



## HOWARD L. SOBEL P.E.

### Specialist Consultant

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#### Areas of Expertise

- Management Consulting
- Corporate Governance
- Risk Management
- Risk Assessment and Audit
- Prudence Analysis and Audits
- Performance Audits
- Project / Program Management
- Trend Evaluations/ Analytics
- Instruction and Training
- Quality Assurance and Control
- Engineering and Construction Management
- Project Delivery and Constructability
- Nuclear Fuel Management and Procurement Claims Prevention
- Nuclear Decommissioning and Waste Management
- Standard of Care
- Nuclear Power Plant Design and Operations
- Power Plant Operations
- Claims Analysis / Negotiation

#### Professional Experience

Mr. Sobel is a Pegasus Global Holdings, Inc. Specialist Consultant. He has more than 35 years of experience in the power generation and construction industries involving design, engineering, change orders, specification preparation, bid evaluation, procurement, construction, startup, operations and maintenance using different contract forms including EPC and design / build. He is experienced in power plant construction, operation and FERC / state regulatory agencies. Projects have included new construction and renovations, power plants (cogeneration, combined-cycle, nuclear, fluidized bed), industrial plants, utility electrical systems and schools.

On major management consulting engagements, Mr. Sobel provides significant engineering and management expertise in nuclear power plant engineering and operations including nuclear safety, licensing, maintenance, quality assurance and control, high level waste management, nuclear regulations, nuclear regulatory environment, refueling outages, decommissioning, start-ups, supply and performance of nuclear fuel, and the development of management controls for safe and reliable operation.

Mr. Sobel has been involved in management reviews and audits of nuclear and fossil projects throughout the United States, serving as Task Leader in the areas of licensing, quality assurance / quality control, operations, maintenance, nuclear regulatory environment, and nuclear fuel. He has made important contributions to the start-up, engineering, construction, and project management areas of those reviews. Mr. Sobel has prepared and presented testimony, and has otherwise supported testimony development resulting from these reviews.

In addition to the projects cited above, Mr. Sobel has also represented owner / operators on a wide range of confidential private and public nuclear engagements, some of which include:

- Chairman of the Independent Review Committee constituted by the US Department of Energy's Savannah River Laboratory to provide commercial input to their projects and to guide them in their transition to the privatization of the supply of materials and services to the lab. This involved the review and critique of their Proposed Site Treatment Plan which addressed the development of treatment capabilities and technologies to process the lab's mixed waste; the development of the Draft Environmental Impact Statement for Waste Management for the lab, which included the

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management of liquid high-level radioactive, low-level radioactive, mixed, hazardous and transuranic wastes over the next 30 years; and the technical evaluation of five proposals for providing the facilities and services for the processing of solid low-level radioactive waste for the lab.

- An evaluation of nuclear power plant components and systems to identify how and if they should be modified to achieve a 10 - 40 year life extension.
- Working with Minatom of Russia and the Russian Federation Navy to identify projects that address the safe storage, transportation and management of spent nuclear fuel from decommissioned Russian nuclear submarines. This involved meeting with the International Atomic Energy Agency, numerous meetings with Norwegian Consulate representatives, the Deputy Minister of Minatom, Rear Admirals of the Russian Federation Navy, US DOE National Lab representatives, and the Chiefs of Staff of several US Senators and Congressmen.
- The Quality Assurance Manager for the design, procurement and manufacture of a spent nuclear fuel shipping cask designed to transport spent nuclear fuel provided under the US Atoms for Peace Program to an Australian research reactor back to the United States.
- Identified and evaluated the reasons for decreases in the capacity factors for the entire fleet of nuclear plants of a nuclear supply system vendor. This resulted in a restructuring of their marketing emphasis for certain products and services.
- Served as a member of a Senior Review Panel for a nuclear fuel supplier to identify required and needed improvements to their fuel design and services. This involved critiquing presentations concerning nuclear fuel design features of potential future designs.
- Evaluated the management structure and performance of the Solid Waste Management Division of the US Department of Energy's Savannah River Laboratory.

Mr. Sobel has worked on major projects in both the utility and construction industries to evaluate, analyze and advise on the impact of design changes, subcontractor issues, scheduling upsets (delay, acceleration, early completion, disruption), project change orders, breach of contract, non-payment, code violations, defective work, productivity, project management controls, craft labor issues, differing site conditions, design defects, estimating, quality assurance and regulatory issues. He has evaluated standards of care required by design professionals and contractors, product failures, and liquidated and consequential damages.

Mr. Sobel has been on the Commercial Panel of Arbitrators of the American Arbitration Association since 1994. He has heard numerous cases including a \$9 million claim involving a cogeneration facility, which included detailed analysis of contract terms and assignment of the contract; a waste-to-energy plant in North Carolina that did not achieve its design performance; a case involving breach of contract and non-payment of fees for the performance of professional services; and a case involving the supply of electric power to a major user by a third party supplier.

Mr. Sobel sits as his School Board of Education President, and was responsible for a \$12 million bond issue to renovate existing facilities, construct new school buildings, replace major HVAC equipment and conduct asbestos remediation. Mr. Sobel has also served as Chairman of the Independent Review Committee at the Savannah River Site of the US Department of Energy reviewing their management of toxic, hazardous and nuclear wastes.

Prior to joining Pegasus-Global as a specialist consultant, Mr. Sobel was employed for 16 years by American Electric Power Service Corporation (AEP) located in New York City. As Assistant Division Manager of Nuclear Engineering, he was responsible for all company activities related to the safety and licensing of the

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company's Donald C. Cook Nuclear Plant as well as the supply and performance of its nuclear fuel. He negotiated and administered contracts with annual expenditures of over \$80 million for the purchase of uranium and related nuclear fuel services and supervised a staff of 25 engineers, physicists and financial planners.

A listing of Mr. Sobel's projects is provided in the attached Representative Engagement Experience table.

### Registrations / Certificates

- Professional Engineer in the following States:
  - New York #61417
  - North Carolina #26163

### Education and Courses

#### Education

- M.S., Nuclear Engineering, University of Michigan, Ann Arbor, Michigan
- B.S., Engineering Physics, Cornell University, Ithaca, New York

#### Courses

- American Arbitration Association Courses
- ADR Works, The 2008 American Arbitration Association Construction Conference
- Executive Management Course, University of Michigan, Ann Arbor, Michigan
- Westinghouse PWR Technology Course
- FINRA Arbitration Courses
- ISO 9000 Implementation, Excel Partnership, Inc and Underwriters Laboratories Inc.

### Memberships

- American Arbitration Association, Panel of Arbitrators
- American Nuclear Society (Honorary Lifetime Member)
- Cornell Engineering Alumni Association (Board of Directors)
- Cornell Advisory Committee on Admissions and Financial Aid (Past Chair)
- Cornell Federation (Chair of the Grant Committee)
- Cornell Club of Long Island (Past President)
- Edison Electric Institute Nuclear Fuels Committee
- FINRA (Financial Industry Regulatory Authority) Board of Arbitrators (NASD and NYSE)
- New York State School Board Association

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### Technical Papers and Presentations

Mr. Sobel authored and presented numerous technical papers and articles on various topics related to Quality Assurance, Nuclear Power and Nuclear Fuel Cycle Economics (*see attached Technical Papers and Presentations*).

### **Invited and Keynote Presentations**

- “Expanding the Capacity of the Spent Fuel Pool at the Donald C. Cook Nuclear Plant,” Public Meeting in Benton Harbor, Michigan, August 29, 1979
- “Front End of the Nuclear Fuel Cycle,” Pittsburgh, Pennsylvania, August 1986
- “A Utility’s Perspective in Changing to an 18-Month Fuel Cycle,” Westinghouse Assembly, Pittsburgh, Pennsylvania, 1984
- “Economic Criteria for Fuel Management,” University of Wisconsin Seminar, Madison, Wisconsin, December 5 - 6, 1968
- “Nuclear Fuel Cycle Economics and Related Topics,” University of Michigan Masters Thesis, Ann Arbor, Michigan, May 1967

### **Conference Presentations**

- “Economic and Feasibility Analysis of 18-Month Fuel Cycles,” American Nuclear Society Annual Meeting, Atlanta, Georgia, June 1979

### **Short Courses / Seminars**

- “Nuclear Power – The Renaissance Has Started.” Continuing Education Seminar, New York, 2008 – Present
- “An Understanding and Appreciation of Quality Assurance as Applied to Design, Engineering and Construction,” Continuing Education Seminar, New York, Atlanta, Albany, Boston, Chicago, Cincinnati, 2006 - Present
- “Quality Assurance Part 1-Focus on Design Control,” Continuing Education Course, 2006 - Present
- “Nuclear Power: What Great Promise, What Went Wrong,” Continuing Education Course, 2006 - Present
- “Nuclear Power: Making a Comeback,” Continuing Education Course, 2006 - Present
- “Nuclear Power Plants: What Makes Them Safe,” Continuing Education Course, 2006 - Present
- “ISO 9000-What Does it Mean to US Owners, A/Es and Contractors,” Nielsen-Wurster Seminar on Emerging Risks in Construction: How to Minimize, Manage and Avoid Disputes, New Orleans, Louisiana, May 10 - 12, 1995

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<p style="text-align: center;"><b>HOWARD L. SOBEL</b> <i>Representative Engagement Experience</i></p>		
Industry	Type	Project Name
Power	Nuclear	Millstone Unit #3, Northeast Nuclear Energy Company, United States (Connecticut)
Power	Nuclear	Cooper Nuclear Station, United States (Nebraska)
Power	Nuclear	Vogtle Nuclear Generating Station, United States (Georgia)
Power	Nuclear	Salem and Hope Creek Nuclear Power Plants, United States (New Jersey)
Power	Nuclear	Indian Point Nuclear Power Plant Unit #3, United States (New York)
Power	Nuclear	Beaver Valley Nuclear Plant, United States (Pennsylvania)
Power	Nuclear	Millstone Point Nuclear Plant, United States (Connecticut)
Power	Nuclear	Texas Utilities Stockholder Litigation, United States (Texas)
Power	Nuclear	Diablo Canyon Nuclear Power Plant, United States (California)
Power	Nuclear	Seabrook Nuclear Power Plant, United States (New Hampshire)
Power	Nuclear	Washington Public Power Nuclear Plant, United States (Washington)
Power	Nuclear	Nuclear Power Plant Life Study, United States
Power	Nuclear	Nuclear Power Plant Capacity Factor Study, United States
Power	Nuclear	Nuclear Fuel Design Review and Analysis, United States
Power	Nuclear	Kewaunee Nuclear Power Plant Replacement Steam Generators, United States (Wisconsin)
Power	Nuclear	Connecticut Yankee Nuclear Plant, United States (Connecticut)
Power	Nuclear	South Texas Project, United States (Texas)

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Industry	Type	Project Name
Power	Nuclear	Trojan Nuclear Power Plant, United States (Oregon)
Power	Nuclear	Pilgrim Nuclear Power Plant, United States (Massachusetts)
Power	Nuclear	Comanche Peak Power Plant, United States (Texas)
Power	Nuclear	Perry Nuclear Generating Station, United States (Ohio)
Power	Nuclear	Clinton Nuclear Generating Station, United States (Illinois)
Power	Nuclear	Waterford Unit 3, United States (Louisiana)
Power	Nuclear	Palo Verde Nuclear Generating Station, United States (Arizona)
Power	Nuclear	First Energy Derivative Litigation, Davis-Besse Nuclear Power Plant, United States (Ohio)
Power	Nuclear	Nine Mile Point Nuclear Plant, United States (New York)
Power	Nuclear	Shoreham Nuclear Plant, United States (New York)
Power	Nuclear	Vogtle 3 & 4, United States (GA)
Power	Nuclear	Cook, United States (MI)
Power	Nuclear	Calvert Cliffs 1 & 2, United States (MD)
Power	Cogeneration / Combined-Cycle / Fossil-Fueled	Taft Cogeneration Project, United States (Louisiana)
Power	Cogeneration / Combined-Cycle / Fossil-Fueled	Elsta Cogeneration Plant, The Netherlands (Terneuzen)
Power	Cogeneration / Combined-Cycle / Fossil-Fueled	ISAB Energy S.r.l. Integrated Gasification Combined Cycle Power Plant, Italy (Sicily)

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Power	Cogeneration / Combined-Cycle / Fossil-Fueled	Sacramento Municipal Utility District Cogeneration Plant, United States (California)
Power	Cogeneration / Combined-Cycle / Fossil-Fueled	Northside Generating Station Repowering Project, United States (Florida)
Environmental	High Level Waste	INEEL Used Nuclear Fuel Dry Storage Project, United States (Idaho)
Environmental	High Level Waste	Decommissioning of Russian Nuclear Submarines, Russia (Moscow)
Environmental	Hazardous Waste	DOE Savannah River Independent Review Committee, United States (South Carolina)
Environmental	Radioactive Waste	DOE Savannah River Study, United States (South Carolina)
Environmental	Radioactive Waste	Brookhaven National Laboratory, United States (New York)
Buildings	Educational Facilities	New York City School Construction Authority, United States (New York)
Buildings	Educational Facilities	Oceanside Board of Education, United States (New York)
Buildings	Educational Facilities	Kean University, United States (New Jersey)
Process	Industrial / Fertilizer Production Facility	FertiNitro Urea and Ammonia Facility, Venezuela
Process	Industrial / Hot Briquette Iron Facility	Posven Project, Venezuela