

SUMMARY

Dr. Jerry Cuttler is a professional nuclear engineer with 44 years of experience in engineering and licensing. He has led organizations in the design and procurement of instrumentation systems for reactor control, safety systems and radiation monitoring. Dr. Cuttler has managed large nuclear energy projects. He is an expert on radiation-induced health effects.

EXPERIENCE

2000-2017 Cuttler & Associates Inc., Toronto (Vaughan), Ontario

- 2008 Jan to 2018 Jul: Prepared 25 scientific articles on health effects of low radiation related to nuclear plant accidents, social fear of radiation, environmental concerns, medical applications in imaging and treatments. These papers were published in renowned, peer-reviewed scientific journals.
- 2014 Aug to 2014 Oct: Prepared Chapter 2, "Nuclear Energy and the LNT Hypothesis of Radiation Carcinogenesis" in the book "Fukushima Nuclear Accident: Global Implications, Long-Term Health Effects, and Ecological Consequences." Published online by Nova Science Publishers on 2015 Feb 11.
- 2011 Dec to present: Associate member of CSA N290 Technical Committee; member of several TSCs
- 2011 Sep to 2013 Dec: Chaired CSA Technical Subcommittee that revised N290.1-80 into CSA standard N290.1-13, Requirements for the Shutdown Systems of Nuclear Power Plants
- 2010 Sep to 2011 Jun: **Ian Martin Ltd.**, prepared Bruce B condition assessment reports for the Neutron Flux Monitors, Start-up Instrumentation, Failed Fuel Monitors (GFP and DN), and Overall Plant Control.
- 2005 Jan to 2007 Nov: Provided services to AECL for technical and QA review of procurement (~ 490 purchase orders and 230 requisitions) and for completing the design of safety shutdown systems 1 and 2, for the MMIR Project (medical radioisotopes)
- 2003 May to 2004 Oct: Prepared technical specifications for the CANDU Owners Group
- 2003 Mar to 2003 Jun: Prepared reports for Bruce Power on startup instrumentation neutron detectors.
- 2001 Apr to 2003 Apr: Provided support to OPG for Pickering A Unit 4 Return to Service Project. Prepared ~140 draft licensing letters for Design Change Packages and many safety-related assessments for CNSC approval. Regulatory approval for the changes was received on April 30, 2003.

2015-2016 Elysium Industries, Boston, Massachusetts

- 2015 Dec to 2016 Nov: Provided inputs on Canadian requirements for a molten salt fast-neutron reactor

2008-2015 Canadian Power Utility Services Limited, Toronto, Ontario

- 2013 Jan to 2015 Jun: Provided responses to a variety of CNSC questions on OPG ISR submissions.
- 2013 Dec to 2014 Jan: Prepared code refresh review report on Darlington's reactor shutdown systems against CSA N290.1-13.
- 2012 Dec to 2014 Jan: Reviewed code refresh review report on Darlington environmental monitoring program against CSA N288.4.
- 2012 Sep to 2013 May: Prepared code refresh review report on Darlington's reactor control system against CSA N290.4-11.
- 2013 Apr to 2014 May: Prepared a review of Darlington acceptable deviations against modern codes and standards, collectively, for aggregate effects that could impact accident management and fire protection.
- 2011 Jul to 2013 Jun: Review of Risk Prioritization Numbers, Technical Basis Assessments and Critical Spares Assessments for many equipment items on the Bruce Power Ageing and Obsolescence Project
- 2009 Dec to 2010 Mar: Prepared assessment for CANDU Owners Group on mobile conferencing camera for use in CANDU plants. The assessment addressed possible Wi-Fi interference with plant signals and long-term camera operation in the expected radiation environment
- 2008 Oct to 2009 May: Provided services to OPG Licensing for Pickering B Life Extension Project. Prepared responses to 29 issues/comments and 91 questions by CNSC on the Integrated Safety Review
- 2008 Jan to 2010 Jun: Provided services to Bruce Power Licensing for the Bruce A Units 1 and 2 Return to Service and Life Extension Project. Prepared responses to 68 CNSC issues and comments on many different subjects of the Integrated Safety Review for this project.

1974-2000 Atomic Energy of Canada Limited, Mississauga, Ontario

Manager, CANDU Y2K Support Centre; Manager, Y2K Legacy Products (1998-2000)

- Prepared the contingency plan for AECL's Y2K support to CANDU stations.
- Managed the CANDU Y2K Rollover Support Centre. Received praise from the CANDU owners for organizing the cooperative effort and the successful operation of the Centre during the rollover.
- Led a team that reviewed several hundred products no longer supported by AECL and prepared a list of computer-related products for which there were concerns about the potential consequences of improper performance after 1999. These were assessed and/or tested for Y2K compliance.
- Drafted the advisory letters that were sent to the owners of these products, which included: accelerators for cancer therapy industrial electron accelerators and research reactors.

Project Manager, Pickering Contaminated Lands Project (Sep-Nov 1998)

- Prepared the project execution plan and business case summary for the construction of the Pickering NGS Site-wide Groundwater Monitoring System.
- Prepared the project execution plan for the Pickering NGS Site-wide Groundwater Study for phase 2 of an environmental assessment of Pickering NGS site.

Technical Services Manager, CANDU and Technical Services (1997 to 1998)

- Represented AECL in business relationships with the Pakistan Atomic Energy Commission.
- Successfully managed the AECL/PAEC contract for updating the Final Safety Analysis Report of the KANUPP reactor, located near Karachi. This involved complex administrative and political interfaces between AECL and KANUPP, its local agent, subcontractors, government organizations, a local representative and the customer's analysis team in Canada.
- Created a positive relationship between AECL and the PAEC.
- Managed the compiling and submission of AECL commercial proposals to KANUPP for providing fuel channel integrity assessment services.

Manager, Engineering Integration, CANDU 9 Program (1995 to 1997)

- Led a team of 40 AECL and contract engineers in Sheridan Park who prepared conceptual design documents and safety analyses for the CANDU 9 nuclear power plant, to complement the scope of work being performed by the main CANDU 9 design office in Saskatoon, Saskatchewan.
- The Eng. Integration scope included the design of buildings and process systems outside the reactor building, plus fuel handling systems, and safety and PSA analyses, as well as configuration management and design verification for the entire CANDU 9 Program. Pre-licensing of the CANDU 9 design by the Canadian regulator was achieved. The deliverables served as a basis for the Korean feasibility study for two CANDU 9 units at the Bongil site.

Site Manager, AECL Support Services, Pickering NGS (1991 to 1995)

- Served as the AECL representative at Pickering Nuclear Generating Station (PNGS) and marketed AECL technical support services directly to PNGS.
- Brought AECL into direct contact with PNGS operations staff and helped create a positive perception of the quality of AECL services. This led to a continuation of business (\$8 million/year) with PNGS after a major Ontario Hydro reorganization removed the traditional business interface.

Review of Bruce NGS "A" Design and Operation (1990/91)

- Participated in a team of eight experienced managers from AECL, Canatom and Ontario Hydro that reviewed the overall design and operation of the Bruce A Station from the aspect of operational complexity.
- A comprehensive report was produced which identified seven technical factors, ten management factors and twelve minor problems. Some of the technical recommendations were accepted for a major rehabilitation program for the station.

Engineering Manager, SES-10 Project (1987 to 1990)

- Led a team of engineers and designers at the Whiteshell Research Laboratories to transform a vision of a simple, safe and low cost 10 MW reactor for hot water district heating into a practical and licensable design, within a formal quality assurance program.
- Provided technical support to the licensing and marketing programs for this product.

Systems Manager, CANDU-3 Project (1986/87)

- Developed and implemented new systems to produce scopes of work, staffing plans and cost estimates for the engineering phase of the CANDU-3 Project (a 475 MWe station).
- Created new project procedures for a changing engineering environment.
- Managed monthly monitoring of the progress against the schedules. Innovated better document control.

Resident Engineering Manager, Bucharest, Romania (1985/86)

- Represented AECL Engineering on the Cernavoda Project, the construction of five 700 MWe CANDU reactors by the Romanian Government.
- Directed the technical meetings with the client's engineering organization.
- Changed the policy no-charge training to one of strict adherence to the contract. This resulted in the release of substantial funds for unpaid invoices and a supplementary contract for technical support.

Engineering Manager, Bruce B NGS Project (1983 to 1985)

- Managed AECL's engineering work during the final two years of Ontario Hydro's Bruce B Project (four 900 MWe reactors).
- The final deliverables, including many design changes were produced by a matrix organization of project and functional staff.
- Considerable support was provided to Bruce Construction to resolve problems and supply advance information on the changes.
- Two reactor units started up successfully during this time.
- Managed rundown phase of AECL work from annual level of \$20 M (300 person-years) to \$5 M.
- Prepared annual work plans; developed new reports of monthly status, progress and cost; achieved effective control.

Assistant to the Vice-President of Engineering (1982/83)

- Processed the incoming correspondence of a key executive and took action on a wide range of problems. Organized quarterly budget reviews and the annual performance and salary reviews for a division of 1800 employees. Six hundred of these were laid off during this period due a reduction in business volume.

Manager, Nuclear Instrumentation Branch (1979 to 1982)

- Founded and led an organization of 24 people to develop and design instruments and systems for reactor control, safety shutdown, radiation monitoring and failed fuel detection and location for Ontario Hydro's Pickering B and Bruce B stations. The Branch produced all technical documents for procurement and for construction, and reviewed the tenders, and prepared recommendations to purchase for approximately 100 orders worth about \$30 million per station.
- Post-order engineering work involved visits to manufacturers to review progress, approve documents and solve problems. Support was provided to site construction.

Section Head, Reactor Control and Safety System Instrumentation (1975 to 1979)

- Supervised a section (that grew from 5 to 18) in the design and procurement of instrumentation systems for reactor control and safety systems of the Gentilly-2, Pt. Lepreau and Cordoba 700 MWe reactors, and for the Pickering B NGS (four 540 MWe reactors).
- Trained planners and developed the schedule networks.
- Conceived, established and directed a 3-year R&D program at the Chalk River Nuclear Laboratories to develop an improved in-core flux detector assembly for reactor control and safety shutdown. The \$5 million program achieved such good results that the new design was immediately adopted for the Bruce B and Darlington stations, and later retrofitted to all CANDU reactors.

Design Engineer (1974)

- Designed a "feeder scanner" to locate failed fuel bundles in Pickering B NGS reactors.
- Designed a gamma-ray spectrometer system to detect failed fuel by measuring fission product concentrations in the heat transport system.

1971-1974 Seforad - Applied Radiation Limited, Jordan Valley, Israel

Technical Manager

- Managed the design and production of semiconductor detectors for gamma and X-rays, helium-3 neutron spectrometers and the associated low-noise electronics.
- Conducted all technical correspondence, promotion and sales tours.

1967-1971 Israel Institute of Technology, Haifa, Israel

Laboratory Manager, Department of Nuclear Sciences

- Managed the Technion's laboratory at the Van de Graaff accelerator of the Weizmann Institute of Science.
- Calibrated neutron spectrometers using the accelerator, and measured accurate energy spectra of delayed fission neutrons for the D.Sc. thesis.

1964-1967 Israel Atomic Energy Commission, Soreq Nuclear Research Centre, Yavne, Israel

Research Engineer, Nuclear Chemistry Department

- Developed a neutron energy spectrometer of exceptional performance for the M.Sc. thesis.

EDUCATION

- 1964 University of Toronto, B.A.Sc. & Eng. Engineering Physics (Nuclear)
- 1968 Israel Institute of Technology, Haifa, M.Sc. Nuclear Engineering
- 1971 Israel Institute of Technology, Haifa, D.Sc. Nuclear Sciences

PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers of Ontario
- Canadian Nuclear Society (President - 1995/6, Fellow - 2000)
- American Nuclear Society
- American Physical Society
- Canadian Radiation Protection Association
- Health Physics Society
- International Dose-Response Society
- American Council on Science and Health (Advisory Board)
- International Nuclear Energy Academy
- Canadian Standards Association