1985 through present)

Section of Environment, Energy and Resources, American Bar Association (1971-present)

Member, Council (governing body 1991-1994, 1978-1981)

Liaison, ISO 14000 Activities (1996-2002)

Co--Chairman, Climate Change, Sustainable Development and Ecosystems Committee (2008-2011)

Vice--Chairman, Climate Change, Sustainable Development and Ecosystems Committee (1999-2008) (2011-2013)

Liaison for ISO 14001 (1996-2002)

Vice- Chairman, Special Committee on Corporate Counsel (1995-1999); Chairman, Committee on International Environmental Law (1989-1991)

Co-Chairman, Special Committee on International Environmental Law (1988-1989)

Chairman, Membership Committee (1982-1985)

Liaison, Standing Committee on Environmental Law (1982, 1994-1995, 2000-2002)

Chairman, Air Quality Committee (1975-978)

Vice-Chairman, Committee on Environmental Quality (1973-1975).

BOARDS

Member, Standards Board, Board of Environmental, Health & Safety Auditor Certifications (2006-present)

Member, Board of Directors, National Safety Council (1990-1994)

Member, Board of Directors (1981-1989, 1990-1995 and 1999-2004) and Member, Executive Committee (1984-1989 and 1999-2004), Chairman Finance and Audit Committee (2004); Member, Advisory Council (2004-present) Environmental Law Institute

Member, Board of Directors, National Environmental Development Association (1984-1999)

Member, Advisory Board, Hazardous Waste and Toxic Torts Reporter (1986-1991)

Member, ANSI/RAB Board (certification of ISO 14000 auditors) (1997-1998)

Member, Advisory Board, Environmental Programs, Pace University School of Law (1996-1998)

Member, Advisory Board, Environmental Programs, Columbia Law School (1998 – present)

Member, Advisory Board, Environmental Law Reporter (1994-2008) and Safety and Health Reporter (2000-2008)

Member, Advisory Boards, Environmental, Health and Safety Management and Corporate Environmental Strategies (1999-2008)

REPRESENTATIVE LECTURES AND WEBINARS

Environmental Law Institute (most recent 2014) and International Business Communications Programs on Environmental Management, ISO 14000 and Environmental Management Information Systems

Auditing Roundtable (most recent 2007)

Co-Chairman, American Law Institute/American Bar Association (ALI/ABA) National Conference on Hazardous Waste; Law and Risk Management

Chaired Air Program portion of annual ALI/ABA Conference on Environmental Law (1972-1992); ALI/ABA Conferences on International Environmental Law (2002) and NEPA (2003)

ABA Keystone Conferences on Environmental Law

ABA Annual and Fall Meeting programs

Los Angeles, Denver, Maryland, Minnesota and New York City Bar Associations

Symposium on Environmental Law for Harvard Law School

Rocky Mountain Mineral Law Foundation Annual Institute

Southwestern Legal Foundation and Conservation Foundation

Universities of Utah and Colorado.

TEACHING

Guest Lecturer, **USC Law School**, 1987, 1988 and 1990 (Professor Stone's Seminar on International Issues)

Guest Lecturer, **Columbia Law School**, 1984 (Professor Grad's Seminar on Environmental Litigation)

Guest Lecturer, **UCLA Law School**, 1987 (Taught course with Professor Monroe

Price on Legal Problems Relating to Oil and Gas Transportation)

Lecturer, **Temple University School of Law**, 1971 (Taught course in Natural Resources and Environmental Law)

AUDITOR CERTIFICATION

BEAC Certified Safety and Health Auditor