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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Before Administrative Judges:
James P. Gleason, Chairman
Frederick J. Shon
Dr. Oscar H. Paris

| | | |
|---------------------------------|---|--------------|
| In the Matter of |) | |
| |) | |
| CONSOLIDATED EDISON COMPANY OF |) | Docket Nos. |
| NEW YORK, INC. |) | 50-247 SP |
| (Indian Point, Unit No. 2) |) | 50-286 SP |
| |) | |
| POWER AUTHORITY OF THE STATE OF |) | |
| NEW YORK |) | Dec. 6, 1982 |
| (Indian Point, Unit No. 3) |) | |
| |) | |

POWER AUTHORITY'S SUPPLEMENTAL RESPONSE TO
UCS/NYPIRG FIRST SET OF INTERROGATORIES AND
DOCUMENT REQUESTS ON BOARD QUESTIONS
ONE, TWO, AND FIVE

Pursuant to 10 C.F.R. § 740(e)(2)(1982), the Power Authority of the State of New York (Power Authority) hereby submits this supplemental response to UCS/NYPIRG First Set of Interrogatories and Document Requests to Licensees on Board Questions One, Two, and Five by providing an amendment to UCS/NYPIRG Interrogatory No. 1.

Supplemental Response to Interrogatory No. 1(a)-(c), (f)

See the enclosed resumes.

DSQ3

Supplemental Response to Interrogatory No. 1(d)

Contention 2.2(b)

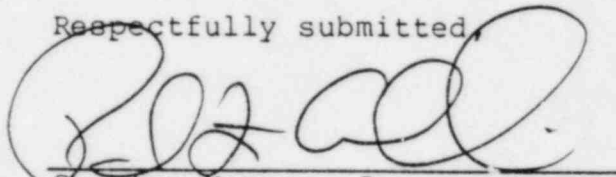
The Power Authority presently intends to offer as a witness S. Zulla.

Supplemental Response to Interrogatory No. 1(e)

It is presently planned that W. Josiger will testify as to the phenomena of postulated steam generator tube rupture and corrosive-initiated events at the Indian Point units, and techniques for preventing such events.

It is presently planned that S. Zulla will testify as to the issue of pressurized thermal shock.

Respectfully submitted,



Charles Morgan, Jr.
Paul F. Colarulli
Joseph J. Levin, Jr.

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POWER AUTHORITY OF THE STATE
OF NEW YORK
Licensee of Indian Point Unit 3
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Dated: December 6, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
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| NEW YORK |) | |
| (Indian Point, Unit No. 3 |) | |
| _____ |) | |

CERTIFICATE OF SERVICE

I hereby certify that on the 6th day of December, 1982,
I caused a copy of the Power Authority's Supplemental
Response to UCS/NYPIRG First Set of Interrogatories and
Document Requests on Board Questions One, Two, and Five to
be served by first class mail, postage prepaid on the
following:

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Atomic Safety and Licensing Board
U.S. Nuclear Regulatory
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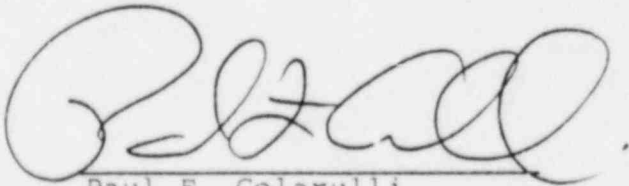
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New City, New York 10958



Paul F. Colarulli

RESUME OF:

JOHN PHILLIP DAYNE
EXECUTIVE VICE PRESIDENT NUCLEAR GENERATION
POWER AUTHORITY OF THE STATE OF NEW YORK

EDUCATION:

Graduated with distinction, U.S. Naval Academy, 1954

Completed one year of nuclear power training, April 1960. Designated as qualified for duty in connection with supervision, operation and maintenance of naval nuclear propulsion plants.

Graduated with distinction, U.S. Naval War College, 1966.

Master's Degree, International Affairs, George Washington University, 1966.

Advanced Management Program, Harvard University, 1982.

EXPERIENCE:

POWER AUTHORITY OF THE STATE OF NEW YORK

7/82 - present Executive Vice President Nuclear Generation

5/80 - 6/82 Senior Vice President Nuclear Generation

Complete responsibility for management of the Authority's two nuclear power plants and the corporate Nuclear Generation Department. Directed and developed policies for safety, staffing, training, regulatory affairs, budget management and operational management of the Authority's nuclear affairs.

6/76 - 5/80 Resident Manager, Indian Point 3 Nuclear Power Plant

Complete responsibility for the assumption of plant operation and administration from Consolidated Edison Company. Directed and developed policies for staffing, training, security, regulatory affairs and spare parts. Responsible for takeover planning, budget management and implementation of the Quality Assurance Program. Represented the Power Authority of the State of New York as a member of the Consolidated Edison Company's Offsite Review Committee.

1975 - 1976

UNITED STATES NAVY

Head of the Plans and Requirements Branch of the Attack Submarine Division of the Office of the Chief of Naval Operations

Served as a principal advisor to the Director of the Division on matters of long range planning and future requirements. Served as Project Officer of a study to delineate the critical operational characteristics of a submarine to meet the threat of the 1995 time frame, a study which will have a far reaching impact on the future of the Navy.

1973 - 1975

UNITED STATES NAVYCommanding Officer of a Nuclear Submarine Tender

Responsible for the management, administration, training and budgeting for an activity which conducted maintenance and logistic support for ten modern nuclear submarines and one submarine rescue vessel. During these two years the repair productivity was doubled, the supply effectiveness was increased by 30 percent and the tender itself was significantly improved at a minimum cost by utilizing \$500,000 of parts cannibalized from inactive Navy ships. The improvements noted resulted in this tender being considered the leading intermediate maintenance activity in the submarine force of the U.S. Atlantic Fleet in May of 1975.

1972 - 1973

UNITED STATES NAVYSubmarine Division Commander

Responsible for the operational planning and training of three modern nuclear attack submarines and one rescue vessel.

1969 - 1972

UNITED STATES NAVYCommanding Officer

Responsible for the management, administration, planning, training and budgeting of a modern nuclear attack submarine. This submarine was consistently considered one of the best of ten contemporary submarines and performed a mission never before done by a submarine.

1966 - 1969

UNITED STATES NAVYCommanding Officer of one of Admiral Rickover's Nuclear Power Schools

Responsible for the administration and training of 250 officers and 1200 enlisted personnel in basic and advanced science, reactor plant engineering and associated subjects. Directly responsible for a reduction in student disenrollment rate from 26 to 12 percent.

1948 - 1966

Enlisted in the Navy. Won a fleet appointment to U.S. Navy Academy and was graduated and commissioned an ensign. Served in many positions gaining the training and maturity necessary to become a Commanding Officer.

NAME:

JOHN C. BROWS

PROFESSIONAL

RECORD

January 1961

to Present:

POWER AUTHORITY OF THE STATE OF NEW YORK
Resident Manager - Indian Point 3 Nuclear Power Plant
Buchanan, New York 10511

Senior Power Authority Manager at the site, having overall responsibility for safe, efficient and dependable operation of Indian Point 3 Nuclear Power Plant. Implement all administrative controls in conformance with applicable regulatory requirements regarding the facility and responsible for coordination of all station functions through the Superintendent of Power, Plant Superintendents and other key personnel. Serve as chairman of the Plant Operations Review Committee and as a member of the Safety Review Committee.

June 1959

to January 1981:

UNITED STATES NAVY

June 1978

to January 1981:

Senior Member, Nuclear Propulsion Examining Board reporting to Admiral H. G. Rickover, USN and to Commander-in-Chief, U. S. Atlantic Fleet. Conduct annual inspections of all Atlantic Fleet nuclear powered ships to set standards of continued safe reactor operation. These intensive inspections, requiring from two to four days per ship, are conducted by a senior member supported by a group of officers who have served as Engineer Officer of a nuclear powered ship. Each examination includes: observation of casualty drills, maintenance evaluations, water chemistry and radiochemistry analyses; verification of adequate maintenance of systems affecting reactor protection; administrative reviews of training, qualification, technical documentation, radiological controls, chemistry controls, waste disposal and radiation health; verification of adequate operator level of knowledge through oral and written examinations. It is within the authority of the Senior Member, based upon examination results, to allow license for continued reactor operation to remain with the ship or to revoke this license if deviations from the standard require it.

Conduct similar inspections with emphasis on radiological controls practices, on nuclear ship maintenance facilities. Inspect training facilities ashore for adequacy of training support for nuclear operators. Observe and evaluate drills demonstrating home port sites' preparedness for emergencies associated with the shipborne nuclear reactors.

Assignment entails briefing of the Commanders of the Air, Surface and Submarine Forces, Atlantic, the technical staff of the Division of Naval Reactors, Department of Energy, and Commanding Officers on the performance of their ships in the reactor safeguards area.

Authored a technical article concerning the audit of all aspects of radiological controls operations and a nuclear fleet wide procedure for obtaining consistent, reliable radiochemistry samples. Contributed to other articles and procedures dealing with reactor plant training and operation.

Duties required extensive travel on the eastern seaboard and in Western Europe.

May 1977 to
June 1978:

Deputy Commander, Submarine Squadron Six. Responsible for the training and readiness of thirteen nuclear fast attack submarines of this Norfolk based squadron. Worked with the individual Commanding Officers to train their crews in the areas of weapons employment, use of tactical sensors, communications equipment, deployed operations and nuclear propulsion plant matters. Prepared operation plans and schedules to evaluate the results of this training and to measure the ship's readiness. Plans frequently required coordination of naval air and surface forces supporting these operations. Conducted various inspections to insure high standards were maintained in reactor plant and weapons safety. Played a prominent role in the development of operating doctrine for the advanced digital sonar and underwater fire control systems of the SSN 688 class submarine following delivery of the lead ship and subsequent ships to this squadron. Authored a major article on weapons employment tactics and several monographs on tactical sensors which were adopted for submarine force wide use. Restored a World War II submarine for use as a submersible, expendable target.

June 1973 to
April 1977:

Commanding Officer, USS RICHARD B. RUSSELL (SSN 687). Assignment consisted of two distinctly different phases. Initially formed the crew during the ship's construction at Newport News Shipbuilding, a division of Tenneco, at Newport News, Virginia. Developed ship's procedures and trained watch standers to conduct reactor plant testing and startup. Operated the ship on builder's and government trials. Represented the Navy in monitoring the quality and rate of construction. Acted as the government agent in the acceptance of all ship's systems preparatory to delivery. Coordinated the efforts of several government agencies and the civilian ship builder in a complex military-industrial effort. Achieved an unusual rapport between the crew and the shipbuilder which resulted in a highly successful

government acceptance trial with a record low number of construction deficiencies, and in delivery of the ship to the Navy somewhat earlier than expected. Efforts won wide praise from both the government and the ship builder.

Following commissioning, USS RUSSELL was assigned to the Submarine Development Squadron in New London, Connecticut for shakedown and deployment operations. Developed operating procedures for the Navy's first digital underwater fire control system. Deployed the first submarine satellite communications system and a broad board digital system for over-the-horizon targeting. Directed the preparation of several digital programs to mechanize cruise missile control algorithms and anti-submarine warfare search procedures for shipboard use. Briefed senior Navy and DOD officials on these and other state of the art systems.

Throughout both phases managed all aspects of ship's operation and maintenance including personnel and fiscal matters.

June 1971 to
June 1973:

Executive Officer, USS JACK (SSN 605). Supervised crew training, ship's administration, maintenance operations and personnel matters during a thirteen month overhaul at the Portsmouth Naval Shipyard, Kittery, Maine. Heavily involved with the unusual aspects of maintenance and operation associated with this ship's unique steam propulsion plant. Resolved numerous difficult personnel situations arising from the relocation of the ship's crew from the overhaul yard to a new home port in the midst of an accelerated schedule to deploy for high priority operations. Coordinated this home port shift, several major inspections, intensive training requirements and a change of command in one-fourth the normal allotted time. Managed a pilot program which permitted nearly 50 percent of the crew to return to the United States from the Mediterranean for leave and advanced schooling, which resulted in retention and advancement statistics for the crew which were well above the fleet average in spite of the ship's demanding operational schedule.

June 1970 to
June 1971:

Graduate student, Rensselaer Polytechnic Institute.
Awarded Master of Science in Management. Elected member Epsilon Delta Sigma Management Honor Society for achieving a grade point average of 3.87 over 45 graduate hours. Offered a teaching fellowship in accounting but Navy commitments precluded acceptance. Selected by the Dean to participate in a management consulting effort at the RTI Corporation, Schenectady, New York. Directed the financial management and accounting portion of the study. Author of the complete management study.

March 1966 to
June 1970:

Executive Officer, Nuclear Power Training Unit at West Milton, New York. Training unit consisted of two prototype

Page 4 of 5

reactor plants with associated classroom, maintenance and administrative facilities is operated for the Navy by the Knolls Atomic Power Laboratory (KAPL) of the General Electric Company. Position of Executive Officer required a high degree of coordination between Navy, Atomic Energy Commission (AEC), and KAPL personnel. Managed personnel administration for a combined staff and student population of 600 to 800. Monitored all aspects of training operations. Assisted KAPL personnel in the development of new training programs. Monitored reactor plant operations including a refueling and accelerated core depletion for safety and procedural compliance reporting to the senior AEC representative. Participated in qualification examinations for nuclear propulsion plant operators including Chief Operators as the AEC representative.

May 1965 to
March 1968:

Chief Engineer, USS STURGEON (SSN 637). This ship built at the Electric Boat division of the General Dynamics Corporation in Groton, Connecticut is the lead ship of the Navy's largest class of nuclear submarines. Initially working with quarter scale wooden muck-ups well before the ship was launched, participated in many design developments which have become standard in all follow on ships of this versatile and highly successful class. Prepared all ship's system operating procedures. These procedures were adopted as standards for remaining ships of the class and in some cases for other classes of ships with similar systems. Trained the propulsion plant crew. Accomplished reactor plant pre-core, post core and critical testing in less time than had ever been done at that shipyard. Assumed additional duties as the ship's sonar officer during its first deployment following commissioning.

October 1963 to
May 1965:

Supply Officer and Main Propulsion Assistant, USS DACE (SSN 607). Established Supply Department procedures as a member of the pre-commissioning detail of this new construction submarine at Ingalls Shipbuilding, a division of Litton Industries, at Pascagoula, Mississippi. Supervised initial load out and continued repair parts support. Managed a three million dollar (1963 dollars) inventory and a \$400,000 annual operating budget. Accountable for all commissary and food service operations. Following delivery of the ship to the Navy in April 1964, assumed concurrent duties as Main Propulsion Assistant. Supervised operation and maintenance of all fluid and mechanical systems in the propulsion and reactor plants.

March 1962 to
October 1963:

Submarine and nuclear training. Graduated in the top ten percent of these officer's advanced courses.

October 1960 to
February 1962.

Communications Officer, USS KING (DLG 10). Member of the pre-commissioning detail on this new construction

frigate built at Puget Sound Naval Shipyard, Bremerton, Washington. Supervised the installation, testing and initial operation of the first shipborne computer controlled, high capacity communication system. Worked closely with representatives of the vendor and the Navy to develop this system which is now in widespread use.

July 1969 to
October 1969:

Navigator and Communications Officer, USS I. K. SWENSON (DD 729). Supervised ship's navigation and communications during a wide variety of operations throughout the Pacific Ocean.

MISCELLANEOUS:

Vice Chairman, Saratoga County (New York) Red Cross 1969-1971, Chairman Industrial Fund Raising Campaign Saratoga County Red Cross 1970-1971, Member Committee to evaluate and select mathematics textbooks for Hampton, Virginia elementary and junior high schools (1974). Member, Parish Council of various Roman Catholic churches. Designated by the Navy as a proven subspecialist in engineering and in weapons system acquisition management.

EDUCATION:

U. S. Naval Academy, B. S. General engineering 1959
Rensselaer Polytechnic Institute, M. S. Management, 1971.

Kenneth R. Chapple

EDUCATION: B.S. Degree in Nuclear Science
State University of New York
Maritime College at Fort Schuyler

PROFESSIONAL
LICENSES:

U.S. Coast Guard Third Assistant Engineer - Steam and
Diesel of Unlimited Horsepower (Active)

Senior Reactor Operator

Indian Point Nuclear Generating Station, Unit No. 2 (Inactive)

Senior Reactor Operator

Indian Point 3 Nuclear Power Plant (Active)

EXPERIENCE:

POWER AUTHORITY OF THE STATE OF NEW YORK

October 1981 - Present

Acting Director Nuclear Operations
& Maintenance IP #3

Responsible for providing direction and controlling the development, implementation and assessment of operations, maintenance and inservice inspection policies and standards for the Indian Point Nuclear Facility to insure safe and efficient operations.

August 1980 - September 1981
Nuclear Operations Engineer

Responsible for supervising and coordinating operations and maintenance activities related to the operation, maintenance and modification of nuclear power plant equipment and systems.

January 1980 - July 1980
Acting Superintendent of Training

Responsible for implementing and supervising all NRC required licensed training at the Indian Point #3 Nuclear Facility.

December 1976 - January 1980
Outage Coordinator

Responsible for overseeing and coordinating all activity conducted during major outages including planning and scheduling of all maintenance, surveillance and testing activity required to maintain the Indian Point #3 Nuclear Facility.

EXPERIENCE:
(Cont'd)

CONSOLIDATED EDISON OF NEW YORK

September 1976 - May 1977

(Overlapping duties Dec.-May with PASNY)

License Training Instructor for Indian Point #2

Responsible for the License Operator Training program for Indian Point #2. Duties included giving lectures and examining licensed operators in accordance with NRC regulations.

March 1976 - August 1976

Shift Outage Coordinator

Responsible for supervising all outage activities in the field on a rotating shift.

August 1975 - February 1976

Shift Supervisor

Responsible for the operation of the Indian Point #2 Nuclear Facility in accordance with NRC regulations.

January 1975 - August 1975

Shift Supervisor in Training

Responsible for learning the duties and qualify as a Shift Supervisor on the Indian Point #2 Nuclear Facility.

December 1973 - December 1974

Assistant Engineer

Participated in a Senior Reactor Operators Licensed Training Program.

July 1972 - November 1973

Assistant Engineer in Training

Assigned to various departments at the West 59th Street oil fired generating plant.

Resume of William A. Josiger

Power Authority of the State of New York

July 1980 - Superintendent of Power
Present

Superintend the functional operation of the Indian Point 3 Nuclear Power Plant by exercising control over the Operations, Maintenance, Instrumentation and Control, Health Physics, Chemistry and Technical Services Departments to assure safe and efficient operation, high availability and capacity factors, and compliance with governmental regulations. Develop and administer outage controls so as to minimize downtime. Develop management procedures and systems to assure proper communications, to develop personnel, to coordinate site activities with New York Office Activities, to resolve Nuclear Regulatory Commission and other federal agency concerns, to promote safety, and assure proper documentation of site activities. Act as: Vice Chairman of the Plant Operations Review Committee which oversees Nuclear safety related activities; Co-Chairman of the Industrial Safety Committee which reviews industrial accidents and safety policies and recommends plant improvements; and Alternate Emergency Director during a radiological incident having impact (potential or real) on the neighboring populace with the responsibility of implementing the Site Emergency Plan.

July 1979 - Technical Services Superintendent
July 1980

Provide on site technical support and monitor performance of the plant, its components, and reactor core to ensure that they are being operated safely, reliably, and economically. Develop management controls to allow personnel to effectively and safely carry out their assigned responsibilities in accordance with good engineering practice, quality assurance requirements, and governmental regulations. Direct the preparation, evaluation, and approval of proposed modifications to the facility and approve and issue nuclear safety evaluations and nuclear fuel accounting procedures. Direct the resolution of technical concerns raised by plant personnel and various auditing groups to verify that the plant is operated and maintained within established guidelines and regulations. Serve as a member of the Plant Operations Review Committee. Direct the development and physical accomplishment of the required In-service Inspection program.

Serve as one of the site emergency directors responsible for the timely and accurate assessment of any nuclear related incident at Indian Point 3 and assume total responsibility for directing the emergency actions of the on-site emergency organization.

June 1976 - Technical Services Engineer
July 1979

Supervise all aspects of engineering services required to support the continued safe operations and maintenance of the nuclear power plant. Resolve technical concerns raised by various auditing groups to verify that the plant is operated and maintained within established guidelines. Assist in critical path planning for major outages to reduce system and plant downtime. Coordinate the installation of new facilities with the major contractors and plant operations staff, the tie-in of new plant facilities to existing plant systems, and the testing of these facilities to ensure proper installation.

Consolidated Edison Company of New York

September 1974 - Unit No. 3 Test Engineer (Startup)
June 1976

Served as the lead member of the working Joint Test Group. Responsibilities included coordinate, schedule and direct all plant activities and support organizations associated with the startup test program; prepare, review and approve all test procedures and test results; directly responsible for maintaining the test and plant acceptance programs; and resolve technical problems and provide technical input for licensing issues.

September 1972 - Unit No. 3 Nuclear Support Engineer (Startup)
September 1974

Responsible for preparing written system descriptions, plant operating procedures, training materials, plant emergency procedures, and test procedures for Indian Point Unit No. 3 facility. Responsible for providing technical input for related problems in the areas of facility licensing, equipment problem resolution, and other miscellaneous problems encountered.

General Dynamics Corp. Electric Boat Division

February 1970 - Nuclear Testing Supervision (STE)
September 1972

Responsible for the safe and orderly testing of all reactor plant systems on S5W Naval Nuclear Power Plants during all phases of the test program including initial criticality, physics acceptance, and power range testing.

Nuclear Test Engineer

Participated in 8 month training program to become qualified by the Naval Reactors branch of the Atomic Energy Commission and General Dynamics management personnel as a Nuclear Testing Supervisor for S5W Naval Nuclear power plants.

Nuclear Projects Engineer

Responsible for the design of nuclear fluid systems associated with S5W and S5Wa Naval Nuclear power plants.

Dortech Incorporated Division of Door Oliver

June 1968 - Engineering Aid
February 1970

Responsible for designing mechanized air cargo handling systems, evaluated proposed designs and preliminary design of mechanical components.

Draftsman

Responsible for preparing drawings of proposed air cargo terminal layouts.

EDUCATION

1967 Degree - Associate in Applied Sciences
Westchester Community College
Valhalla, New York

1970 Degree - B.S. in Mechanical Engineering
University of Bridgeport

Licensed Senior Reactor Operator on Indian Unit
No. 3

R E S U M E
William H. Spataro
Senior Metallurgist
Mechanical Design & Analysis Dept.
PAGNY

BACKGROUND

Over fourteen years experience in nuclear power plant design, construction and operation. Responsibilities included material selection and evaluation, welding, non-destructive evaluation, protective coatings, corrosion resistance, interpretations of industry codes and standards and implementation of quality control procedures.

Familiarization with NRC Regulatory Guides; ASME Boiler and Pressure Vessel Code Sections I, II, III Division 1 and 2, V, VIII, Division I and IX; ANSI B31.1 and AWS D1.1 Codes; and ASTM and ANSI Standards.

List of Nuclear Power Plant Assignments

| | | | |
|-------------------------|------------|------------------------|------------|
| Allens Creek | 1200MW BWR | Oyster Creek | 620MW BWR |
| Cooper Nuclear Unit #1 | 778MW BWR | St. Lucie Unit #1 | 810MW PWR |
| Forked River Unit #1 | 1120MW PWR | Salem Unit #1 | 1090MW PWR |
| Fort. St. Vrain Unit #1 | 330MW HTGR | Shearon Harris Unit #1 | 900MW PWR |
| H. B. Robinson Unit #2 | 652MW PWR | Three Mile Island #2 | 880MW PWR |
| Indian Point #3 | 965MW PWR | Vermont Yankee | 514MW BWR |
| James A. FitzPatrick | 800MW BWR | WPPSS Hanford Unit #2 | 1100MW BWR |
| Millstone Unit #1 | 652MW BWR | Clinch River | 375MW LMF |

SPECIAL ASSIGNMENTS

Supervise fabrication and nondestructive examination of pressure vessel and piping components used in the Three Mile Island Nuclear Power Plant Recovery Effort.

Participate in material and fabrication feasibility study for Princeton University for a Tokamak fusion reactor power plant.

Author and lecturer of "Practical Metallurgy And Welding For Engineers" Course.

Author "Analysis and Monitoring of Condenser Tube Fouling", presented at Joint Power Generation Conference, Denver, October 1981.

BACKGROUND SUMMARY

Fourteen years experience in Welding and Metallurgical Engineering, welding research, welding and repair welding procedure and specification development, non-destructive examination methods, corrosion evaluation, failure analysis and supervision of on-site fabrication and repair in nuclear, fossil-fueled and hydro electric power plants, transmission towers, gas transmission lines and industrial manufacturing facilities. Guest lecturer at manufacturing facilities, BOCES welding classes and local area welding shows.

Over twenty years practical welding experience utilizing shielded metal arc (SMAW), gas tungsten arc (GTAW), gas metal arc (GMAW), flux cored (open arc MIG) and oxy-acetylene welding, brazing, soldering and flame spray processes on ferrous and stainless steels, copper, nickel, aluminum and magnesium alloys and cast iron.

EXPERIENCE RECORD

POWER AUTHORITY OF THE STATE OF NEW YORK - September 1980 to Present

As Senior Metallurgist my responsibilities include supervision of the Metallurgy Subgroup on research and development projects, metallurgy, welding, non-destructive evaluation, and failure analysis to assist the Authority in the construction of a 700 MW fossil fueled plant and the operation of 2 nuclear, 1 fossil fueled, 2 pumped storage and 4 hydro electric units plus transmission lines connecting the projects to the New York State power grid, to Vermont and to the Canadian provinces of Quebec and Ontario.

The following were special assignments:

Direct failure analysis and repair program for PWR steam generators and LP turbines.

Develop a biofouling/heat transfer test program to obtain data on the service of stainless steel in Hudson River water at a low flow condition .

Present engineer and welder oriented training courses in welding and metallurgy to home office and site personnel.

BURNS & ROE, INC. - October 1977 to September 1980

As Senior Metallurgist my responsibilities included heat treating, metallurgy, welding, failure analysis, materials test programs, non-destructive examination and code interpretation for the liquid metal fast breeder nuclear reactor project. Authored and presented annual training program titled "Practical Welding and Metallurgy

for Engineers." Cited by company President for service on the Three Mile Island Recovery Effort, April-May 1979.

EUTECTIC CORPORATION - February 1977 to October 1977

As Applications Engineer, my responsibilities included the application and evaluation of the weldability of alloys, staff instructor for the Eutectic-Castolin Institute Welding School, assisting customers in the application of welding processes and alloys for production and repair problems and the writing and implementation of a quality assurance manual and procedures for welding electrode manufacturing operations.

BURNS & ROE, INC. - May 1973 to February 1977

As Metallurgical Engineer my responsibilities included materials selection and evaluation, welding, non-destructive examination, corrosion resistance evaluations and protective coatings, application and interpretation of industry codes and standards, and the implementation of quality assurance procedures for six nuclear power, five fossil fueled power and two desalination projects.

The following were special assignments:

Supervise welding procedure and non-destructive examination development for a combined stack for Units 1, 2 and 3, William F. Wyman Station, Yarmouth, Maine.

Perform corrosion survey of St. Croix and St. Thomas Desalination Plants, U. S. Virgin Islands.

Develop a Welding Inspector's Training course for company inspectors and lecture on welding metallurgy at various project sites throughout the country.

EBASCO SERVICES, INC. - July 1968 to May 1973

As Welding Engineer, my responsibilities included materials selection, welder and welding procedure qualifications, welding process development and failure analysis studies.

The following were special assignments:

As Inspection Welding Engineer, supervised and coordinated three construction companies performing inspection, repair and replacement operations on the 10" Tuxedo-Poughkeepsie gas transmission line for Central Hudson Gas and Electric Corporation.

William H. Spataro
Resume
Page 3

As Supervising Welding Engineer established and supervised a materials engineering laboratory, casting upgrading and manufacturing facility at Kearny, NJ. My responsibilities included the estimation and supervision of contract repairs on all types of castings and the supervision of eleven welders.

As Welding Supervisor assigned to the Fort St. Vrain Nuclear Power Plant construction site at Platteville, Colorado supervised on-site welding construction and established a welding school to assist the training and qualification of area welders in the latest welding processes and techniques.

EDUCATION

New York University (School of Engineering and Science), Bronx, New York, B.S. (in Metallurgy) 1968.

PROFESSIONAL AFFILIATIONS

American Society for Metals - Member
American Welding Society - past New York Chapter Executive Board Member
National Association of Corrosion Engineers - Member

PROFESSIONAL CERTIFICATIONS

Engineer-in-Training (prerequisite to professional licensure)-
New York State

American Welding Society - Certified Welding Inspector

American Society for Nondestructive Testing - Level II Certification in Liquid Penetrant, Magnetic Particle and Ultrasonic Test Methods.

Welder Certification - AWS D1.1 and ASME Section IX Codes.

PUBLICATIONS

Analysis and Monitoring of Heat Transfer Tube Fouling-
N. Zilver, J. R. Flandreau, W. H. Spataro, et al., Presented at ASME Joint Power Generation Conference, Denver, CO, October 1982

DANIEL M. SPEYER, Ph. D.

Consulting Engineer

THEMAL-HYDRAULICS · SYSTEMS ANALYSIS · LICENSING

Specialist in heat transfer, fluid flow and nuclear licensing with extensive background in accident analysis, systems analysis, modeling/computer code development, research and experimental test program design and operation. Previous positions include manager of Nuclear Safeguards Subsection for Consolidated Edison Company of New York and Chairman of Westinghouse Owners Group Analysis Subcommittee. Prior activities include:

Responsibility for direction/review of Westinghouse Owners Group analyses (e.g., pressurized thermal shock) for all domestic operating Westinghouse reactors, and submittals and interaction with NRC.

Responsibility for analyses affecting safe operation of Indian Point Unit No. 2 including analysis of accidents, plant transients, generic issues, regulatory concerns and concurrence with safety evaluations. Chairman pro tem of Reactor and Safety Analysis Subcommittee of Con Edison Nuclear Facilities Safety Committee. Provide operator training lectures on thermal-hydraulics and pressurized thermal shock, review plant emergency procedures, develop test acceptance criteria and analysis of plant data.

Responsibility for computer code modification and/or model development on a number of nuclear codes, including INCORE II, COBRA3C, MOXY, RELAP4 and RETRAN. Develop FORTRAN and HP65/67/97 software for a number of nuclear applications. Examples are:

Prediction of steam generator steady state performance to evaluate impact of tube plugging and changes in operating temperature.

Analysis of cold overpressurization transients for mass or heat addition - with and without inert gas bubble.

Analysis of natural circulation in spent fuel pools for either air or water medium.

Responsibility for nuclear safety analysis of Indian Point Unit No. 1 including LOCA analysis; design, operation and data reduction for FLECHT type reflood heat transfer test program at Columbia University; and data reduction and analysis of multi-channel counterflow flooding test program.

Develop models and computer programs for LNG safety analysis and dike design including determination of vapor generation rate, downwind vapor travel and radiative heat transfer due to LNG ignition.

Develop models and computer programs for prediction of shell-side pressure loss and heat transfer in baffled shell-and-tube heat exchangers and application to extensive data base.

Design high temperature, high pressure, fixed bed regenerative air heater for Mach 10 wind tunnel.

Conduct laboratory scale quantitative and qualitative chemical analysis including UV and IR spectroscopy, thin layer chromatography and growth of single crystals in gel, including diffusion measurements and mathematical modeling.

BE Chemical Engineering
ME Chemical Engineering
PhD Engineering

DANIEL M. SPEYER, Ph. D.

Consulting Engineer

SAFETY ANALYSIS AND LICENSING

PROVIDE ASSISTANCE FOR NUCLEAR AND CONVENTIONAL APPLICATIONS

- Thermal-Hydraulics systems modeling/analysis
- Review inhouse/vendor analysis
- Assist/prepare licensing submittals
- Provide licensing defense

PREVIOUS RELATED BACKGROUND

- Chairman analysis subcommittee of the Westinghouse Owners Group (WOG). As chairman responsible for direction/review and dialogue with NRC on post-TMI analysis (e.g., loss-of-coolant accident and inadequate core cooling). Also responsible for WOG pressurized thermal shock program including program definition, direction and review, and regulatory discussions - from inception to NRC draft screening criteria of 9/82.
- Nuclear Safeguards Engineer for Consolidated Edison Co. of New York. Responsibility for safety analysis for Indian Point Unit 2, including computer program development/models, review/direction of vendor analysis. Responsible for RETRAN code model development and benchmarking.
- Responsible for development of Appendix K large break LOCA model development and analysis (RELAP4/MOXY/CONTEMPT) for Indian Point Unit 1.
- Responsible for design, operation, data reduction and analysis of single assembly (full scale) LOCA heat transfer test program at Columbia University Chemical Engineering Laboratory. (FLECHT type program for Indian Point Unit 1.)
- Responsible for operation, data reduction and analysis of full scale multi-nozzle two-phase flooding tests at Southern Nuclear Engineering Co. for Indian Point Unit 1.
- Developed computer code modification for INCORE-II, MOXY and COBRA3C. Developed core/system/separate effects models for RELAP4, COBRA3C, CONTEMPT, MOXY and PETRAN.
- Responsible for review of vendor (Westinghouse) large and small break analysis for Indian Point Units 2 and 3.

(continued - see page 2)

PREVIOUS RELATED BACKGROUND (cont'd.)

- Developed models for cold overpressurization - mass and heat addition with and without pressurizer inert gas bubble. Developed FORTRAN and HP67/97 programmable calculator programs, and prepared licensing calculations for Indian Point Unit 2.
- Developed computer models for prediction of liquified natural gas (LNG) spill consequences, including: time dependent vapor generation, down-wind vapor travel and radiant flux from ignited LNG. Radiant flux models compared to extensive experimental data base. Codes-FORTRAN, HP65, 67.
- Developed computer model for prediction of shell-side pressure loss and heat transfer in baffled shell-and-tube heat exchangers. Methodology is a fundamental one that considers all leakage paths with the physical constraint that the pressure drop for each path is identical. Model compared to extensive experimental data base.
- Developed models (for HP67/97) for prediction of single-phase natural circulation in spent nuclear fuel assemblies in either air or water. Solution is an analytic one that allows for best estimate or licensing assumptions with consideration of actual pool layout/variation of assembly powers, subject to constraints of single-phase and no metal water reaction.
- Developed predictive model (HP67/97) for steam generator (U-tube) performance. Program used extensively to predict impact of steam generator tube plugging and primary system temperature change on operations/safety analysis for Indian Point Unit 2.
- Responsible for post TMI (Three Mile Island) RETRAN analysis of TMI scenario at Indian Point Unit 2. Results of this analysis were an input to Westinghouse generic accident methodology used in WCAP-9600.
- Prepared design of air heater (fixed bed regenerator), 10,000 psi and 3500 °R, for Mach 10 wind tunnel, including material selection, cost estimates, feasibility studies and performance estimate.
- Laboratory scale quantitative and qualitative analysis including UV and IR spectroscopy and thin layer chromatography. Growth of single crystal in gel and diffusion measurements and mathematical modeling of same; and experiments to study oxidation mechanisms, including isolation and identification of reaction products.

OPERATOR/S.T.A./STAFF TRAINING

TRAINING ASSISTANCE FOR PWR'S TO

- Appropriately select relevant material
- Effectively communicate complex subjects

EMERGENCY PROCEDURES

ASSISTANCE FOR PWR STAFF TO

- Review generic/plant specific emergency procedures
 - Develop/incorporate additional plant specific analysis/justification
 - Prepare documentation, including plant specific background document
-

ACCOMPLISH BY INTEGRATION OF

- Historical involvement/perspective
- Understanding of phenomena
- Understanding of plant behavior and accident analysis
- Knowledge of plant systems, hardware, procedures, technical specifications, etc.
- Knowledge of NRC concerns/requirements

PREVIOUS RELATED BACKGROUND

- As chairman of analysis subcommittee of Westinghouse Owners Group (WOG), responsible for development of analysis supporting Emergency Response Guidelines (ERG's) and Function Restoration Guidelines (FRG's).

(continued - see page 2)

OPERATOR/S.T.A./STAFF TRAINING
EMERGENCY PROCEDURES

page 2

PREVIOUS RELATED BACKGROUND (cont'd.)

- Provided training lectures for Indian Point Unit 2 personnel (operators and shift technical advisors) on heat transfer and fluid flow, accident and transient analysis/plant behavior, TMI scenario and pressurized thermal shock.
- Performed review of Indian Point Unit 2 emergency procedures (e.g., SGTR and Loss of All AC) and developed improved plant specific RCP trip criterion.
- Provided lectures on PWR safety analysis (assumptions, methodology and results).for ASME and colleges.
- For additional relevant background see SAFETY ANALYSIS AND LICENSING.

DANIEL M. SPEYER, Ph. D.
Consulting Engineer

OPERATIONS SUPPORT

PROVIDE ASSISTANCE TO

- Prepare bases for/assist in review of safety evaluations
- Prepare test acceptance criteria
- Evaluate startup/periodic test data
- Provide independent review, etc.

ACCOMPLISH BY

- Extensive knowledge of thermal-hydraulics and systems analysis/assumptions/bases, plant equipment, Tech Spec, FSAR, etc.
- Use existing and/or develop analysis methodology and programs where appropriate
- Provide guidance/advice on use of vendor/other organizations for additional support - where appropriate

PREVIOUS RELATED BACKGROUND

- Responsible for analysis in support of operations at Indian Point Unit 2, including development of test acceptance criteria, analysis of test data, development of technical bases for safety evaluations and concurrence with safety evaluations prior to implementation.
- For additional relevant background see SAFETY ANALYSIS AND LICENSING, OPERATOR/S.T.A./STAFF TRAINING and EMERGENCY PROCEDURES, and PROGRAMMABLE CALCULATOR - SOFTWARE (MODEL) DEVELOPMENT.

DANIEL M. SPEYER, Ph. D.
Consulting Engineer

**PROGRAMMABLE CALCULATOR
SOFTWARE (MODEL) DEVELOPMENT**

BACKGROUND - In addition to traditional (generally FORTRAN) computer programs I have found use of programmable calculators to be of significant benefits (as described below), particularly in nuclear applications where reliance on larger codes is typical.

PROVIDE ASSISTANCE TO

- Modeling development in lieu of computer programs
- Modeling development of submodels/preliminary analysis in advance of computer program development
- Computer code preprocessing and postprocessing

BENEFITS

- In licensing space program results can (often) be submitted as calculations without the program (avoids documentation, configuration control, etc.)
- Manipulation of code input/output without modifications to already licensed code (avoid additional licensing submittals for code modification)
- For appropriate problems considerable savings in analyst's time over computer codes (or hand calculations)/reduce errors
- Easily used at remote locations for data reduction/analysis (e.g., analysis of test data in the field - saving plant downtime by ensuring valid data/acceptable results were obtained)
- Obtain sensitivity results/scoping results without resorting to repetitive use of larger computer programs
- Program simpler repetitive tasks to avoid errors and obtain consistent results

(continued - see page 2)

PREVIOUS BACKGROUND

- Extensive development of software for HP programmable calculators. Currently (10/1/82) I can support HP65,67,97 machines, with addition of HP41C/CV anticipated in the near future.
- Partial list of software applications, includes:
 - 1973 and 1979 ANS decay heat standards
 - Spent fuel pool natural circulation*
 - Prediction of steam generator dry out time for loss of all feedwater
 - Calculation of LOCA critical time for hot leg switchover
 - RELAP4 (and similar codes) input data processing for steady state initialization
 - Steam generator performance prediction*
 - Selected PWR transients, including:
 - loss-of-load (w/o reactor kinetics)
 - steamline break (w/o reactor kinetics)
 - cold overpressurization*
 - DNBR (given power and flow boundary conditions)
 - Multi-Channel counterflow flooding
 - Primary system leak/LOCA intersection
 - Pump acceptance criteria development, such as multiple pumps with differing head degradation in parallel/series configuration (e.g., SI pumps where one pump does not meet analysis basis)
 - Bounding containment analysis (impact of change in fan cooler and/or containment spray performance)
 - Cryogenic spills (such as LNG)*

* see SAFETY ANALYSIS AND LICENSING

EXPERIENCE

POWER AUTHORITY OF THE STATE OF NEW YORK

December 1981 - Present

Vice President - Nuclear Support

Responsible for providing technical and administrative support for the Indian Point 3 Nuclear Power Plant in the following areas:

Through the Director of Project Engineering coordinating design, design changes and other engineering activities, other Authority Departments, outside consultants and engineering organizations and obtaining the services of other organizations to provide technical services as needed to support plant operations.

Through the Director of Operations and Maintenance monitoring and reviewing plant activities and conducting studies in order to recommend improved plant safety, maintainability and capacity factor. Coordinates and reviews the inservice inspection program for the site and provides technical advice relating to non-destructive testing, welding and materials.

Through the Director of Nuclear Licensing the development and implementation of licensing activities and coordination of the preparation of documents submitted to the NRC or other regulatory agencies by the Headquarters Office. This responsibility shall include controlling the submittal of changes to the Operating License, Technical Specifications and the FSAR.

The Vice President - Nuclear Support is the "Engineer in Charge" for the Authority's IP3 Nuclear Power Plant as required by NRC Standard Review Plan Section 13.1.1 and Regulatory Guide 1.8. As stated in ANSI/ANS 3.1-1978, Section 4.6.1, the "Engineer in Charge" shall "determine when to call consultants and contractors for dealing with complex problems beyond the scope of owner-organization expertise".

Served as voting member of the Safety Review Committee.

February 1981 - Dec. 1981

Manager - Nuclear Technical Support

Serves as a focal point in directing, monitoring, reviewing and coordinating the engineering and design activities of the Power Authority, Architect-Engineers, the NSSS vendor and other organizations to ensure that the activities are being performed in a safe, reliable, consistent with applicable regulatory requirements and in a cost-effective manner. Responsible for providing proper technical support to the operating nuclear plants and maintaining the requisite liaison and interface with other Authority department(s) and division(s) at Headquarters.

1980 - 1981

Resident Manager IP3

As senior Power Authority manager at the site, had overall responsibility for safe, efficient and dependable operation of Indian Point 3 Nuclear Power Plant. Implement all administrative controls in conformance with applicable regulatory requirements regarding the facility and was responsible for coordination of all station functions through the Superintendent of Power, Plant Superintendents and other key personnel. Served as Chairman of the Plant Operations Review Committee and as a member of the Safety Review Committee.

1979 - 1980

Superintendent of Power

Responsible for day to day operation of a 1000 megawatt nuclear power plant. Directly supervised the Operations, Maintenance, Instrumentation and Control, Health Physics and Chemistry and Technical Services Departments, consisting of 42 management personnel and 98 collective bargaining personnel. Develop and administer outage controls. Coordinated all activities associated with the 1979 Refueling and Turbine Outage. Assume the duties of the Resident Manager during his absence from the plant. Maintain qualifications for Nuclear Regulatory Commission Senior Reactor Operator License.

1976 - 1979

Technical Services Superintendent

Responsible for all on site technical support related to plant design, operation and testing. These duties included original design, preparation and approval of nuclear safety evaluations, reactor core monitoring, administration of the surveillance test program and establishment of a document control and retention system. Supervised a staff of 16 management personnel and a collective bargaining personnel.

1969 - 1976

Consolidated Edison Company of New York

1975 - 1976

Operations Engineer - Unit 3

Responsible for overall administration of Unit 3 operations. During initial plant startup and testing I was designated the Unit 3 Startup Engineer. In this capacity, I was responsible for the pre-operational test program, initial fuel loading and subsequent startup testing as well as coordination of maintenance activities. Supervised a staff of 9 and an operating crew of 31. Contributed to the development of the technical specifications for the unit and continually dealt with the Nuclear Regulatory Commission on licensing and regulatory matters both on site and at Nuclear Regulatory Commission headquarters.

1975 - 1976 Cont'd.

Attended a one week Dimensional Management Training Seminar conducted by Psychological Associates Inc. of St. Louis, Missouri.

1971 - 1975

Engineer - Unit 3

Provided technical support for the Unit 3 Startup Program. Supervised a staff of five engineers and coordinated the preparation of system descriptions, operating and emergency procedures and related technical material for Unit 3 personnel. Assumed the duties of the Operations Engineer during the later half of 1974. During this period, I obtained a Senior Reactor Operators License from the Nuclear Regulatory Commission for Indian Point Unit 2 and Unit 3.

1969 - 1971

Production Engineer

Assigned on site responsibility for the initial startup and subsequent maintenance and operation of the 650 megawatt Astoria Gas Turbine Station that consisted of 31 separate gas turbine engines. Supervised a crew of two engineers and 17 operating mechanics.

1963 - 1969

General Dynamics/Electric Boat Division
Groton, Connecticut

1967 - 1969

Assistant Chief Nuclear Test Engineer

Responsible for overall administration of test programs on several S5W and S4G Naval Nuclear Power Plants. As such, I was responsible for the preparation and approval of test and retest program documents and conduct of testing for approximately five nuclear submarine power plants.

1965 - 1967

Senior Test Engineer

Responsible for the direction and performance of all phases of testing on S5W Naval Nuclear Power Plants including initial criticality and power range testing of new reactor cores. This included verification that pre-requisites and plant conditions were met and witnessing that procedural steps were completed. Completed two test programs during this period. Served as technical advisor to Norfolk Naval Shipyard for a three month period to assist them in developing a nuclear test program for overhauling submarines. During this period, I was qualified as a Senior Test Engineer on the S4G Reactor Plants of the SS(N) 586 Triton.

1963 - 1965

Test Engineer

Participated in a one year training program to become qualified by the Atomic Energy Commission and General Dynamics Personnel as a Senior Test Engineer for S5W

1963 - 1965 Cont'd.

Nuclear Power Plants. During this period conducted system flushes, hydrostatic and functional tests of nuclear power plant systems under direction of qualified Senior Testing Engineer.

EDUCATION

Croton on Harmon High School, Croton-on-Hudson, New York
1955 to 1959

Manhattan College, Riverdale, New York
1959 to 1963. Bachelor of Electrical Engineering Degree