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## **EDUCATION**

1968-1971 Ph.D. Chemistry, University of Miami, Coral Gables, Florida

1960-1964 B.S. Chemistry, University of Vermont, Burlington, Vermont

## **EXPERIENCE**

1982 to Dec. 12, 2014

President, CEO and Chairman of the Board

Quantum Group Inc.

San Diego, California 92121

Dr. Goldstein was the Founder, President and Chief Executive Officer of Quantum Group Inc., a small high-tech company that developed, manufactured and sold carbon monoxide sensors, alarms and controls. Dr. Goldstein was the major force behind the marketing and creating the market for carbon monoxide alarms and detectors. Quantum started by providing forensic consulting and expert witness services nationwide since 1982. Dr. Goldstein founded the Company and provided the initial capital. The Company sold over 31 million sensors from 1990 to 2014. Dr. Goldstein provided expert services for carbon monoxide and other poisoning cases, related technology, and patent disputes. He does both criminal and civil cases. He also worked in the area of combustion, explosions and fires.

- Carbon monoxide poisoning
- Forensic science and engineering
- Explosions
- Fires
- Health effects from pollutants
- Air purification
- Plastic pipe failure analysis
- Hydrocarbon (gasoline, oils) spills and leaks
- Chemistry

1981-1982

Director of Emergency Planning

EDS

San Francisco, California

Dr. Goldstein directed a pilot program for emergency planning of nuclear power plants. Computer programs were developed to simulate a nuclear accident with the radioactive cloud over an area of the State of California that needed to be evacuated. The toxic effects from such an accident were studied and health impacts estimated. Training of PG&E's top executives was a part of this project.

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1979-1981  
Senior Technical Advisor  
JGC Corporation  
Tokyo, Japan

Dr. Goldstein was a member of the senior staff of a large Japanese engineering company. He was involved in joint ventures and sales. He consulted on a number of waste management and nuclear reprocessing issues including physical security. He was involved in the following:

- Analysis of nuclear reactor and fuel cycle facilities for physical protection
- Including protection from chemical explosives and other terrorist attacks
- Analysis of nuclear waste options and health effects
- Liquefied Natural Gas (LNG) risk assessment
- Three Mile Island accident study
- Health and safety considerations in oil refining

1977-1979  
Director of Energy Policy Project  
East West Center  
Environmental and Energy Policy Institute  
Honolulu, Hawaii

Dr. Goldstein directed various energy and environmental projects at the East West Center, which included the formation of the Asia Pacific Energy Consortium (APEC). He was responsible for the analysis of alternative reprocessing technologies, spent fuel storage and waste management options for proposed regional fuel cycle centers which included:

- Computing health effects from the nuclear fuel cycle and comparing them with other sources
- Analysis of renewable energy sources and their impacts
- Analysis of citing issues for nuclear plants and alternative energy systems

Dr. Goldstein conducted joint research with the University of Hawaii on the Ocean Thermal Energy Consortium (OTEC). He analyzed various alternative energy systems and their environmental impact comparing them with fossil fuels.

1974-1977  
Associate Chemist/Group Leader  
Brookhaven National Laboratory (BNL)  
Department of Applied Science  
Long Island, New York

Dr. Goldstein was Principal Investigator on an energy policy study for former President Ford's science advisory office. He focused on energy policy by comparing the health effects from every segment of every energy cycle from exploration, extraction, transportation, distribution and end

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use. Dr. Goldstein headed a proliferation and waste management study looking at ways to minimize the risks and developing policy to manage proliferation.

Dr. Goldstein was responsible for programs and projects dealing with energy policy, energy data base management, environmental impacts, economic impacts, safeguards, health effects and waste management at Brookhaven's National Center for Analysis of Energy Systems.

1971-1974

President

International Business & Research Inc.

Coral Gables, Florida

Dr. Goldstein founded a remote sensing company with a focus on aircraft oceanography in 1971. He developed aircraft oceanographic methods for anti-submarine warfare including a device for tracking submarines under the ice. Dr. Goldstein conducted a remote sensing project for the State of Florida's Department of Natural Resources. He also overflew many parts of the State taking pictures and then used ground truth methods to evaluate land use and pollution impacts. He was involved in assessing the phosphate mining industry and its radioactive hazards. Dr. Goldstein directed Project Storm Water, which studied hurricanes and measured the temperature profile as a function of depth, just in front of and just behind, a storm. Dr. Goldstein headed a project to create a search and rescue computer model of the Gulf of Mexico for the Coast Guard.

The two major products developed and manufactured were:

- Air-deployed Expendable Bathythermograph (AXBT-2500V), measures temperature as function of depth in excess of 5500 ft., utilizing a telemetry package to transmit an analog signal to aircraft
- Expendable Shallow-water Surface Current Probe (XSSC), measures surface current and wind velocity

1966-1968

Supervisor

Lockheed Nuclear Products

Plum Brook Nuclear Reactor Facility

Plum Brook, Ohio

Dr. Goldstein was the shift supervisor of all Lockheed personnel at the reactor facility and conducted in reactor experiments on metals alloys at cryogenic temperatures. Actual fatigue and tensile tests were conducted during operation and while inside the reactor. The metal alloys were being evaluated for use in a nuclear rocket engine for the proposed Mars project.

- Analyzed experimental data obtained inside nuclear material test reactor
- Managed all Lockheed Personnel at the facility
- Supervised all experiments to test alloys at liquid hydrogen temperatures inside a nuclear reactor simulating fast neutron effects
- Studied mechanical effects of radiation on materials at cryogenic temperatures

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- Assessed metallurgical data associated with nuclear reactor technology

1965-1966

Engineer

The Boeing Company

Huntsville, Alabama

Dr. Goldstein worked on the Apollo project. He worked on the Saturn V rocket and many subsystems including rocket engines.

## **ORGANIZATIONS**

Forensic Expert Witness Association (member, Director), International Association of Arson Investigators (IAAI), National Fire Protection Association (NFPA) (member), American Chemical Society (member), founder Carbon Monoxide Safety and Health Association (COSHA) and served as President for 10 years 1987-1997, Underwriters Laboratories' Standards Technical Panels for both carbon monoxide standards UL2034 and UL2075.

## **QUALIFICATIONS/INTERESTS**

Speaks some Japanese, holds multi-engine and instrument private pilot's license, served in United States Marine Corps Reserve, held "Q" military clearance from 1974 to 1977 and Top Secret clearance until 1978, inventor over **30 US patents, and author of over 42 publications.** Dr. Goldstein is active in continuing education with courses completed from the National Academy of Forensic Engineers (NAFE), Forensic Expert Witness Association and International Association of Arson Investigators and other advanced educational seminars and classes.

## **AWARDS**

Popular Science, 3rd Annual "Best of What's New", 53, (1990)

International Appliance Technical Conference, Dana Chase Memorial Award for Best Paper, University of Ohio, Columbus, OH, (May 1990)

IEEE Transactions on Industry Applications, Third Place for Paper Entitled, "Thermophotovoltaics: A New Cogenerator for Gas Appliances", (Oct. 1992)