Monday June 12, a.m.

Welcome, *V.S. Krishnan (CNS) and P. Charlebois (Ontario Power Generation)*

- Session 1: Plenary I: Nuclear Industry Updates - Churchill Ballroom (08:30-11:45)
  Chair: P. Charlebois (Ontario Power Generation)

CNS Luncheon - Mountbatten Ballroom (12:00)
Guest speaker: *G. Preston, Executive Vice-President and Chief Nuclear Officer (Ontario Power Generation)*

Monday June 12, p.m.

- Session 2A: Physics I
  Scott Room (14:00-17:00)
  Co-Chairs: A. Baudouin (Hydro-Québec) and M.B. Gold (Ontario Power Generation)
- Session 2B: Environmental Assessment
  Rossetti Room (14:00-17:00)
  Chair: K. Dormuth (AECL)
- Session 2C: Thermalhydraulics I
  Wren Room (14:00-17:00)
  Co-Chairs: Wm.J. Garland (McMaster University) and G. Hotte (Hydro-Québec)
- Session 2D: Safety and Licensing I
  Carlyle Room (14:00-17:00)
  Co-Chairs: N.A. Mitchell (Ontario Power Generation) and B. Shalaby (AECL)

CNS Annual General Meeting
Scott Room (17:00)

Tuesday June 13, a.m.

CNA Annual General Meeting and Board Meeting - Baker Room (10:30)

- Session 3A: Safety and Licensing II
  Carlyle Room (08:45-12:10)
  Co-Chairs: M.-A. Petrilli (MAPSAN) and B. Willemsen (New Brunswick Power)
- Session 3B: Environmental Risk Assessment
  Rossetti Room (08:45-12:10)
  Chair: J.A. Tamm (AECL)
- Session 3C: Physics II
  Scott Room (08:45-11:45)
  Co-Chairs: P. Akhtar (AECB) and J. Koclas (École Polytechnique de Montréal)
- Session 3D: Reactor and Components
  Wren Room (08:45-11:45)
  Co-Chairs: B. Cox (University of Toronto) and W.G. Schneider (Babcock & Wilcox)

Tuesday June 13, p.m.

- Session 4: Plenary II: Nuclear Industry - Current Trends
  Churchill Room (13:30-17:00)
  Chair: R.A. Kilpatrick (AECL)

Conference Banquet
Mountbatten Ballroom (18:30)

Wednesday June 14, a.m.

- Session 5: Plenary III: Looking to the Future. - Churchill Room (08:45-11:45)
  Chair: W. Clarke (Canadian Nuclear Association)

CNS Awards Luncheon
Mountbatten Ballroom (12:00)

Wednesday June 14, p.m.

- Session 6A: Thermalhydraulics II
  Wren Room (14:00-17:00)
  Co-Chairs: R. Leung (Ontario Power Generation), J.W. Thompson (Atlantic Nuclear Services Ltd.)
- Session 6B: Environmental Models and Monitoring
  Rossetti A & B Room (14:00-17:00)
  Chair: R. Pollock (COGEMA Resources Inc.)
- Session 6C: Control Room
  Carlyle Room (14:00-17:00)
  Chair: E. Davey (Crew Systems Solutions)
- Session 6D: Fuel & Fuel Cycles
  Scott Room (14:00-17:00)
  Co-Chairs: P.G.Boczar (AECL) and M. Wash (Zircatec Precision Industries)
- Session 6E: Software and SciCodes
  Rossetti C Room (14:00-17:00)
  Co-Chairs: H.G. Liot (Zircatec Precision Industries) and P.D. Thompson (New Brunswick Power)

A better nuclear tomorrow

Session 1 - Plenary I: Nuclear Industry Updates

Chair: P. Charlebois (Ontario Power Generation)

- **AECL Update,**
  R.A. Kilpatrick (AECL)
- **Pickering A Restart,**
  R. Strickert (Ontario Power Generation)
- **Next Generation CANDU Technology,**
  D.F. Torgerson (AECL)
- **Going Up or Going Down? The History and Future for CO_2 and Nuclear Power,**
  R.B. Duffey (AECL)
- **Improving Performance at Point Lepreau,**
  R.M. White, W.S. Pilkington, R. Crawford, K. Miller, B.M. Ewing, J.J. McCarthy and P.D. Thompson (New Brunswick Power)
- **Recent Developments re Disposal of High- and Low-Level Radioactive Wastes,**
  P. Brown (Natural Resources Canada)

Session 2A - Physics I

Co-Chairs: A. Baudouin (Hydro-Québec), M.B. Gold (Ontario Power Generation)

- **Validation of WIMS-AECL/RFSP Analysis of Moderator and Heat-Transport Temperature Reactivity Effects in Darlington Unit 2 During Commissioning,** *F. Ardeshiri (AECL)*

- **Efficient Compliance with Prescribed Bounds on Operational Parameters by Means of Hypothesis Testing Using Reactor Data,** *P. Sermer and C. Olive (Ontario Power Generation), F.M. Hoppe (McMaster University)*

- **The Analytic Nodal Method for CANDU Reactor Three-Dimensional Space-Time Kinetics Calculations,** *J. Mao and J. Koclas, École Polytechnique de Montréal*

- **Three-Dimensional Two-Group Finite-Difference Diffusion Equation Solver for CANDU-PHWR Analysis, FDM3D,** *I.S. Hong and C.H. Kim (Seoul National University), B.J. Min and H.C. Suk (Korea Atomic Energy Research Institute)*

- **Power-Peaking Factors in the McMaster Nuclear Reactor,** *S.E. Day (McMaster University)*

- **Coupling of Reactor Physics and Thermalhydraulics Codes for CANDU Analysis,** *B. Dionne, J. Koclas and P. Tye (École Polytechnique de Montréal)*

Session 2B - Environmental Assessment

Chair: *K. Dormuth (AECL)*

- **Radiological Environmental Monitoring Programs at Canadian Nuclear Facilities - A Practical Model for Follow-Up Activities Under the Canadian Environmental Assessment Act,** *J.A Tamm and R. Zach (AECL)*
- **Role of Project Description in an Environmental Assessment Report for a Nuclear Power Plant Project,** *K.M. Aydogdu (AECL)*
- **Using Environmental Assessment to Kick-Start Organisational Environmental Management Systems,** *L.F. Cattrysse (ICF Consulting Canada Inc.)*
- **Greenhouse Gas Reduction and Canada's Nuclear Industry,** *J. Bowman (Babcock & Wilcox Canada), T. Gorman (Canadian Nuclear Association), D. Pendergast (Computare), and M.J. Stewart (Stewart Advantage Consultants Inc.)*
- **Environmental Protection at the New Generation of Uranium Mines in Northern Saskatchewan,** *R. Pollock (COGEMA Resources Inc.) and J. Jarrell (Cameco Corporation)*
- **Status of the Canadian Environmental Assessment Agency's 5-Year Review of the CEA Act,** *J. Clarke (Canadian Environmental Assessment Agency)*

Session 2C - Thermalhydraulics I

Co-Chairs: *Wm.J. Garland (McMaster University), G. Hotte (Hydro-Québec)*

- **Heat Transfer in a CANDU-Type Fuel Bundle During a LOCA Experiment,**
  D.J. Wallace (AECL))
- **A Multiple-Node Real-Time Pressurizer Model,**
  H. Tang (New Brunswick Power)
- **Numerical Simulation of the RD-14M Test T9308,**
  M. An and *W. Thompson (Atlantic Nuclear Services Ltd.), M.A. Wright (Consultant to NB Power)*
- **Evaluation of Temperature-Measurement Systematic Errors in PHTS of Embalse NGS,**
  C.A. Moreno, E.E. Coutsiers and M.E. Pomerantz (Nucleoeléctrica Argentina S.A.)
- **Verification of a CATHENA Integrated Point Lepreau Plant Model For Safety Analysis,**
  A.V. Galia and R. Girard (New Brunswick Power), M.A. Wright (Consultant to NB Power)
- **Analyzing and Modelling Natural Circulation Phenomena in a CANDU 6,**
  P. Gulshani (AECL), C.H. Nguyen (Hydro-Québec), and M.A. Wright (Consultant to NB Power)

Session 2D - Safety and Licensing I

Co-Chairs: N.A. Mitchell (Ontario Power Generation), B. Shalaby (AECL)

- **Safety Analysis Technology: Evolution, Revolution, and the Drive to Re-establish Margins,** *J. Luxat (Ontario Power Generation)*

- **Application of Flux-Tilt Parameters to Support Regional Overpower Protection Trip Coverage for a CANDU-6 Reactor,** *J.A. Walsworth and M.J. Basque (Brunswick Nuclear Inc.), E.G. Young and B. Willemsen (New Brunswick Power)*

- **Bruce B Risk Assessment: Results and Applications,** *R. Parmar, W.A. Webb and V.M. Raina (OPG Nuclear)*

- **Probabilistic Risk Assessment and Risk Management for Chemical Hazards at Nuclear Plants,** *M. Oliverio (Ontario Power Generation)*

- **Canadian-Based Aircrew Exposure From Cosmic Radiation on Commercial Airline Routes,** *M.J. McCall, A.R. Green, B.J. Lewis, L.G.I. Bennett, and M. Pierre (Royal Military College of Canada), U. Schrewe (Physikalisch Technische Bundesanstalt, Braunschweig, Germany), K. O'Brien (Northern Arizona University, Sedona, Arizona), E. Feldsberger (University of Graz, Austria)*

- **Regulatory Positions on Safety-Related Setpoints and Instrumentation Uncertainty of Wolsong Units,** *O.-.P Zhu, S.-H. Lee, B.-R. Kim and S.-H. Oh (Korea Institute of Nuclear Safety)*

Session 3A - Safety and Licensing II

Chair: M.-A. Petrilli (MAPSAN), B. Willemsen (New Brunswick Power)

- **IAEA Safeguards – Developing in a Changing World,** *A.C.F. Hadfield (New Brunswick Power), J.K. Cameron and P.D. Corcoran (Atomic Energy Control Board)*
- **New Packaging and Transport Regulations for IP-2/IP-3 ISO Freight Containers Are in Force in Canada Since June 1, 2000,** *A.G. Frick, L. Henriksson, J. Migenda and F.H. Timpert (STM Safety Technology Management)*
- **The DCYPWR Code: Fuel Decay Power Calculations for CANDU Fuel and Reactor Cores,** *D.F. Basque, J.A. Walsworth and R.A. Prime (Brunswick Nuclear Inc.), R.W. Sancton and E.G. Young (New Brunswick Power)*
- **Safety Upgrades to the NRU Research Reactor,** *E. Mutterback (AECL)*
- **HAZOP Powerful Risk-Analysis Tool,** *J. Krasnodebski (Consultant)*
- **Application of Operating Experience in Environmental Qualification Program,** *S.Y. Lee and R. Wise (Ontario Power Generation)*
- **A New Approach to Determine the Environmental Qualification Requirements for Safety-Related Equipment,** *C. Hasnaoui (Énaq) and G. Parent (Hydro-Québec)*

Session 3B - Environmental Risk Assessment

Chair: J. A. Tamm (AECL)

- **Integrated Risk Assessment Using a Screening-Level Computer Model,** *D.R. Hart, D.L. Lush and N.P. Morris (Beak International Incorporated)*
- **Environmental Risk Assessment - A Practitioner's Perspective,** *D.B. Chambers and M.W. Davis (SENES Consultants Limited)*
- **A Framework for Selecting Assessment and Measurement Endpoints for Ecological Risk Assessment of Canadian Nuclear Power Stations,** *A. Trivedi (AECL), D. Wismer (OPG) and N.E. Gentner (AECL)*
- **Ecodosimetry Weighting Factor for Non-Human Biota,** *N.E. Gentner and A. Trivedi (AECL)*
- **The Importance of Environmental Monitoring Data in Environmental Risk Assessment: An Ecosystem Approach,** *T.L. Yankovich, R.W.D. Killey, M.H. Klukas, R.J.J. Cornett, R. Zach, C.R. LaFontaine, B.C. O'Donnell, T.L. Eve, T.J. Chaput, M.L. Benz, and M.K. Haas (AECL)*
- **Status of the Assessment of "Releases of Radionuclides from Nuclear Facilities (Impacts on Non-Human Biota)" on the Second-Priority-Substances List of the Canadian Environmental Protection Act,** *P. Thompson and G. Bird (AECB)*
- **Approach to Ecological Risk Assessment for Pickering Nuclear,** *N. Garisto (SENES Consultants Limited), L. Swami and F. Ely (Ontario Power Generation, Pickering Nuclear), and S. Fernandes (SENES Consultants Limited)*

Session 3C - Physics II

Co-Chair: *P. Akhtar (AECB), J. Koclas (École Polytechnique de Montréal)*

- **Photoneutron Experiment Performed in ZED-2,** *M.B. Zeller, A. Celli, R.T. Jones and G.P. McPhee (AECL)*
- **The Coolant Void Reactivity Program in ZED-2,** *A. Celli, R.S. Davis, S.R. Douglas, R.T. Jones, G.P. McPhee and M.B. Zeller (AECL)*
- **Validation of the DRAGON/DONJON Code Package for MNR Using the IAEA 10 MW Benchmark Problem,** *S.E. Day and Wm. J. Garland (McMaster University)*
- **Validation of the Substitution Method for Measurement of Void Reactivity,** *R.S. Davis, A. Celli, S.R. Douglas, R.T. Jones, D.C. McElroy and M.B. Zeller (AECL)*
- **Application of Non-Linear Iterative Nodal Expansion Method for CANDU Analysis (Part 1: Derivation of the Steady-State Nodal Diffusion Formulation),** *W. Shen (AECL) and H. Choi (KAERI)*
- **New Development of the Three-Dimensional Characteristics Solver MCI in DRAGON,** *G.J. Wu and R. Roy (École Polytechnique)*

Session 3D - Reactor and Components

Co-Chair: B. Cox (University of Toronto), W.G. Schneider (Babcock & Wilcox)

- **Estimating the Response Times of Pressure/Flow Transmitters and RTDs via In-Situ Noise Measurements,** *O. Glöckler, D.F. Cooke, G.J. Czuppon and K.K. Kapoor (Ontario Power Generation Nuclear)*
- **CANDU Core Health Monitoring Systems,** *B. Sur, P. Tonner and S. Craig (AECL)*
- **On Relating Inelastic and Redistributed Elastic Analyses Stress Distributions,** *P. Mangalaramanan and W. Reinhardt (Babcock & Wilcox Canada)*
- **Monitoring the Mechanical Vibration of In-Core Detector Tubes and Fuel Channels via ICFD Noise Analysis,** *O. Glöckler, D.F. Cooke, G.J. Czuppon and K.K. Kapoor (Ontario Power Generation Nuclear)*
- **The Origin of Anisotropy DHC Behavior in Zr-2.5%Nb Pressure-Tube Materials,** *S.-S. Kim, S.C. Kwon, K.N. Choo, Y.M. Cheong and Y.S. Kim (Korea Atomic Energy Research Institute)*
- **In-Situ Examination of Turbine Components (Blade Roots, Rotor Steeple Grooves and Disk-Blade Rim Attachments) of Low-Pressure Steam Turbine, Using Phased Array Technology,** *P. Ciorau, D. Macgillivray, T. Hazelton, L. Gilham, R. Taffs, J. Huggins and R. Fortin (Ontario Power Generation Inc.)*

Session 4 - Plenary II: Nuclear Industry - Current Trends

Chair: R.A. Kilpatrick (AECL)

- **Integrated Improvement Program at Ontario Power Generation, Nuclear,** *A. Schwabe (Ontario Power Generation Nuclear)*
- **Comparative Costs of Electricity Generation,** *S. Guindon (Natural Resources Canada)*
- **Regulatory Aspects of Return to Service of Pickering A,** *J. Harvie (AECB)*
- **Fuel Processing, International and Domestic,** *R. Steane (Cameco)*
- **Gentilly-2 Full-Power Operation: History and Future Challenges,** *R. Pageau and G. Hotte (Hydro-Québec)*
- **A Worker Perspective on Nuclear Safety,** *T. Pigeau (Power Workers' Union)*
- **Climate Change and Emission Reduction Opportunities,** *B. Rozendaal (AECL)*

Session 5 - Plenary III: Looking to the Future

Chair: *W. Clarke (Canadian Nuclear Association)*

- **The Future of the Nuclear Industry in China,**
  Li Yulun (China National Nuclear Corporation)
- **Innovation for Health,** *G. Malkoske (MDS Nordion)*
- **The Canadian Neutron Facility for Materials Research: A Key to Innovation and Productivity for Canada,** *P.J. Fehrenbach and I.J. Hastings (AECL)*
- **Canada's Approach to Meeting its Kyoto Commitment,**
  I. McGregor (Climate Change Secretariat)
- **Conceptual Designs for Very-High-Temperature CANDU Reactors,**
  S.J. Bushby, G.R. Dimmick and R.B. Duffey (AECL)
- **COG: Information Exchange - The New Initiatives,**
  C. Guiry (CANDU Owners' Group)

Session 6A- Thermalhydraulics II

Co-Chairs: R. Leung (Ontario Power Generation),
J.W. Thompson (Atlantic Nuclear Services Ltd.)

- **Refinement of the Mass Conservation Algorithm Used in CATHENA,** *T.G. Beuthe (AECL)*
- **Simulation of Darlington Loss-of-Flow Event,** *W.S. Liu, S. Ho, W.K. Liauw, T. Toong, R.Y. Chu and R.K. Leung (Ontario Power Generation)*
- **Moderator-Flow Measurements at Darlington and Bruce-B Nuclear Generating Stations,** *D. Zobin, V. Ton and J.R. Sherin (Ontario Power Generation)*
- **The New Emergency Core Cooling (NECC) System for the National Research Universal (NRU) Reactor,** *T. Jackson (AECL)*
- **An Empirical Heat-Transfer Coefficient During Quenching,** *J. Urbanowicz* (Ontario Power Generation), D. Oh (on attachment from AECL), K. Fung *and M. Bayoumi (Ontario Power Generation)*

Session 6B - Environmental Models and Monitoring

Chair: R. Pollock (COGEMA Resources Inc.)

- **Impact of CANDU Emissions on Tritium Levels in the Great Lakes,** *M.H. Klukas (AECL) and J. LaMarre (Ontario Power Generation, Nuclear)*
- **Development of a Pipe Contamination Monitor for the Waste Segregation Program at the AECL Chalk River Laboratories,** *M.E. Stephens, G.A.W. Walker, A. Eyvindson, H. Jessup and P. Primeau (AECL), L. Champagne and P. Singh-Khera (Lou Champagne Systems Inc.)*
- **Toxicity Limitation on Radioactive Liquid Waste Discharge at OPG Nuclear Stations,** *T. Dobson, Z. Lovasic and G. Nicolaides (Ontario Power Generation)*
- **Special-Case Comparison of Gaussian and Non-Gaussian Atmospheric Transport of Radionuclides,** *P.M. Lord, T.J. Jamieson and K.P. Marshall (Science Applications International Corporation)*
- **Modelling Emissions of Carbon-14 and Argon-41 Released from a CANDU 6 Reactor,** *C. R. Boss and G. Gomes (AECL)*
- **Carbon-14 Chemistry in CANDU Moderator System,** *J. Torok (Consultant) and F. Caron (AECL)*

Session 6C - Control Room

Chair: *E. Davey (Crew Systems Solutions)*

- **Operator Error and Emotions,**
  B.K Patterson, M. Bradley and *W.G. Artiss (Human Factors Practical Inc.)*
- **Plant Status Control – with an Operational Focus,**
  L.A. Lane (Ontario Power Generation - Nuclear)
- **The Importance of Function Analysis for the Nuclear Industry,**
  S. Chen-Wing and U. Sengupta (AECL)
- **Practical Control Centre Retrofit for Refurbishment,**
  M.P. Feher (AECL)
- **Criteria for Operator Review of Workplace Changes,**
  E. Davey (Crew Systems Solutions)

Session 6D - Fuel & Fuel Cycles

Co-Chairs: P.G. Boczar (AECL) and M. Wash (Zircatec Precision Industries)

- **Main Aspects of the SEU Fuel Program at the Atucha I PHWR After Five Years of Operating Experience,** *J.M. Fink, M. Higa, R. Pérez, J. Piñeyro, J. Sidelnik (Nucleoeléctrica Argentina S.A.), J.A. Casario and L. Alvarez (Comisión Nacional de Energía Atómica, Argentina)*

- **Optimization of CANDU Reactor Performance Using SEU Fuel,** *P.S.W. Chan and D.B. Buss (AECL)*

- **Possibility of Plutonium Burning Out and Minor-Actinide Transmutation in CANDU-Type Reactor,** *A.S. Gerasimov, G.V. Kiselev and L.A. Myrtsymova, State Scientific Center of the Russian Federation, Institute of Theoretical and Experimental Physics*

- **The Dryout-Power Improvement of CANFLEX SEU Bundles in CANDU Reactors,** *L.K.H. Leung, K.F. Rudzinski and P.S.W. Chan (AECL)*

- **Calculations Supporting the Shipment of Irradiated CANFLEX Demonstration Fuel Bundles,** *M.-J. Basque and J.A. Walsworth (Brunswick Nuclear Inc.), R.W. Sancton (New Brunswick Power)*

- **Nuclear Safety of Low-Flux and High-Flux Thorium Mode of CANDU-Type Reactor,** *A.S. Gerasimov, G.V. Kiselev, L.A. Myrtsymova and T.S. Zaritskaya, State Scientific Center of the Russian Federation, Institute of Theoretical and Experimental Physics*

- **Extrapolating Power-Ramp Performance Criteria for Current and Advanced CANDU Fuels,** *M. Tayal and G.G. Chassie (AECL)*

Session 6E - Software and SciCodes

Co-Chairs: *H.G. Liot (Zircatec Precision Industries),*
P.D. Thompson (New Brunwick Power)

- **CSA N286.7-99, A Canadian Standard Specifying Software Quality Management System Requirements for Analytical, Scientific, and Design Computer Programs and its Implementation at AECL,** *R. Abel (R&M Abel Consultants Inc.)*
- **A Method to Implement CSA N286.7-99,** *J.A. Walsworth, R.A. Prime, D.F. Basque and M.-J. Basque (Brunswick Nuclear Inc.)*
- **Electronic Information Management on the QINSHAN CANDU Project,** *R. Didsbury, L. Vrancea and M. Matta (AECL)*
- **Validation of the Canadian Atmospheric Dispersion Model for the CANDU Reactor Complex at Wolsong, Korea,** *M.H. Klukas and P.A. Davis (AECL)*
- **A SciCode Web Site: Building Bridges Between Owners and Users,** *C. Gaver (AECL)*
- **3D CAD on Qinshan CANDU Project,** *D. Goland (AECL)*