



Canadian Nuclear Society
Soci t  Nucl aire Canadienne

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CNS

BULLETIN

SNC

Vol. 1, No. 1

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1. Editorial: Our First Issue of the CNS-Bulletin-SNC

The Canadian Nuclear Society is finally launched as an organization of many individuals whose life's work is committed to the advancement of nuclear science and technology for the benefit of both Canadians and other world citizens. The challenges for this new Society are great, not only in terms of the technical and social tasks ahead, but also in terms of maintaining the CNS as a coherent and dynamic force which can effectively meet the tasks as they arise. Our hopes for the Bulletin are that it will provide the means for disseminating information and exchanging ideas in a manner which will keep CNS members working together towards common goals.

Our first issue of the Bulletin is typical of what we may find in future issues of the Bulletin. There is background information on an important CNS event, namely, the forthcoming Annual Conference. Notice is given of the Annual General Meeting. Several items report on the groundwork being done by the CNS Council and indicate ways in which members may help and advise the Council in its efforts on behalf of the Membership. We have a message from our President and greetings from the President of the Canadian Nuclear Association, a body which was supportive in getting CNS started and maintains continuing interest in CNS affairs.

Our first issue of the Bulletin is also non-typical of what we may expect in the future. We look forward to items contributed by members writing in either official language, to announcements of programs organized by Council as well as those organized by CNS branches, CNS student groups, or CNS topical divisions, to reports of joint projects by the CNS in conjunction with other professional groups, and we look forward to many other kinds of information, the value of which we will discover as the CNS gains a history.

J.S.H

2. First Annual CNS Conference

The first major event to be organized by the newly-formed Canadian Nuclear Society will take place in Montreal on June 18, 1980. Dr. Wladimir Paskievici, the Program Chairman of the First Annual CNS Conference, has indicated that over forty technical papers will be presented by individuals representing all parts of the nuclear industry. A list of the papers is provided with this issue of the Bulletin.

The highlight of the conference will be a luncheon address to be given by Prof. M. Tubiana, M.D., a distinguished scientist and past president of S.F.E.N. (Société française de l'énergie nucléaire). Further background on Prof. Tubiana's talk is given as a separate item of the Bulletin. Also of special interest is the panel discussion on the Three-Mile Island Accident - A Canadian Perspective.

The first annual general meeting of the CNS will be held immediately following the luncheon. The principal item of business is the election of the officers of the CNS Council for the year 1980-81. A report of the nominating committee concerning the election may be found elsewhere in this issue of the Bulletin.

The Annual CNS Conference is being held this year at the Queen Elizabeth Hotel, Montreal, following the Annual International Conference of the Canadian Nuclear Association, June 16 and 17, 1980. The CNA registration fee automatically covers registration at the CNS conference.

The registration fee of \$40 (\$35 for preregistration by May 23, 1980) for those attending only the CNS Conference, covers the technical program and the luncheon on June 18 as well as the cost of the CNS Transactions to be provided at the conference in either official language. The Transactions will contain a two-page summary of each paper presented. The CNS Proceedings, to be published after the conference, will contain the full texts of the conference papers.

All members of the CNS are specifically urged to attend the technical sessions and to participate in the General Meeting.

While in the course of a year the CNS plans to hold several special meetings on specific topics related to nuclear energy, the Annual CNS Conference is expected to become the regular CNS event of the year.

3. Radiation Scientist and Writer is CNS Guest Speaker

The Canadian Nuclear Society is fortunate that Prof. M. Tubiana, past president of a sister organization - the Societe francaise de l'energie nucleaire - has accepted the invitation to address the First Annual CNS Conference on June 18, 1980. A distinguished radiation scientist and physician, Prof. Tubiana is Chef du Departement des Radiations de l'Institut Gustave-Roussy. His list of professional involvements include presidencies of several French scientific organizations (Association francaise pour l'etude du cancer and the Societe franciase de radiologie) and membership on the International Committee on Radiological Protection. He is author of several books. Among his most recent is Le Refus du Reel (The Denial of Reality) which contains a thoughtful analysis of the apparent reluctance of some elements of society to accept the technological advances of civilization. We look forward to his message!

4. NOTICE OF ANNUAL GENERAL MEETING

The Council (Pro Tem) of the Canadian Nuclear Society wishes to give advance notice of the first Annual General Meeting of the Canadian Nuclear Society. The meeting will be held at the Queen Elizabeth Hotel, Montreal on Wednesday, June 18, 1980, at about 1:30 p.m. All CNS members are urged to attend. A tentative agenda includes:

1. President's Remarks
2. Election of Officers (please see special item in this issue of the CNS Bulletin on the 1980 election procedure)
3. New Business

5. 1980 Election Procedure

The basic principles that will govern the election of officers of the CNS Council are established within the CNS Constitution and By-Laws (Nov. 16, 1979), supplemented by the Policy Statement (May 2, 1980) on the Election of Officers. In general, the nomination of candidates and the election of officers will be conducted by mail in advance of the Annual General Meeting. For 1980, however, it has been recommended by the nominating committee and supported by Council that, in view of the Society's short history, a somewhat simplified election procedure would be appropriate. Therefore, the nominating committee (chaired by Dr. R.B. Harrison) is preparing a complete slate of candidates for Council positions. The slate will be distributed to the membership prior to the Annual General Meeting on June 18, 1980. Members in attendance at the Annual General Meeting will be asked to ratify the proposed slate or to nominate additional candidates for specific officers. Should this result in more than one nomination for any office, an election will be held by secret ballot. The elected slate of officers will serve on the Council for one year from close of the Annual General Meeting.

Please watch for the slate of nominees soon to be forwarded by the nominating committee!

6. Nuclear Film Showing at CNS Conference

As an adjunct to the scheduled technical sessions during the morning of the Annual CNS Conference on June 18, 1980, there will be a showing of several recent films which have been produced primarily for purposes of public education on nuclear waste technology and the need for the nuclear option. Conferees and their guests are cordially invited to fit these films into their schedule. The film time-table will be provided on registration.

7. CNS Membership is Growing

Although the groundwork towards establishing the CNS dates back to the summer of 1977, the history of the organization from the time when memberships were first solicited spans less than one calendar year. During this period the membership list has grown from zero to nearly 400 individuals. This response, coupled with offers by many new members to assist with the seemingly endless list of tasks to be performed on behalf of the emerging organization, is gratifying to members of both the original CNS organizing committee and the current CNS Council.

A further growth in membership is anticipated as more people become aware of the program objectives of the CNS in both the technical and in the

public information and policy areas. Existing members could be of great help in this by communicating the concept of the CNS to their colleagues and other potential members. The two extra copies of the CNS Membership Brochure included in the mailing of this Bulletin to members will be helpful in this endeavour. It may be of interest to note that individuals whose applications are received before the end of 1980, and are subsequently accepted by the Membership Committee, are identified as *Charter Members* of the Canadian Nuclear Association.

A group of members who have identified among themselves common areas of interest may wish to initiate a topical division within CNS. Until the Council has established policy with respect to the formation of such divisions, inquiries concerning Divisions may be sent to the Program Chairman. A suggested list of subject areas which may be served by topical divisions is given in the item of this Bulletin entitled CNS Program Plans.

8. CNS Branch Organization

In order to implement the objectives of the CNS in a specific area or municipality in Canada, and to provide opportunities for members' intense participation in meeting these objectives, the CNS Constitution and By-Laws provides for the establishment of CNS branches. A group of ten members interested in forming such a branch are invited to request a copy of the Policy Statement on the Formation of Branches of the Canadian Nuclear Society.

9. CNS Program Plans

The planning and coordination of the First Annual CNS Conference, which is described elsewhere in this Bulletin, has been the main activity of the Program Committee.

Other activities are also planned. Several topical meetings, to be held either independently or in conjunction with other professional societies, are under consideration. Suggested topics for the first of such meetings are reactor materials, radiation hazards, and radiological protection. In some cases it may be appropriate for a CNS branch to organize a topical meeting with the support of the central Program Committee.

In parallel, the first steps are being taken to encourage the creation of topical divisions. It is anticipated that interested member groups will pursue first the creation of topical divisions under the following titles: Reactor Physics and Applied Mathematics, Reactor Control and Instrumentation, Reactor Technology, Fuel Cycles, Waste Management and Safety. Other topical divisions may emerge later under the headings: Public Information and Policy, Industrial and Medical Applications of Nuclear Technology, Health Physics and Radiobiology, Reactor Operations, and Education and Training.

The CNS will also seek ways to contribute dynamically to various nuclear-related functions including public hearings, student conferences, and technical symposia. A program of visits to nuclear facilities and other energy projects is also in view.

Ideas and suggestions by CNS members will be welcomed by the Program Committee.

10. Message from CNS President

Dear CNS Member:

The primary purpose of this issue of the CNS Bulletin has been to alert the membership to the activities relating to our First Annual CNS Conference and Annual General Meeting. However, we hope that, in reading through the Bulletin, that you will gain the impression that the Canadian Nuclear Society is now proceeding steadily towards achieving many of its initial objectives and discovering new challenges.

As an organization we feel confident that the Canadian Nuclear Society was carefully conceived from the beginning and what we have accomplished thus far has been the result of collaboration among the many interested parties, including the Organizing Committee formed under CNA auspices in 1977. Since it was established in September 1979, the CNS Council (pro tempore) has been working very hard to put in place the necessary administrative mechanisms (with the help and cooperation of the CNA office) and to establish for the CNS documented ground rules in the form of a constitution and several policy statements. The members of Council taking office after the election of June 18 will be able to carry on with the full support of the membership.

I believe that the affairs of the Canadian Nuclear Society will be in good shape as it enters its new fiscal year and will become a vital part of the Canadian nuclear scene in the years ahead.

G.R. Howey
Interim President - CNS

11. Message from CNA Chairman W. MacOwan

It gives me great pleasure to bring greetings to the Canadian Nuclear Society on behalf of the Board of Directors of the Canadian Nuclear Association. The formation of CNS is seen by the CNA Board as a particularly significant development in the field of nuclear energy in this country. The CNS is to be congratulated for the thoroughness and enthusiasm with which it is building the new Society. This augers well for the future and will, in due course, provide not only an important means of exchange of technical and scientific knowledge but also the presence of a coast-to-coast organization of high credibility and integrity. This will further the understanding of all aspects of nuclear energy by the public and by those responsible for decision making on-energy matters.

I wish the CNS every success and pledge the full support of the CNA to help meet the objectives of the Society.

W. MacOwan
CNA - Chairman of the Board



Canadian Nuclear Society
Société Nucléaire Canadienne

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CNS FIRST ANNUAL CONFERENCE

Wednesday, June 18, 1980

Montreal, Queen Elizabeth Hotel

PRELIMINARY PROGRAM NO. 5 - TECHNICAL SESSIONS

Session "A" - ROOM GATINEAU

REACTOR PHYSICS AND APPLIED MATHEMATICS

Chairman : D. Rozon (Ecole Polytechnique)

9:00 "Homogenized Lattice Constants Depend on Their Origin and Final Use"

R.A. Bonalumi (Ontario Hydro)

9:20 "SIMODEX, A Fuel Management Program Based on Modal Expansion Method"

A.L. Wight (Ontario Hydro)

9:40 "Fuel Scheduling Experience at Bruce NGS-A"

I.N. Daly, P. Michael and J.R. Enselmoz (Ontario Hydro)

10:00 "Calculation of Gamma Fluxes in CANDU Lattices"

C.R. Boss (AECL-EC)

10:20 "Dynamic Model to Predict Reactivity Effects of Core Temperature Biasing in SLOWPOKE-2"

A.F. Oliva, M.A. Cormier and J.S. Hewitt (University of Toronto)

10:40 "The Evolution of SPODE : A Monte-Carlo Computer Code for Self-Powered Detector Response Calculations"

J.S. Hewitt, J.H.K. Lau, A.C. Mao,
J.C. Wilson (University of Toronto), P. Kubica (AECL-CRNL)

Session "B" - ROOM BERSIMUS

REACTOR TECHNOLOGY AND NUCLEAR POWER PLANT SYSTEMS

Chairman : R. L'Archeveque (Canatom, Inc.)

9:00 "A New Reactivity Control Device"

D.B. Burjorjee (AECL-EC), W. Fieguth (Gellman Hayward & Partners Ltd.) and M. Khanna (Ontario Hydro)

9:20 "Power Measurements in CANDU Reactors"

K. Papadatos and A. McDonald (AECL-EC)

9:40 "Application of the Multiple Support Excitation Method in Seismic Analysis of CANDU Piping Systems"

W.G. Rabbani and M.J. Kozluk (Ontario Hydro)

10:00 "Experimental Seismic Study on 600 MWE CANDU Core Using Full-Scale Partial Models"

T. Kuroda (Electric Power Development Co. Ltd., Japan)

10:20 "A Tool for the Prediction of Feeder and Fuelling Machine Interferences Caused by the Elongation of Pressure Tubes in a CANDU Reactor"

A.H. Chung and D. DasGupta (Ontario Hydro)

10:40 "The Management of Ontario Hydro's Heavy Water Resources"

H.G. Brandford (Ontario Hydro)

11:00 "Design Construction and Commissioning Aspects of 600 MW(e) CNADU PHW Containment Structures"

E. Phillipose (Canatom, Inc.)

11:20 "Wolsung-1 NPP - Electrical Systems"

S. Nilakantan, R.V. Annamraju (Canatom, Inc.) and R.K. Willnott (Acres Consulting Services)

Session "C" - ROOM PERIBONKA

REACTOR SAFETY

Chairman : H. Marois (Hydro-Québec)

9:00 "The Tornado Risk in Eastern Canada - A MONTE CARLO Approach "

G.J.K. Asmis (AECB)

9:20 "Experimental Studies of Reflooding in a Horizontal Fuel Channel"

O. Sawamura and M. Wakayama (Electric Power Development Co. Ltd.)

9:40 "SIMBRASS: A MONTE-CARLO Model for the Assessment of the Unavailability of Reactor Regional Overpower Trip Systems"

A.H. Chung, M. Khanna (Ontario Hydro)

10:00 "Airborne Radioiodine in the Containment, with Special Reference to Methyl Iodide"

D.G. Andrews and M. Moledina (University of Toronto)

10:20 "The Radiation Management Considerations of the Periodic Inspection Program for the CANDU Nuclear Steam Supply System"

E.M. Hanbury and R.M. Williamson (AECL-RC)

10:40 "A Simple Technique to Assess the Effects of a Sudden, Shoreline, Radioactive Liquid Release into Lakes"

E.M. Chan (Ontario Hydro)

11:00 "Noble Gases Emission Monitoring and Control at Bruce Nuclear Generating Station A (BNGSA)"

B. Vaughan, D. Dawson, S. Hassanien, J. Vanderlo, L. Weeks
(Ontario Hydro)

11:20 "A Total Systems Approach for Piping Protection"

D. Teissler (E-Systems, Inc., U.S.A.)

Session "D" - ROOM RICHELIEU

FUEL CYCLES AND ENERGY SOURCES COMPARISONS

Chairman : L. Amyot (Ecole Polytechnique)

9:00 "Health Risk Assessment in Energy Production. Methodological Aspects"

W. Paskievici (Ecole Polytechnique)

9:20 "A Comparison of CANDU and PWR Fuelling Costs"

R.H. Hu and T.L. Tang (Hydro-Québec)

9:40 "Technical Aspects and Economic Promise of Low-Enriched Uranium CANDU-PHW Reactors"

R.A. Bonalumi and J.H.K. Lau (Ontario Hydro)

10:00 "The Energy Utilization Efficiency of Nuclear Power Compared with other Alternatives"

E.C. Card and M.P. Hasinoff (W.L. Wardrop & Associates Ltd.)

10:20 "Radioactive Atmospheric Emissions of a Large Coal Fired and a CANDU Nuclear Generating Station of Comparable Size"

E.F. Muller (Department of Environment, Ottawa)

10:40 "Transportation Experience in the U.S. with Spent Fuel and Other Hazardous Materials"

F.B. Rives (Nuclear Assurance Cororation, U.S.A.)

11:00 "Future Fuel Cycles: A Resource Utilization and Economic Assessment"

G.H. Archinoff (Ontario Hydro)

11:20 "Industrial Process Heat from CANDU Reactors"

J.W. Hilborn, J.S. Glen, W.A. Seddon (AECL-CRNL) and A.G. Barnstaple (Ontario Hydro)

Session "E" - ROOM GATINEAU

WASTE MANAGEMENT

Chairman : F. McDonnell (AECL-RC)

11:00 "Chemical Stability of Sintered Modified SYNROC B Ceramics Containing Simulated High Level Wastes"

A.G. Solomah, C.B. Boss, R.D. Rossington and H. Palmour III
(North Carolina University, U.S.A.)

11:20 "Corrosion Testing of Candidate Canister Materials with Alternative Waste Forms"

J.E. Mack, W.J. lackey and P. Angelini (ORNL, U.S.A.)

14:00 "The Management of Irradiated Fuel Storage. Siting Options"

R.W. Barnes, S.J. Naqvi, P.K.M. Rao and R.W. Kortright (Ontario Hydro)

14:20 " Assessment of Fuel Storage Siting Options"

P.K.M. Rao, R.W. Kortright, T.S. Wong, M.J. Beattie, D.R. Hardy,
P.Duda, R. Stasko, G.H. Archinoff and J.F. Tanaka (Ontario Hydro)

14:40 "The Design of Waste Handling and Immobilization Facilities for Canada's Nuclear Fuel Waste Management Program"

E.C. Card and H. Husain (W.L. Wardrop & Associates Ltd.)

Session "F" - ROOM BERSIMUS

REACTOR MATERIALS AND COMPONENTS

Chairman : P. Tremblay (AECL-EC)

14:00 "An Improved Model for Tritium Buildup in Heavy Water Reactor"

D.G. Andrews and T. Mountford-Smith (University of Toronto)

14:20 "Fission Gas Release from Thoria-Based Fuels: Comparison with Model Predictions"

I.J. Hastings and M.J.F. Notley (AECL-CRNL)

14:40 "Development and Testing of a Fuelling Machine Snout"

Z.G. Keszthelyi (Canadian General Electric)

Session "G" - ROOM BERSIMUS

MANUFACTURING AND QUALITY ASSURANCE

Chairman : J. Deslaurier (Canatom, Inc.)

14:00 "Quality Control Aspects of the Production of UO₂ Powder by the IDR Process"

J.E. Littlechild and R.H. Watson (B.N.F. Ltd., U.K.)

14:20 "Neutron Radiographic Findings in Light Water Reactor Fuel"

J.C. Domanus (Elsinore Shipbuilding & Eng. Co. Ltd., Denmark)

14:40 "Fuel Handling Control System Testing"

W.H. Ernst (Canadian General Electric)

Session "H" - ROOM RICHELIEU

NUCLEAR ANALYSIS & INSTRUMENTATION

Chairman : J. Boisvert (Ecole Polytechnique)

14:00 "Instrumental Neutron Activation Analysis of Trace Elements Using Short-Lived Nuclides

A. Chatt, K.N. De Silva and R.E.Tout (Dalhousie University)

14:20 "Spent Fuel Bundle Counters for the IAEA Safeguards Program for 600 MW CANDU Reactors "

A.J. Stirling, V.H. Allen and W.R.J. Shorey (AECL-CRNL)

14:40 "A Nuclear Reactor Simulator for Nuclear Engineering Education"

B.W. Surgenor (Queen's University)

Session "K" - ROOM GALERIE 4

15:00-17:00 Panel Session : THE THREE MILE ISLAND ACCIDENT - THE CANADIAN PERSPECTIVE

Moderator : W. Paskievici (Ecole Polytechnique)

Panelists : M. Merilo (Electric Power Research Institute, U.S.A.)
D. Meneley (Ontario Hydro)
R. Kelly (Ontario Hydro)
J. Harvie (AECB)
E. Siddal (AECL-EC)

May 6, 1980

W. Paskievici



Canadian Nuclear Society
Société Nucléaire Canadienne

FIRST ANNUAL CONFERENCE

June 18th, 1980 - Queen Elizabeth Hotel, Montreal

REGISTRATION

Please print clearly

NAME: _____

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ADDRESS: _____

Language preferred English French

Post marked by May 23 Post marked after May 23

CNS Conference registration only \$35.00 \$40.00

*Please note: Separate registration for CNS Conference is not necessary for delegates to the 20th Annual International Conference of the Canadian Nuclear Association.

MAIL REGISTRATION TO: Clermont Doyon, CNA Registration Chairman
P.O.Box 280, Station A
Montreal, Quebec H3C 2S7

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Ext. 547
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Canadian Nuclear Society
Société Nucléaire Canadienne

PREMIERE ASSEMBLEE ANNUELLE

16 juin, 1980 - 1^e hôtel Reine Elizabeth
Montréal, Québec

I N S C R I P T I O N *

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23 mai 23 mai

Inscription pour
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seulement

\$35.00 \$40.00

* Veuillez noter:

Une inscription supplémentaire pour la conférence du SNC n'est pas
nécessaire pour les délégués du 20^{ème} Congrès International Annuel
de l'Association Nucléaire Canadienne.

ENVOYEZ L'INSCRIPTION A: Clermont Doyon, Président des inscriptions ANC
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