

## **Associate Resume**

### **EDUCATION**

Ph.D. Nuclear Engineering, Purdue University  
M.S. Nuclear Engineering, Massachusetts Institute of Technology  
B.S. & M.S. Mechanical Engineering, University of Punjab/Tokyo University

### **SUMMARY**

30 years of experience in the nuclear power industry and DOE in these areas: Nuclear Safety & Accident Analysis; Nuclear Fuels Engineering; Shielding (QUADMED); Systems Thermal Hydraulics/Fluid Flow (RETRAN/RELAP, SIMTRAN, TAPA); Reactor Performance Evaluation; Systems Engineering & Simulations; Computer Applications; Plant Modifications; Design Engineering; Equipment Qualifications; Nuclear Training; QA Audits of Nuclear Fuel; Program/Project Management; 10 CFR 50.54(f)/ 50.59 Evaluation; Member of EG&G/NRC Tiger Team; FSAR Fidelity Reviews; Systems Functional Requirements & Set point Analysis; Severe Accidents - Loss of Reactor Coolant Accidents (LOCA) & Containment Analysis (MAAP/THREED).

### **EMPLOYMENT HISTORY**

**Nov. 2001- Present**

**Consulting Engineer  
Stone & Webster Engineering Corp.**

Performed LOCA analysis of Millstone Unit 3 steam lines (blow down into the MSV Building) using THREED/RELAP and conducted FSAR safety and licensing reviews. This involved calculation of volumes, junctions, inertias, and loss coefficients using appropriate flow correlations. Also performed Equipment Qualification (EQ) of Pressure Transmitters and other equipment in MSVB building using TAP program.

**Jan. - Nov. 2001**

**Consulting Engineer  
Westinghouse (Savannah River)**

Performed safety reviews and analysis of accidents involving Tank Farm Facilities, Tritium Facility, and Defense Nuclear Waste Facility (PUREX & Solvent Extraction Processes).

**Dec. 1997- Nov. 2001**

**Consultant  
Clinton Nuclear Power Station (BWR)**

Performed benchmarking and QA verification/validation of RETRAN and MAAP against plant test data and USAR; also performed safe-shutdown/severe accident calcs (loss of reactor coolant and core meltdown) using MAAP, REBAL & RETRAN. Supported Licensing for USAR and Tech Spec reviews.

**Jul.- Dec. 1997**

**Consultant  
Wolf Creek Nuclear Power Station**

Performed Fidelity Reviews of Wolf Creek USAR (10 CFR 50.54f/59 evaluations) and reviewed LOCA/non-LOCA calculations; Member of Margin Management Team.

**Jan.- Jun. 1997**

**Consultant, Yankee Atomic & La Salle  
Nuclear Power Stations**

Prepared a Reactor Protection /ESFAS Systems set point/delay time document for LaSalle in light of the GE/Siemens specs and input data; Conducted Safety and Configuration Management reviews of Vermont Yankee and ran increased core flow and LOCA transients using RETRAN.

**1996 (6 Mo.)**

**Adjunct Professor  
Houston Community College**

Taught courses in mechanical engineering & engineering mechanics.

**1991- 1996**

**Nuclear Engineering Specialist  
Raytheon, Northeast Utilities,  
Northern States Power,**

**Rocky Flats (DOE/EG&G)**

Member of Millstone Restart/Recovery Team (10CFR50.54(f)); Responsible for NSSS Configuration Management & Review of FSAR Chapter 14 Transients, Safe Shutdown Systems & Safety Functional Requirements; Wrote several Adverse Condition Reports and performed 10CFR50.59 analysis and Single Failure Criteria evaluation. Also served as a Member of the Monticello Nuclear Plant Design Basis Document Review Team; reviewed operating/emergency procedures, lesson plans, plant drawings, FSAR and vendor specs and wrote 40 assessment reports. Prepared packages for waste management and removal of plutonium oxide from Building 79 (Rocky Flats). Performed safety evaluation of the Ulchin Nuclear Power Station, modeled SRV's and calculated transient loads on the piping systems using RELAP; also reviewed LOCA models and helped in technology transfer to the Koreans.

**1987-1991**

**Project Engineer  
Bechtel Power Corporation/USNRC**

Supervised work relating to systems engineering, safe shutdown analysis and plant modifications for restart of Browns Ferry and Turkey Point Nuclear Projects. At Comanche Peak, reviewed FSAR Chapter 15 design basis accidents including LOCA; supervised work relating to equipment qualification under harsh environments and prepared EQ Master List; also prepared Design Basis Document (DBD) for Wolf Creek Nuclear Station and performed QA verification.

Manager for review of BWR systems thermal-hydraulics methodology for operational transients submitted by Westinghouse & ASEA Atom via BISON code. Assisted NRC in writing Standard Technical Specifications for LWRs.

**1980- 1986**

**Head of Nuclear Fuels Engineering &  
Training/Engineering Analysis  
Gulf States Utilities, River Bend  
Nuclear Station**

Administered fuel fab contract and advised GSU on GE's nuclear design such as CCC-Core, GE/8 barrier fuel. Predicted cycle-1 reload design and compared against plant data. Conducted channel recycle study. Prepared bids/specs for new channels. Participated in the review and write-up of startup tests, FSAR, Tech Specs and operational data acquisition, and system design review. Prepared plant thermal-hydraulic transient model with EPRI codes RETRAN, VIPRE, CASMO, SIMULATE, SIMTRAN, etc. and benchmarked against startup and test data and performed QA verification; Ran several FSAR transients (Turbine Trip, MSIV Closure, etc.), Conducted training on severe core accidents. Represented GSU in EPRI's BWR RASP Working Group and served as Subcommittee Chairman for several transients. Supported Licensing and Plant Operations by providing technical solutions and responding to NRC/ACRS concerns. Also appeared before the ACRS.

**1975-1980**

**Reactor Engineer, Power Authority  
State of New York**

Performed NSSS design verifications and fuel management of Indian Point Unit 3, a Westinghouse PWR using PDQ, CASMOS, LEOPARD, INCORE and SAROS computer codes. Interfaced with Westinghouse and GE on reload fuel design and safety evaluation. Reviewed transient analysis using RETRAN/RELAP. Verified core performance predictions by NSSS vendor, correlating results and codes. Other duties included interaction with NRC on licensing and reload submittals, review of startup test procedures for core analysis, QA audits of fuel supplier, fuel handling and core loading procedures, review of tech specs related to core performance, and review of bid specs for fuel supply and high density fuel racks.

**1973-1975**

**Director, Nuclear Power Division  
Canadian Karachi  
Nuclear Power Station**

Responsible for engineering, technical and operational support to KANUPP Nuclear Station. Conducted Plutonium recycling studies for KANUPP reactor; also responsible for incore/excore fuel management.

**1971-1973**

**Consulting Engineer/Visiting  
Professor, Federal University, Brazil  
and Brazil AEC**

Taught graduate courses in nuclear engineering; participated in the design of fast-thermal coupled-core reactor and ran nuclear analysis programs.

## **PERSONAL**

Excellent Communicator  
Member of NRC/EG&G Tiger Team  
Fulbright/IAEA Scholar & Contributing Editor: The Nucleus.  
U.S. Citizen