CNS Conferences and Seminars

Canadian Nuclear Society Annual Conference

The 8th Annual Conference of the Canadian Nuclear Society and the 27th annual international conference of the Canadian Nuclear Association were held in Saint John, New Brunswick, 14–17 June 1987. Attendance was 447, including a number of overseas representatives and a strong delegation of speakers from the International Atomic Energy Agency, Vienna (the paper by L.L. Bennett on 'The Outlook for Nuclear Power After Chernobyl' is contained in this issue of the Nuclear Journal of Canada).

Nearly 70 papers were presented at the technical sessions of the CNS Conference. Many subjects were covered, including innovative features of the new CANDU 300 for life extension, and improvements to the CANDU 600 design. The Darlington Probabilistic Safety Evaluation study was unveiled at the conference, the first application of fully integrated event tree / fault tree risk assessment methods to a CANDU reactor (pre-operational) design, which has resulted in nearly 100 design changes.

The following papers were presented:

Plant Life Extension

'Virginia Power's Unit Life Extension Program.' P.R. Beament, Virginia Electric and Power Company.

'EPRI Overview and Generic Aspects of PWR & BWR Studies.' C. Bergeron, Stone and Webster; Melvin E. Lapides, EPRI.

'CANDU 300 Features for Plant Life Extension.' R.S. Hart, AECL.

'Assessment of Plant Life Extension (PLEX) and Long-Term Reliability Assurance (LTRA) Issues for Ontario Hydro's Nuclear Generating Stations' J.A. Chadha, R.J. Strickert, Ontario Hydro.

Safety and the Environment

'Modifications to Augment Reactor Trip Coverage for a Single Pump Trip in a CANDU 600 Reactor.' P.D. Thompson, NB Power; A. Baudouin, Hydro Quebec; L.J. Watt, G. Delorme, GAN.

'Consequences of Pressure / Calandria Tube Failure in a CANDU Reactor Core During Full-Power Operation.' A.P. Muzumdar, G.M. Frescura, Ontario Hydro.

'Gentilly-2 Safety Analysis for Higher Containment Leakage.' R.H. Hu, Hydro Quebec; M.S. Quraishi, AECL SH PK.

'UO_2 Oxidation in Air or Steam – Release or Retention of the Fission Products Ru, Ba, Ce, Eu, Sb, and Nb.' C.E.L. Hunt, F.C. Iglesias, D.S. Cox, N.A. Keller, R.D. Barrand, J.R. Mitchell, R.F. O'Connor, AECL CRNL.

'Fission Product Release from UO_2 in Air During Temperature Ramps.' D.S. Cox, F.C. Iglesias, C.E.L. Hunt, N.A. Keller, R.D. Barrand, R.F. O'Connor, J.R. Mitchell, AECL CRNL.

'Experience on Environmental Qualification of Safety-Related Components for Darlington Nuclear Generating Station.' A.S. Yu, B.M. Kukreti, Ontario Hydro

Safety R&D Post Chernobyl

'Fuel Behaviour During Simulated Reactivity – Initiated Accidents in the NSRR Experiments and its Applications.' Toshio Fujishiro, Teruo Inabe, Makoto Sobajima, Japan Atomic Energy Research Institute.

'Relevance of Chernobyl to PWR and PHWR Source Term Experimental Programs.' F. Iglesias, C.E.L. Hunt, CRNL; M.S. Osborne, R. A. Lorena, Oak Ridge National Laboratory.

'Aerosol Behaviour Research Implications of Chernobyl' T.S. Kress, Oak Ridge National Laboratory.

'Hydrogen in Water Cooled Nuclear Reactors.' M.W. Jankowski, IAEA Vienna; J.C. Cummings, Sandia National Laboratory; D.F. Torgerson, WRNL.

'Atmospheric Dispersion Modelling in Nuclear Safety.' P.J. Cooper, W. Nixon, B.Y. Underwood, Safety and Reliability Directorate, UKAEA.

Risk Assessment – A Candu Perspective

'The Darlington Probabilistic Safety Evaluation – A CANDU Risk Assessment.' F.K. King, V.M. Raina, K.S. Dinnie, Ontario Hydro.

'The Use of Probabilistic Safety Assessment in the Operation of Point Lepreau Generating Station.' S. Alikhan, NB Power; D.J. Edgar, Systec.

Reactor Physics

'An Investigation into the Relationship Between Local and Global Power Excursions in CANDU.' M.H. Younis, S.D. Grant, B. Rouben, AECL, SH, PK.

'Expected Reactivity Effect of Fuel Channel Coolant Boiling in the Darlington NGS A Reactor Core.' E. Carruthers, University of Toronto; M. Gold, Ontario Hydro.

'Fuel Management Simulations For A Part-Core Loading of Slightly Enriched Uranium in a CANDU 600.' P.G. Boczar, H.G. Blundell, M.P. van Dyk, AECL CRNL.

'A Shut-Off Rod Performance Study for the Point Lepreau Reactor.' R.C. Robinson, Atlantic Nuclear Services Limited.

'Simulating the Power Rundown Transient from Poison Injection System for a CANDU Reactor.' M.Z. Farooqui, N. Roy, S.G. Lie, H.G. Austman, A.L. Wright, Ontario Hydro.

'In-Situ Calibration of Flux Mapping Detectors in an Operating CANDU Reactor.' T.C. Leung, D.S. Hall, N.H. Drewell, AECL CRNL; A.M. Lopez, Ontario Hydro.

Thermohydraulics

'Development of the LOCA Analysis Code System of the Advanced Thermal Reactor (ATR).' Yoshitaka Hayamizu, Hiroyasu Mochizuki, Midorikawa Hiroshi, ATR Safety Section.

'Thermal Power Uprating of CANDU Reactors.' N. Spinks, D. Groeneveld, AECL CRNL.

'Experimental Investigation of Core Flow Jet Confinement in a Maple-Type Flow Test Facility.' P.T. Wan, S.Y. Shim, V.S. Krishnan, AECL WNRE.

'Regime-4 Code for Prediction of Flow Regime Transition in a Horizontal Pipe, Annulus, and Bundle Flow Under Gas-Liquid Two-Phase Flow.' S.I. Osamusali, J.-S. Chang, McMaster University.

'Subchannel Analysis of CANDU 37-Element Fuel Bundles.' A.M.M. Aly, K. Amrud, AECB.

'CHAN III, A New Code for the Prediction of the Thermal Behaviour of a CANDU-PHW Reactor During Loss-of-Coolant Accidents with Impartial Emergency Core Cooling, and Experimental Comparison of the Predictions.' M. Rizk, G.A. MacLean, K.W. Demoline; D.G. Litke, R.J. Norek, AECL WNRE.

'Cathena Simulation of a Critical Inlet Header Break Test with Emergency Coolant Injection in RD-14.' D.J. Richards, F.W. Barclay, P.J. Ingham, AECL WNRE.

'Experimental Characterization of a Vertical U-Tube Steam Generator.' B.N. Hanna, P.J. Ingham, AECL WNRE.

'Experimental Investigation of the Refill Behaviour in a CANDU-Type Header-Feeder System.' J.E. Kowalski, V.S. Krishnan, AECL WNRE.

'The Experimental Determination, and Verification of the Circumferential Temperature Distributions Developed on Pressure Tubes During Asymmetric Coolant Conditions such as Stagnated Coolant Flow.' C.B. So, G.E. Gillespie, R.G. Moyer, D.G. Litke, AECL WNRE.

'Verification of a Thermal-Hydraulic Model of Channel Cooling Degradation During a LOCA / LOECI Event.' J.C. Luxat, F.D. Rance, Ontario Hydro; C.B. So, R.G. Moyer, D. Litke, AECL WNRE.

'Progress on SMARTT Simultation of Pressure Tube Circumferential Temperature Distribution Experiments.' K.E. Locke, J.C. Luxat, A.P. Muzumdar, Ontario Hydro; C.B. So, R.G. Moyer, D. Litke, AECL WNRE.

Fuel Channels – An Update

'Confidence in Fuel Channel Components.' B.A. Cheadle, AECL CRNL.

'Pressure Tube Procurement for CANDU Reactors.' E.G. Price, S. Venkatapathi, AECL Candu Ops.

'Corrosion Performance of Zr-2½Nb Pressure Tubes.' B. Warr, P.C. Lichtenberger, Ontario Hydro.

'Fuel Channel NDT – Status of CRNL Activities.' G. Van Drunen, AECL CRNL.

'Progress on an Experimental Program to Determine the Consequences of Pressure Tube Rupture in CANDU Reactors.' G.I. Hadaller, Westinghouse Canada; A.P. Muzumdar, Ontario Hydro.

'The Behaviour of the CANDU Calandria Tubes.' C.E. Ells, C.E. Coleman, V. Fidleris, AECL CRNL; E.T.C. Ho, Ontario Hydro.

'The Failure of the Pressure Tube in Fuel Channel No. 6 of Bruce A Unit 2 in March 86.' G.J. Field, M.W. Shanahan, Ontario Hydro.

SLAR – Development and Deployment

'The SLAR System – An Overview.' D.J. Benton, AECL.

'An Automated Inspection Analysis System for Spacer Locating and Repositioning.' M. DeVerno, H. Licht, W. Mayo, AECL CRNL.

'Ultrasonic Fast-Scan Blister Detection System.' M.D.C. Moles, D.W. Donnelly, Ontario Hydro.

'The AC Device for Repositioning of Garter Springs in CANDU Reactors.' Matija Cenanovic, Hugo Maureira, Ontario Hydro.

'Optimization of SLAR Tool Bearings.' H. Wong, AECL CANDU Ops.

'Development of a Telescopic Ram and Its Control System.' D. Grossman, J.L. Roberts, AECL.

'An Adaptable Distributed Computer Control System.' R.J. Cairns, R.J. Hohendorf, J. Greenhalgh, Ontario Hydro.

Operations

'Point Lepreau G.S. Performance: 4 Years of Reliable and Available Production.' A.C.F. Hadfield, NB Power.

'Fuel Defect Detection by Radioiodine Monitoring.' A.M. Manzer, AECL CANDU Ops; N. Macici, Hydro Quebec.

'The Role of Enriched Fuel in CANDU Power Uprating.' P.S.W. Chan, A.R. Dastur, AECL CANDU Ops.

'Steam Generator Waterlancing.' W. Schneider, Babcock and Wilcox Canada.

'On-Site Contingency Planning at Point Lepreau Generating Station.' D.F. Weeks, NB Power.

'Off-Site Nuclear Contingencies in a Multi-Hazard Planning Context.' James O. Stith, Gary E. Stairs, New Brunswick Emergency Measures Organization.

'Operational Safety Management at Point Lepreau Generating Station.' D.F. Weeks, D.J. Wilson, NB Power.

'Suitability Study of On-Line Containment Leak Tests for CANDU Single-Unit Containment Buildings.' J.F. Lafortune, C.A. McDevitt, S. Poolpol, University of New Brunswick.

'Development of a Fuel Channel Replacement Program.' R.A. Eager, E.J. Bennett, Ontario Hydro.

'Emergency Operating Procedures Based on Thermodynamic State.' R. Colquhoun, Roy Colquhoun Associates; A.R. Johnson, J.F. McCallum, D.F. Weeks, NB Power.

'An Overview of the Development of Leak Detection Monitoring for Ontario Hydro Nuclear Stations.' J.M. Kenchington, P.J. Ellis, D.G. Meranda, Ontario Hydro.

'Vibration Analysis of the PHT Piping System of Point Lepreau NGS.' M. Mikasinovic, Ontario Hydro.

Nuclear Technology Developments

'CANDU 600 Reactor Output Optimization.' P.J. Allen, M.R. Soulard, V.C. Orpen, AECL CANDU Ops; P.D. Thompson, NB Power.

'Principles and Techniques to Accelerate the Realization of Nuclear Plants.' P.D. Steven-Guille, I. E. Lauchlan, Ontario Hydro.

'Improved CANDU 600 Designability.' N.G. Craik, AECL SH PK.

'Optimization of Darlington Tritium Removal Facility Performance: Effects of Key Process Variables.' A. Busigin, S.K. Sood, Ontario Hydro.

'The Development of Industrial Linacs with the Capacity to Open New Horizons for Electron Processing.' A.J. Stirling, AECL.

'The Slowpoke-2 Facility at the Royal Military College: Improved Performance and Versatility.' P.A. Beeley, L.G.I. Bennett, H.W. Bonin, L.S. Fisher, L.S. Wright, Royal Military College.

Instructions for Authors

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The *Nuclear Journal of Canada*, published quarterly, is an international journal devoted to original contributions in all fields related to nuclear science, engineering, and medicine, including related science, engineering and technologies, materials, underlying principles, and social and ethical issues. Original articles, notes, and critical reviews will be considered for publication in the *Journal*. Submissions will be refereed. The Editor reserves the right to reject any submission deemed unsuitable for publication.

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