



26TH ANNUAL CANADIAN NUCLEAR SOCIETY CONFERENCE & 29TH CNS/CNA STUDENT CONFERENCE

26^{IÈME} CONFÉRENCE ANNUELLE DE LA SOCIÉTÉ NUCLÉAIRE CANADIENNE & 29^{IÈME} CONFÉRENCE ÉTUDIANTE DE LA SNC ET DE L'ANC

SUNDAY, JUNE 12

19:00–21:00 **Conference Reception**

MONDAY, JUNE 13

08:30–11:55

▶ **Plenary I: Nuclear Operations and Directions**

Co-chairs: K. Petrunk (Atomic Energy of Canada Limited), E. Downes (E.S. Fox Ltd.)

11:45–14:00

▶ **Luncheon & W.B. Lewis Lecture: “Canada’s Imminent Decision on Nuclear Used Fuel Disposition”,**

Speaker: Thomas Isaacs, Director of Policy, Planning and Special Studies, Lawrence Livermore National Laboratory, California

14:00–17:00

Parallel Technical Sessions:

▶ **Session T1: Risk Assessment I**

Co-chairs: C. Gordon (Nuclear Safety Solutions), H. Shapiro (Atomic Energy of Canada Limited)

▶ **Session T2: Control Room Operations**

Co-chairs: C.K. Scott (ANSL), M. Tulett (Ontario Power Generation)

▶ **Session T3: Safety Analysis I**

Co-chairs: H. Huynh (Hydro-Québec), J. Pascoe (Nuclear Safety Solutions)

Panel Session :

▶ **Public Interaction: Challenges, Strategies and Needs,**

Moderator: Robert Stephens, PR POST

Parallel Student Sessions:

▶ **Student Session S1:**

Nuclear Waste Management and Radioisotope Applications in Environmental Engineering

Co-chairs: J. Koclas (École Polytechnique de Montréal), D. Shoesmith (University of Western Ontario)

▶ **Student Session S2:**

Radiation Applications and Nuclear Power Reactors

Co-chairs: W. Garland (McMaster University), G. Marleau (École Polytechnique de Montréal)

17:00 **CNS Annual General Meeting**

TUESDAY, JUNE 14

08:30–11:30

Parallel Technical Sessions:

▶ **Session T4: Core Physics**

Co-chairs: D. Jenkins (Atomic Energy of Canada Limited), J. Koclas (École Polytechnique de Montréal)

▶ **Session T5: Plant Refurbishment**

Co-chairs: J. Grava (Bruce Power), R. Kizhatil (Babcock & Wilcox Canada)

▶ **Session T6: Education and Communication**

Co-chairs: D. Meneley (formerly Atomic Energy of Canada Limited), M. Rosen (University of Ontario Institute of Technology)

▶ **Session T7: Materials Performance**

Co-chairs: R. Holt (Queen’s University), P. Watson (Nuclear Safety Solutions)

Parallel Student Sessions:

▶ **Student Session S3:**

Advanced Nuclear Reactors and Nuclear Reactor Fuel

Co-chairs: D. Lister (University of New Brunswick), J. Whitlock (Atomic Energy of Canada Limited)

▶ **Student Session S4:**

Applications of Radiation and Radioisotopes

Co-chairs: M. Rhéaume (Hydro-Québec), E. Price (E.G. Price, Consultant)

09:00–10:00 **CNA Annual General Meeting**

10:00–13:00 **CNA Board Meeting**

11:30–12:30 **WiN Lunch & Learn: “What I really Mean...”**

Guest speaker: Joanne Thomas Yaccato

12:00–13:30

North American Young Generation Network’s Professional Development Seminar: NAYGN Challenges Document,

M. McIntyre (ANSL);

Working in the Nuclear Industry – A Planned Career or Accidental Adventure,

J.W. Thompson (Nuclear Safety Solutions);

A World View of Nuclear Power,

S.K. Hamilton (Framatome-ANP Canada Ltd.)

13:30–17:00

▶ **Plenary II: New Directions in Science and Technology**

Co-chairs: J. Froats (Ontario Power Generation), H. Michael (Wardrop Engineering Inc.)

WEDNESDAY, JUNE 15

08:30–11:30

▶ **Plenary III: People and Technology for Operations**

Co-chairs: K. Talbot (Bruce Power), P. Mason (GE Canada)

12:00–14:00

▶ **Luncheon: Changing Prospects for Nuclear Energy in the U.S.**

Speaker: Harold F. McFarlane (American Nuclear Society Vice-president and President-elect)

14:00–17:00

Parallel Technical Sessions:

▶ **Session T8: Risk Assessment II**

Co-chairs: C.H. Blahnik (CBA Inc.), M.-A. Petrilli (MAPSAN)

▶ **Session T9: Licensing and New Reactors**

Co-chairs: A. Oliva (Candesco), N. Popov (Atomic Energy of Canada Limited)

▶ **Session T10: Safety Analysis II**

Co-chairs: G. Hotte (Hydro-Québec), P. Kundurpi (formerly Ontario Power Generation)

▶ **Session T11: Instrumentation and Control**

Co-chairs: D. Barber (Nuclear Safety Solutions), E. Williams (Bruce Power)

▶ **Student Conference Panel : “Given the Rapid Growth of University Programs, Question – What is the Focus on Operational Needs?”,**

Chair: W.G. Schneider (Babcock & Wilcox Canada)

*Toronto, Ontario, Canada
2005 June / juin 12–15*

*The New Nuclear Generation
Le nouveau nucléaire et la génération de relève*

NUCLEAR OPERATIONS AND DIRECTIONS / EXPLOITATION NUCLÉAIRE

Co-chairs/Présidents :

*K. Petrunik (Atomic Energy of Canada Limited),
E. Downes (E.S. Fox Ltd.)*

Welcome from Conference Chair,
D.F. Torgerson (Atomic Energy of Canada Limited)

The Operational Excellence Challenge,
*W.G. Schneider - CNS President (Babcock & Wilcox
Canada)*

Bruce Power – 2005 and Beyond,
D. Hawthorne (Bruce Power)

OPG Nuclear Update,
P. Charlebois (Ontario Power Generation)

Gentilly-2 Refurbishment Project Update,
*C. Drouin, M.R. Rhéaume, M. Doyon
(Hydro-Québec)*

NB Power Nuclear Corporation – Update 2005,
*R.M. White, E.R. Eagles, W.S. Pilkington (New
Brunswick Power)*

Developments in the Uranium Industry –
A Producer's Perspective, *G. Assie (Cameco)*

NEW DIRECTIONS IN SCIENCE AND TECHNOLOGY /

NOUVELLES DIRECTIONS EN SCIENCE ET TECHNOLOGIE

Co-chairs/Présidents :

*J. Froats (Ontario Power Generation),
H. Michael (Wardrop Engineering Inc.)*

Future Prospects for Canadian Infrastructure in Support of Science and Industry, *A. Carty (National Science Advisor to Prime Minister; former President National Research Council Canada)*

The EPR for North America, *R. Ganthner (AREVA Framatome ANP)*

ACR-1000 – Optimized Plant for Utility Requirements, *J. Hopwood (Atomic Energy of Canada Limited)*

CANDU Refurbishment – Managing the Life Cycle, *P. Tighe, J. Howieson (Atomic Energy of Canada Limited), B. MacTavish (CANDU Owners Group)*

A New Epoch for Back-End Fuel Cycle in Korea, *M-J. Song (Korea Hydro and Nuclear Power Co.)*

Nuclear Power in Romania - Present and Future, *I. Rotaru (Societatea Nationala Nuclearelectrica S.A., (AREN))*

Development of Licensing Basis for Future Power Reactors in Canada, *G. Rzentkowski, I. Grant, T. Viglasky (Canadian Nuclear Safety Commission)*

PEOPLE AND TECHNOLOGY FOR OPERATIONS / PERSONNEL ET TECHNOLOGIE POUR L'EXPLOITATION

Co-chairs/Présidents :

K. Talbot (Bruce Power),

P. Mason (General Electric Canada)

Developing People for the New Nuclear
Generation, *K. Routledge (Nuclear Safety Solutions
Ltd.)*

UNENE and Nuclear Education Developments,
*M. Mathur (University Network of Excellence in
Nuclear Engineering)*

Identification and Management of Uncertainty
and Risk, *D.R. Moore (Babcock & Wilcox Canada)*

Linear No-Threshold (LNT) Model – Myth or
Reality?, *C. Seymour (McMaster University)*

ZEEP: Canada's First Nuclear Reactor, *R. Green,
A. Okazaki (formerly Atomic Energy of Canada
Limited)*

R&D for Operational Excellence, *D.F. Torgerson
(Atomic Energy of Canada Limited)*

The Greening of Nuclear, *M. Elston (Canadian
Nuclear Association)*

PUBLIC INTERACTION: CHALLENGES, STRATEGIES AND NEEDS / INTERACTION AVEC LE PUBLIC : DÉFIS, STRATÉGIES ET BESOINS

Moderator/Modérateur :

*Robert Stephens, President,
PR POST (www.prpost.ca)*

Panelists/Panellistes :

*Susan Brissette (Bruce Power);
Women of Influence – A Fresh Approach to
Public Interaction*

*Jo-Ann Facella (NWMO);
Citizen Engagement in the NWMO Study Process*

*Terry Squire (Ontario Power Generation);
Kincardine Deep Geologic Repository Proposal
and the Public*

STUDENT SESSION S1

NUCLEAR WASTE MANAGEMENT AND RADIOISOTOPE APPLICATIONS IN ENVIRONMENTAL ENGINEERING /

GESTION DES DÉCHETS NUCLÉAIRES ET APPLICATION DES RADIOISOTOPES EN SCIENCES ENVIRONNEMENTALES

Co-chairs/Présidents :

*J. Koclas (École Polytechnique de Montréal),
D. Shoesmith (University of Western Ontario)*

The Development of Corrosion Models for Copper Nuclear Waste Canisters via Electrochemical Methods, *J. Smith (University of Western Ontario) (Ph.D.)*

The Effect of pH on the Dissolution of Nuclear Fuel Under Waste Disposal Conditions, *B. Santos (University of Western Ontario) (Ph.D.)*

Comparison of the Catalytic Activity of SIMFUELS for the Electrochemical Reduction of Hydrogen Peroxide in Slightly Alkaline Solution, *J. Goldik (University of Western Ontario) (Ph.D.)*

Radiation Effects on the Properties of a Polyurethane/Epoxy Graft Interpenetrating Polymer Network, *A. Mortley (Royal Military College of Canada) (Master's degree)*

Investigation of a Low-level Radioactive Waste Burial Site at DRDC Suffield, Alberta, *E. Inrig (Royal Military College of Canada) (Master's degree)*

Influence of Temperature on the Passive Film Properties of Titanium Under Waste Disposal Conditions, *L. Yan, D. Ofori, P. Jakupi (University of Western Ontario) (Ph.D.)*

Electrode for Improving Electrochemical Measurements in High Temperature Water, *T. Sengarsai (University of New Brunswick) (Master's degree)*

Soil Structure Restoration by Wet/Dry Cycles Assessed by Computed Tomography, *L.F. Pires (Center for Nuclear Energy in Agriculture, The University of Sao Paulo, Piracicaba, SP, Brazil) (Ph.D.)*

STUDENT SESSION S2

RADIATION APPLICATIONS AND NUCLEAR POWER REACTORS /

APPLICATIONS DES RAYONNEMENTS ET RÉACTEURS NUCLÉAIRES DE PUISSANCE

Co-chairs/Présidents :

W. Garland (McMaster University),

G. Marleau (École Polytechnique de Montréal)

Use of the SLOWPOKE-2 Nuclear Reactor at the Royal Military College of Canada for Book Conservation, *K. Shaheen, M. Welland, F. Allen, E. Corcoran, M. Deschênes, and H. Bonin (Royal Military College of Canada) (Master's degree)*

Flow Visualization Study of Two-phase Flow in a Single-Bend Outlet Feeder Pipe and Horizontal Annulus of Outlet End-Fitting of a CANDU Reactor, *S. Supa-Amornkul (University of New Brunswick) (Ph.D.), D.H. Lister, F.R. Steward (University of New Brunswick)*

Effet de la perte de caloporteur sur la réactivité d'un réacteur CANDU utilisant de l'uranium enrichi, *M.-A. Lajoie (École Polytechnique de Montréal) (Undergraduate)*

Reactor Feedback Control System,

A.A. Khan (McMaster University) (Master's degree)

Computational Study of CATHENA Results on the Edwards' Blowdown Experiment, *I. Hill, O. Shaikh (McMaster University) (Master's degree)*

Effects of Applied Stress on the Tube Creep of Zr-4 Claddings Annealed at Different Temperatures, *C. Nam (McGill University) (Ph.D.)*

Laboratory Investigation of Flow-Assisted Corrosion of Reactor Pressure Vessel Steel Caused by an Impinging Jet of Simulated PWR Coolant, *J. Pongpuak (University of New Brunswick) (Ph.D.)*

Effet Doppler lié à la température de combustible dans un réacteur CANDU, *D. Rioux (École Polytechnique de Montréal) (Undergraduate)*

STUDENT SESSION S3

ADVANCED NUCLEAR REACTORS AND NUCLEAR REACTOR FUEL /

RÉACTEURS NUCLÉAIRES AVANCÉS ET COMBUSTIBLE DE RÉACTEURS NUCLÉAIRES

Co-chairs/Présidents :

D. Lister (University of New Brunswick),

J. Whitlock (Atomic Energy of Canada Limited)

Beyond the CANDU Nuclear Reactor Concept: the Multi-Spectrum Nuclear Reactor, *F. Allen (Royal Military College of Canada) (Master's degree)*

Advanced Fuels for the Near Boiling Inherently Safe Power Reactor, *M. Deschênes (Royal Military College of Canada) (Master's degree)*

Homogeneous SLOWPOKE Reactor for the Production of Radio-isotope a Feasibility Study, *P. Busatta (Royal Military College of Canada) (Master's degree)*

Chemical Compatibility of Materials for the Fabrication of Small Inherently Safe Nuclear Reactors, *A.-S. Seidu (Royal Military College of Canada) (Master's degree)*

The Influence of H₂ on UO₂ Nuclear Fuel Corrosion, *M. Broczkowski, J.J. Noël, D.W. Shoesmith (University of Western Ontario)*

Nanocrystal and Noble Gas Tagging for Monitoring Defective CANDU Fuel Bundles, *E. Corcoran (Royal Military College of Canada) (Master's degree)*

Behaviour of Defective CANDU Fuel: Fuel Oxidation Kinetic and Thermodynamic Modelling, *J. Higgs (Royal Military College of Canada) (Ph.D.)*

STUDENT SESSION S4

APPLICATIONS OF RADIATION AND RADIOISOTOPES /

APPLICATIONS DES RAYONNEMENTS ET DES RADIOISOTOPES

Co-chairs/Présidents :

M. Rhéaume (Hydro-Québec),

E. Price (E.G. Price, Consultant)

Time Dependency of the Reactivity Components versus Power Variations, *L. Tayebi, D. Vashaee (McMaster University) (Master's degree and Ph.D.)*

Radiation-Induced Apoptosis of Lymphocytes to Predict Late Toxicity from Radiotherapy, *K. Schnarr (McMaster University) (Ph.D.)*

Flaw Detection by Spatially Coded Backscatter Radiography, *S. Thangavelu (University of New Brunswick) (Master's degree)*

Examination of Gene Expression in Mice Exposed to Low-Dose Radiation Using Affymetrix cDNA Microarrays, *D. Morris (McMaster University) (Master's degree), D. Knox, J. Lavoie, J. Lemon, D. Boreham (McMaster University)*

Application of Fluorine-18 in the Synthesis of PET Radiotracers, *R. Ashique (McMaster University) (Master's degree), R. Chirakal, G.J. Schrobilgen, D.W. Hughes, K. Gulenchyn (McMaster University)*

The Effects of Low-Dose Gamma Radiation on Micronucleus Formation in Fish Cell Lines, Chinook Salmon, Rainbow Trout and Medaka, *C. Cassidy (McMaster University)*

Radiation Induced Apoptosis and Chromosomal Aberrations in Human Lymphocytes: Estimating the risks Associated with Medical and Accidental Radiation Exposures, *L.A. Ryan, J. Lavoie, K.L. Schnarr, M. Almardini, K. Taylor, A. Ho (McMaster University) (Ph.D.)*

STUDENT-CONFERENCE PANEL / PANEL DE LA CONFÉRENCE ÉTUDIANTE

Chair/Président :
W.G. Schneider (Babcock & Wilcox Canada)

**«Given the Rapid Growth of University
Programs, Question – What is the Focus
on Operational Needs?»**

R. Mohindra (Bruce Power)
P. Spekkens (Ontario Power Generation)
K. Stratton (New Brunswick Power)

Followed by an Informal Student Workshop
on the Same Subject / Suivi d'un atelier informel
d'étudiants portant sur le même sujet.

RISK ASSESSMENT I / ÉVALUATION DES RISQUES I

Co-chairs/Présidents :

*C. Gordon (Nuclear Safety Solutions Ltd.),
H. Shapiro (Atomic Energy of Canada Limited)*

Risk-baseline Development and Benefit-cost Assessment Process for the Gentilly 2 Refurbishment Project, *M. Saint-Denis (Atomic Energy of Canada Limited), M-A. Petrilli (MAPSAN), R. Comeau, F. Hénauld (Hydro-Québec)*

Quantitative Assessment of the Kozloduy Nuclear Power Plant (KNPP) Core Damage Frequency through Probabilistic Safety Analysis (PSA), *M. Angelova (Nuclear Safety Solutions Ltd.), V. Papazov (Kozloduy NPP, Bulgaria)*

Advances in PSA for the Point Lepreau Refurbishment Project, *R.K. Jaitly, L. Comanescu, B.S. Lee, S. Aprodu, J.G. Ha, and N. Ichiyen (Atomic Energy of Canada Limited), D. Mullin, A. Jean, D. Basque, P.D. Thompson (NB Power)*

ACR Level 1 Probabilistic Safety Assessment (PSA) Results – Internal At-power Events, *P. Santamura, G. Banaseanu, R. Bettig, R. Henderson, P. Iliescu, U. Menon, A. Ozdemir (Atomic Energy of Canada Limited)*

SESSION T2

CONTROL ROOM OPERATIONS /

SALLE DE COMMANDE ET EXPLOITATION DE CENTRALE

Co-chairs/Présidents :

*C.K. Scott (Atlantic Nuclear Services Ltd.),
M. Tulett (Ontario Power Generation)*

The Depth of Experience, Organizational Learning and Safety Culture, *R.B. Duffey (Atomic Energy of Canada Limited)*

Major/Minor Alarm Classification at Point Lepreau GS, *B.K. Patterson (Human Factors Practical)*

A Task-based Usage Strategy for Control Centre Wall Displays, *E. Davey (Crew Systems Solutions)*

Shift Manager Workload Assessment – A Case Study, *K. Berntson (Bruce Power),
J.S. Malcolm (Atomic Energy of Canada Limited)*

Learning from a Mouse – How Adoption of Disney Methods could Assist Development of CANDU Control Centres, *E. Davey (Crew Systems Solutions)*

Electrical Elementary Diagrams and Operators, *B.K. Patterson (Human Factors Practical)*

SAFETY ANALYSIS I / ANALYSE DE SÛRETÉ I

Co-chairs/Présidents :

H. Huynh (Hydro-Québec),

J. Pascoe (Nuclear Safety Solutions Ltd.)

Examining Software Complexity and Quality
for Scientific Software, *D. Kelly, T. Shepard (Royal
Military College of Canada)*

CANDU Steam Generator Primary Side Tube
Deposits: Oxide Characteristics and Activity
Transport, *A. Husain, J. Krasznai (Kinectrics)*

Safety Analysis for Non-power Reactors,
R.J. Fluke (Nuclear Safety Solutions Ltd.)

Software Quality Assurance Project for Reactor
Physics Codes at the Point Lepreau Generating
Station, *R. Cusson (Point Lepreau Generating
Station), B. Gorham (Atlantic Nuclear Services Ltd.),
D. Taylor (Point Lepreau Generating Station),
S. Wanyeki (Atlantic Nuclear Services Ltd.)*

CORE PHYSICS /

PHYSIQUE DU RÉACTEUR

Co-chairs/Présidents :

*D. Jenkins (Atomic Energy of Canada Limited),
J. Koclas (École Polytechnique de Montréal)*

CANDU Fuel Management Optimization using Generalized Perturbation Theory in the DONJON Diffusion Code, *R. Chambon, E. Varin, D. Rozon (École Polytechnique de Montréal)*

Application of the Characteristics Method Combined with Advanced Self-shielding Models to an ACR-Type Cell, *R. LeTellier, A. Hébert (École Polytechnique de Montréal)*

Depleting a CANDU-6 Fuel Assembly Using Detailed Burnup Data and Reactionwise Energy Release, *R. Karthikeyan, A. Hébert, G. Marleau (École Polytechnique de Montréal)*

Improvement of the Micro-depletion Model in RFSP to Account for Multiple Fuel Regions for CANDU Core-follow Simulations, *W. Shen, B. Arsenault (Atomic Energy of Canada Limited)*

Evaluating the Coolant Void Reactivity of Assemblies of CANDU-6 Lattices, *F. Talebi, G. Marleau (École Polytechnique de Montréal)*

Solving the Multigroup Adjoint Transport Equations Using the Method of Cyclic Characteristics, *M. Assawaroongruengchot, G. Marleau (École Polytechnique de Montréal)*

Validating the History-based Method in DRAGON / DONJON using G2 Core Follow-up, *E. Varin, G. Marleau (École Polytechnique de Montréal)*

SESSION T5

PLANT REFURBISHMENT /
RÉFÉCTION DE CENTRALE

Co-chairs/Présidents :

J. Grava (Bruce Power),

R. Kizhatil (Babcock & Wilcox Canada)

Point Lepreau Refurbishment - Update 5,

R.M. White, E.R. Eagles, C.N. Hickman, R. Baker,

P.D. Thompson (NB Power), J.Q. Howieson, N. Ichiyen

(Atomic Energy of Canada Limited)

Point Lepreau Refurbishment Project

Programmable Digital Comparator (PDC)

Replacement for SDS1 and SDS2 – Update 1,

K.G. Fraser, N.M. Ichiyen, and A.E. Condor (Atomic

Energy of Canada Limited), P.D. Thompson (NB

Power)

Secondary Control Area Retrofit at Bruce 'A'

Nuclear Generating Station, *C. Ouellette (Acres*

International), R. Long (Bruce Power)

Challenges of Restarting Bruce Units 3 & 4 from a

Chemistry and Materials Perspective, *J.G. Roberts,*

K. Langguth (Bruce Power)

Bruce 'B' Vacuum Building Fiberglass Reinforced

Plastic Spray Header Refurbishment, *J. Grava,*

D. Bhattacharyya, G. Yoon, D. McNeish, M. Bhatt

(Bruce Power)

Trip Coverage Improvements for Point Lepreau

Refurbishment Project, *A. Ranger, R. Jaitly,*

A. Eckhardt, D. Rouben (Atomic Energy of Canada

Limited), P.D. Thompson (NB Power), M.-A. Petrilli

(MAPSAN)

EDUCATION AND COMMUNICATION / COMMUNICATION ET TRANSFERT DE CONNAISSANCES

Co-chairs/Présidents :

*D. Meneley (formerly Atomic Energy of Canada Limited),
M. A. Rosen (University of Ontario Institute of
Technology)*

Challenges, Opportunities and Trends in
Engineering Education, *M.A. Rosen (University of
Ontario Institute of Technology)*

The Roles of Institutions in Developing the
Professionalism of Nuclear Personnel, *C.K. Scott
(Atlantic Nuclear Services Ltd.)*

Developing People for the New Nuclear
Generation, *C. Gordon, R. Fluke, R. Moya (Nuclear
Safety Solutions Ltd.)*

Nuclear Energy as a Component of Utility-Based
Cogeneration: Reductions in Energy Use and
Environmental Emissions Achievable for Ontario,
*M.A. Rosen (University of Ontario Institute of
Technology)*

Why It Makes Sense to Give Stuff Away (The
CANTEACH Project), *W.M. Garland (McMaster
University), M. Lightfoot (CANDU Owners' Group),
D. Meneley (Atomic Energy of Canada Limited
Retired), M. Safa (CANDU Owners' Group)*

Training of Engineering Personnel – Ad-hoc or
Science, *J. Popovic, M. MacIsaac (Atomic Energy of
Canada Limited)*

SESSION T7

MATERIALS PERFORMANCE /
PERFORMANCE DES MATÉRIAUX

Co-chairs/Présidents :

R. Holt (Queen's University),

P. Watson (Nuclear Safety Solutions Ltd.)

In-situ Radiation Damage in Mg,

S. Stafford (Queen's University), M. Griffiths (Atomic

Energy of Canada Limited), R.A. Holt (Queen's

University)

Study of In-situ Deformation of Textured

Zircaloy-2 by Neutron Diffraction, *F. Xu, R.A. Holt*

(Queen's University), R.B. Rogge (Atomic Energy of

Canada Limited), M.R. Daymond (Queen's University)

Effect of Texture on the Anisotropic Creep

of Zr-2.5Nb Tubes, *W. Li, R.A. Holt (Queen's*

University)

Development of Texture and Grain Structure in

Extruded Zr-2.5Nb Tubes, *Y. Li, R.A. Holt, and*

R. Rogge (Atomic Energy of Canada Limited)

Evolution of the Oxide-Metal Interface in

the Oxidation of Zr-2.5Nb Tubes Fabricated

with Different Processes, *C. Nam, J. Lin, H. Li,*

J.A. Szpunar, and R. Holt (Queen's University)

The Performance of Polymer Containers Used for

the Storage of Radioactive Waste, *L. Brown,*

H.W. Bonin, and V.T. Bui (Royal Military College)

RISK ASSESSMENT II / ÉVALUATION DES RISQUES II

Co-chairs/Présidents :

*C.H. Blahnik (CBA Inc.),
M.-A. Petrilli (MAPSAN)*

Developing Guidelines for Severe Accident Management, *R.J. Fluke, K. Dinnie, M. Chai (Nuclear Safety Solutions Ltd.), R. Jaitly (Atomic Energy of Canada Limited), M. O'Neill (Ontario Power Generation)*

ACR Level 1 Internal Events Shutdown State Probabilistic Safety Assessment (PSA), *P. Santamaura (Atomic Energy of Canada Limited), S. Kaasalainen, W.A. Webb, S. McNeil (Nuclear Safety Solutions Ltd.)*

Results and Insights from PSA Based Seismic Margin Assessment of the Advanced CANDU Reactor, *U. Menon, P. Santamaura, H. Shapiro, (Atomic Energy of Canada Limited), M.K. Ravindra (ABS Consulting)*

Modelling of Time-dependent Maintenance Activities in the ACR Shutdown State Probabilistic Safety Assessment (PSA), *P. Santamaura (Atomic Energy of Canada Limited), S. Kaasalainen, W.A. Webb, S. McNeil (Nuclear Safety Solutions Ltd.)*

Residual Uncertainty in Cable Locations for Fire Hazard Assessments, *M. An, C.K. Scott, D. Reeves, D. Kane, L. Samimi (Atlantic Nuclear Services Ltd.), L. Morrison, L. Hamre (Professional Loss Control Ltd.)*

SESSION T9

LICENSING AND NEW REACTORS /

LA RÉGLEMENTATION ET LES NOUVEAUX RÉACTEURS

Co-chairs/Présidents :

A. Oliva (Candesco),

N. Popov (Atomic Energy of Canada Limited)

Advanced CANDU Reactor Pre-licensing Progress,

N.K. Popov, J. West, V.G. Snell, R. Ion, G. Archinoff,

C. Xu (Atomic Energy of Canada Limited)

Assessing Human Performance Through a Model-based Regulatory Approach, *J.-Y. Fiset, H. McRobbie (Canadian Nuclear Safety Commission)*

Development of HTGR Technology and its Potential in Nuclear Power Utilization in China, *Y. Sun, F. Li, Y. Xu, Z. Wu, Z. Zhang (Tsinghua University, China)*

EPR: Meeting International Safety Standards with Margin, *S. Mazurkiewicz (AREVA Framatome ANP Inc., U.S.A.), J. Brauns, and J. Blombach (Framatome ANP GmbH, Germany)*

EPR Design Features to Mitigate Severe Accident Challenges, *S. Mazurkiewicz (AREVA Framatome ANP Inc., U.S.A.), M. Fischer, D. Bitterman (Framatome ANP GmbH, Germany)*

The Near Boiling Reactor: Design of a Small Nuclear Reactor for Extending the Operational Envelope of the Victoria Class Submarine, *LCdr C. Cole, H. Bonin (Royal Military College of Canada)*

SAFETY ANALYSIS II / ANALYSE DE SÛRETÉ II

Co-chairs/Présidents :

G. Hotte (Hydro-Québec),

P. Kundurpi (formerly Ontario Power Generation)

Modelling Thermal-hydraulics for the Simulation
of the Fuel Channels of CANDU Reactors,
*N. Mesmous, E. Varin, A. Tesseydou (École
Polytechnique de Montréal)*

Modelling of Strong-Acid Cation/Strong-Base
Anion Mixed Bed Ion Exchange of Gadolinium
Nitrate From Dilute Solution, *D.H. Barber (Nuclear
Safety Solutions Ltd.)*

Analytical Criteria for Fuel Failure Modes
Observed in Reactivity Initiated Accident Tests,
J.C. Luxat (McMaster University)

Solubility of Selected Lanthanide Oxides used
as Neutron Poisons: Dysprosium Oxide, Holmium
Oxide and Gadolinium Oxide, *S. Sunder, K.E. Horn,
J. Fingas, T. Petersen (Atomic Energy of Canada
Limited)*

Critical Heat Flux (CHF) Data in Vertical Flows
Subjected to Angular Non-Uniform Heat Flux
Distributions, *J. Sun, A. Olekhovitch, A. Tesseydou
(École Polytechnique de Montréal), P. Tye, (BMA, Inc.)*

SESSION T11

INSTRUMENTATION AND CONTROL / INSTRUMENTATION ET RÉGULATION

Co-chairs/Présidents :

D. Barber (Nuclear Safety Solutions Ltd.),

E. Williams (Bruce Power)

Neutron Transport Analysis of McMaster
Nuclear Reactor Advanced Dynamic Neutron
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