



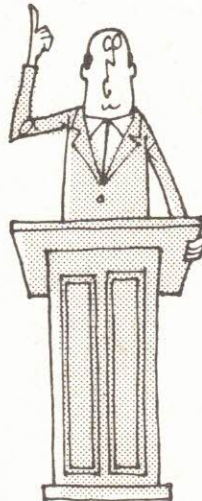
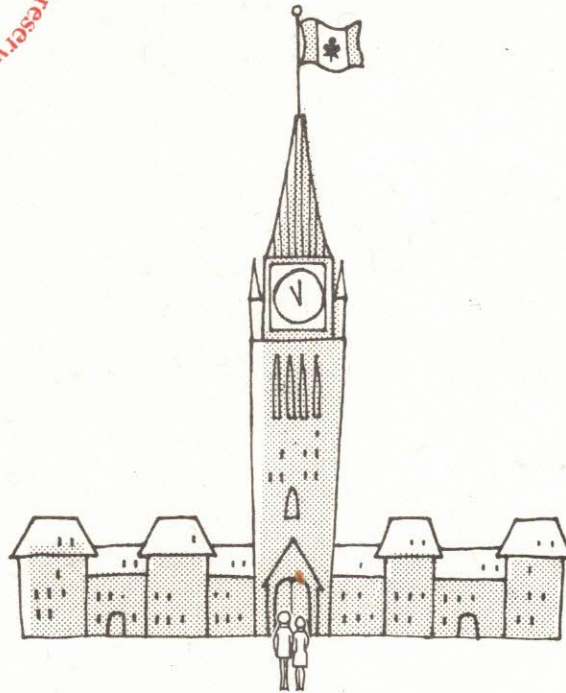
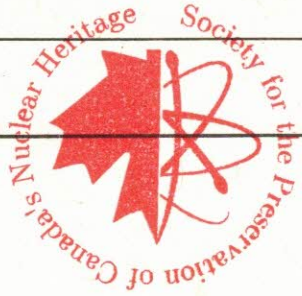
Canadian Nuclear Society
Soci t  Nucl aire Canadienne

111 Elizabeth St., 11th Floor,
Toronto, Ont., Canada M5G 1P7

CNS
BULLETIN
SNC

Vol. 2, No. 2

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The CNS Bulletin is the membership newsletter of the Canadian Nuclear Society.

Le Bulletin SNC est l'organe d'information de la Société Nucléaire Canadienne.

CNS provides Canadians interested in nuclear energy with a forum for technical discussion. CNS is forming branches in major Canadian cities, and has established four technical divisions. For membership information, contact the CNS office, a member of the Council, or local branch executive. Membership fee is \$20.00 annually.

La SNC procure aux Canadiens intéressés à l'énergie nucléaire un forum où ils peuvent participer à des discussions de nature technique. La SNC est en train de mettre sur pied des groupes régionaux dans les principales villes canadiennes, et a créé quatre divisions techniques. Pour tous renseignements concernant les inscriptions, contacter le bureau de la SNC, les membres du Conseil ou les responsables locaux. La cotisation annuelle est de \$20.00.

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CNS BULLETIN SNC

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EDITORIAL

Where do we go from here?

Every CNS member is in debt to John Hewitt. Perhaps no-one who has not gone through the experience of establishing (and well establishing) any kind of periodical can fully appreciate the continual exhaustion, frequent frustration and occasional despair attending such an operation. But everyone must recognize professor Hewitt's achievement and the magnitude of his contribution to CNS. He should have everyone's gratitude. He certainly has the new editor's admiration.

With all the really hard work done all we have to do is foul the whole operation up. Luckily we do have a pretty good general guideline from the previous editor as to where the Bulletin should be going from here. It should be getting bigger.

In this issue we introduce two new sections. The first, FYI (an unoriginal acronym expanding to "For Your Information"), is a selection of news items from other publications ("scalped" is the inelegant media term for this) and individual contributors which might be of interest to CNS members. PERSPECTIVE is a section for short essays with individual viewpoints on nuclear energy in Canada. For the next few issues this section will be devoted to the Pickering Nuclear Generating Station whose first unit reaches the ten year mark this July.

Appropriately enough the first contributor to PERSPECTIVE is Bill Morison, designer of the Pickering reactors.

For future issues we hope to see feature articles on topics of interest to CNS members and we also plan the introduction of some leavening of humour. And the correspondence columns are, as of this writing, open to all readers. Which brings us to a central point: without contributors -- letters, articles or personal essays from Bulletin readers, all these ambitious plans will remain plans. By the nature of things the Bulletin will never satisfy everybody: make your dissatisfactions known. By the nature of things, the Bulletin will always leave undone something which could be done: we need to be reminded of such omissions. Beating the bushes for contributions is depressing activity for any editor unless some birds fly up.

FYI

France No. 2 nuclear user

Japan was replaced by France in 1980 as the country with the second largest installed nuclear capacity, according to the Japan Atomic Industrial Forum. JAIF, which compiles worldwide statistics regularly, also said that Japan's No. 3 ranking will be replaced by the Soviet Union as early as this year. The United States is the world leader.

Financial Times of Canada

NRC riles GE

General Electric sources have dismissed as "not reasonable" an NRC staff report which identifies a possible flaw in BWR safety design that might, under certain unlikely circumstances, flood the secondary containment and perhaps damage the emergency core cooling system equipment, thus risking an exposure of the core. GE has also complained to the NRC about the "premature release" of the report before the company had an opportunity to respond to it. Philip Bray, vice-president & general manager of GE's Nuclear Power Systems Division noted in a letter to NRC Acting Chairman Joseph Hendrie that "not only was there no opportunity for us to comment on the report, but as we understand it, a proper technical review of the report by the NRC staff had not been completed" before an article on the report appeared in the Wall Street Journal. A GE source complained that the prominence given to the report has meant that the postulated incident (a pipebreak in the scram discharge volume subsystem during scram system operation) "has somehow gone from a hypothetical situation to an assumption that this series of events is going to happen, a fact to fiction thing".

Nucleonics Week

Speed licensing -- proposal

The Nuclear Regulatory Commission is proposing a rule change that would drastically curtail the role played by opponents of nuclear energy and other citizen witnesses in the process of licensing atomic reactors.

The proposal attempts to speed licensing of new plants through a hearing schedule that could produce a final decision on licensing in eight months. Rule changes would limit to 25 days the period in which intervenors could demand relevant information from applicants and eliminate any requirement that the commission staff provide supporting data. Additionally motions for dismissal of intervenors' contentions would be

FYI

allowed at any time. A spokesman from Ralph Nader's Critical Mass Energy Project has denounced the proposals.

New York Times

On nuclear - off fossil -- Runnalls

Canada must reserve her gas, oil and coal resources for vital transportation, industrial and chemical feedstock applications -- these fossil resources are much too valuable to be incinerated on an ever increasing scale, Dr. O.J. Runnalls told about 70 participants at a Canadian Nuclear Association seminar on nuclear power risks May 6. Dr. Runnalls, Professor of Energy Studies at the University of Toronto and a recent appointee to Ontario Hydro's Board of Directors, emphasized that nuclear energy must become one of Canada's mainstays for the long-term future if that future was to be "low risk".

Staff

Waste shipped from TMI

Cannisters containing resins from the EPICOR-2 water processing system at TMI are being prepared for shipment to a Hanford (Washington) waste disposal site and one has already been dispatched. The resins contain relatively low levels of radiation and were used in the clean-up of the 500,000 gallons of water spilled in the Unit 2 auxilliary building during the accident two years ago. The shipments are possible now because the US NRC has granted the plant operators a license amendment allowing the wastes to be removed from the site without first being solidified.

John Fidler (TMI)

Case argued for beneficial "threshold" effect

A University of Missouri biochemist argues that not only is there a threshold below which no harm is done by exposure to ionizing radiation, but that such exposure actually is beneficial to life. T.D. Luckey draws his conclusions from laboratory observations of increased lifespans of irradiated mice, guinea pigs and rabbits and faster healing of wounds and fewer infections in irradiated animals. Luckey's theory counters the National Academy of Sciences' Biological Effects of Ionizing Radiation Committee's longstanding position that no "threshold exposure" exists, however he notes "What few statistics I have are infinitely better than the zero statistics those guys have. You'd never pass a statistics course doing what those guys are doing".

FYI

An EPA Office of Radiation Programs source pointed out "Of course everybody is looking at the problem, but with the dose levels you're talking about here, you'd need the whole population of the US over its entire lifetime to come up with firm results".

Nucleonics Week

New test loop planned

Detailed design work is under way on a new test loop for Atomic Energy of Canada Ltd's NRX reactor at Chalk River. Designated X-9, the steam/water loop will test fuel performance under highly abnormal cooling conditions -- severe enough to cause extensive fuel damage. Mike Notley, head of AECL's Fuel Engineering Department, points out that this imposes stringent leak tightness and shielding requirements since the loop must be able to accommodate the complete break-up of one fuel element. Also, Notley adds, "we expect the thermal stresses could be pretty bad." Tentatively scheduled to be commissioned in 1984, the loop will form part of AECL's ongoing reactor safety work. The X-9 loop will replace X-7, an organic liquid loop, shut down in 1975.

Staff

Une nouvelle source d'énergie: les oreilles de lapin

Le carburant qu'utilise un certain Bill Schultz pour chauffer ses serres, rapportait récemment la Presse Associée, est surprenant mais on tout cas efficace et bon marché: des lapins et un stock de carottes! Ce nouveau système, précise l'agence de presse, utilise la température du corps des lapins (39 degrés) pour chauffer une pièce à 16 degrés. La chaleur des palins se dégage par les vaisseaux sanguins de leurs longues oreilles qui servent alors de petits "radiateurs", un phénomène que les chercheurs ont tenté d'exploiter pendant des années.

Bill Schultz possède plus de 400 lapins qui produisent ensemble environ 190 000 BTU, ce qui représente à peu près la moitié de l'énergie dégagée par de simples radiateurs à gaz. Le procédé a permis à cet horticulteur de réduire ses coûts de chauffage de 25%.

(Il est toutefois permis d'émettre certaines réserves quant à la valeur scientifique de cette information qui a paru le...ler avril)

Hydro Presse

PERSPECTIVE

Bill Morison doesn't really need to be introduced to anyone who's had any contact with the nuclear industry in Canada. He's been described as "the engineering father of CANDU", as an "engineer's engineer" and as "a principal driving force" in developing the world's most reliable reactor system. One can go on listing the accolades for pages -- let us simply note that there is no-one more appropriate to look back on Pickering after ten years of supremely successful operation.

Pickering -- Our Boldest Venture

There are those who say it was a brash thing for a utility; so traditionally cautious, so untried in large scale nuclear experience, to embark in the summer of 1964 on the Pickering Project. At the time we had two years of operating experience on the 20 MW_e NPD station, five years of engineering experience on the 200 MW_e Douglas Point station, and a nine-month preliminary study of the proposed 4-540 MW_e Pickering A station which involved many unique and innovative ideas.

There are those who say we were lucky; so fortunate to have fallen into a successful organization arrangement with the full support of Atomic Energy of Canada, so opportune in our timing, so favourable in our choice of unit size and multi-plant station.

There are those who say we were obsessed with the CANDU concept and would encounter many unexpected difficulties; and we did, and we persevered and turned troubles into progress by building fresh advances on initial failures, by dedication, by training and innovation.

And when we first got electricity from Pickering ten years ago, there were still those with doubts and concerns and disbelief; but there were others with great expectations; with intentions to see it through, with vigor and toughness and hopes that it would run well, with predictions that it would be economic, and with conviction that it would operate safely.

And it has gone well, -- beyond all expectations. Ten years ago this month, Pickering began its challenge to the nuclear world. Its persistent high performance over ten years is second to none anywhere. It has produced more electricity and at lower cost than any other nuclear station, and it continues.

The Canadian nuclear program since 1971 has been built on the strength of the performance of the Pickering station. It is difficult to imagine how the Canadian program could have developed as it is if the performance of Pickering had not been outstanding. Commitments of all CANDU nuclear stations now

PERSPECTIVE

under design and construction (11,000 MW_e) were based on the performance of the Pickering station in the 1970s.

It is even more difficult to imagine where we would be in this province if the Pickering generating station had not been committed for construction in 1964, but surely in the hands of others, energy dependent and lacking the vitality and freedom of choice. The Pickering decision was a bold venture of critical importance, of brashness, of good fortune, of dedication and obsession, of expectations and conviction. Could it have been otherwise? A careful re-examination of The Road Not Taken by Robert Frost, which is frequently quoted by our critics, seems to have captured the importance of choice:

"I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I
I took the one less travelled by,
And that has made all the difference."

W.G. Morison

CNS NEWS

Ottawa '81

The major annual event of the Canadian Nuclear Society will be on Wednesday June 10 at the Skyline Hotel, where the second annual conference and general meeting of the CNS will take place. With over 60 technical papers and an outstanding luncheon address, this will be an event that no-one can really afford to miss.

Realistic Expectations

Milton Levenson, who will be addressing the CNS luncheon June 10, is a former Director of EPRI's Nuclear Division and co-author (with F. Rahn) of the EPRI report The Realistic Consequences of Nuclear Accidents. If this report provides any indication of the approach Mr. Levenson will take in his address, then his audience will be treated to a refreshingly forthright articulation of the realities of nuclear risks to the public. A quote from the preamble to the EPRI report gives the flavour: "Every historical reactor accident, every nuclear weapons accident, as well as many experiments demonstrate that the dispersal mechanisms act to limit large releases of radioactivity. That is why an accident causing widespread and serious health effects to the public will not happen".

New Editor for Bulletin

At the CNS Council meeting 23 April, Vice-President John Hewitt informed Council that David Mosey would be taking over as editor of the CNS Bulletin SNC. David holds a doctorate in English Literature and has been associated with the nuclear industry in Canada for 11 years, including 4 years at Chalk River as a technical writer and technical information officer. He currently works on the media desk at Ontario Hydro where he has achieved a degree of notoriety among reporters as someone who can explain the vagaries and complexities of nuclear power in terms they understand.

Bob James

BRANCH NEWS

Manitoba

Ernie Card reports that the Manitoba branch of CNS (the first branch to be formally constituted) is alive and well and growing. A prime responsibility of the branch, the pro-tem chairman notes, is increasing branch membership. To this end, the branch will be concentrating on a programme of technical meetings designed to attract general interest rather than appeal to narrow specializations.

The branch has already two meetings under its belt, the most recent being a discussion of accelerator breeding by Dr. Jovanovitch of the University of Manitoba. The next Manitoba branch meeting is scheduled for 28 May when the branch will visit the Manitoba Cancer Research Institute for a tour, and hear a talk on nuclear medicine from the Institute's director, Dr. Ian Sutherland.

Ottawa

The Ottawa branch has concluded a successful series of meetings, the most recent being a talk on uranium process improvements by Gordon Ritcey of Energy Mines and Resources' Centre for Mineral and Energy Technology. Membership of the branch continues to grow steadily with up to 40 members attending meetings. Frank McDonnell is taking over as pro-tem chairman following Ralph Green's move to Pinawa.

Chalk River

The Chalk River branch of the CNS has been formally constituted under the pro-tem chairmanship of Ian Hastings. Hastings points out that due to the geographical and demographic anomalies of the area together with the facilities already accorded personnel at the Chalk River Nuclear Laboratories, the branch (current membership 27) will tend to operate more as a resource branch for the CNS (especially the Technical Divisions) than a centre for technical meetings. Of course this does not preclude meetings arranged in cooperation with other established societies.

Pro-tem executive: Ian Hastings - Chairman
 Harvey Sills - Membership Chairman
 Rod MacDonald - Secretary-Treasurer

Toronto

One of the largest branches of the CNS, the Toronto branch with well over 200 CNS members in its geographical area, was formally constituted 23 April.

BRANCH NEWS

Art Guthrie (pro-tem chairman) points out that since the branch includes 5 universities in its membership area, contacts with universities, and the possible establishment of undergraduate branches will be priorities in branch activities. Work is underway on a programme of meetings starting in late September.

Quebec Branch

Encompassing the province of Quebec, the Quebec branch is comparable in size to the Toronto branch, with over 200 members. At this writing the Quebec branch request for formal recognition has been sent to the national CNS Council. Plans are underway for a programme of meetings. The pro-tem executive comprises:

Jan Charak - Chairman
Richard Bolton - Vice-Chairman
Raymond Thivierge - Secretary
Richard Hu - Treasurer
Jean-Paul Dietrich)
Fernand Pare) Membership Officers
Tom Gellatly)

CONFERENCE REPORTS

Nuclear Risks in Perspective

About 70 participants attended the CNA Seminar on Nuclear Energy Risks in Perspective held at the Constellation Hotel, Toronto, May 6 & 7. Essentially the papers presented fell into two categories; those assessing the actual public and occupational risks associated with nuclear energy, and those dealing with public perceptions of those risks and the ways in which those perceptions might be made more congruent with the reality.

As far as public impact was concerned, it was noted in one paper that 82 reactor-years of operations had resulted in 0 fatalities, 0 injuries and 0 measurable radiation exposure. The occupational safety record was equally impressive -- showing 64 million man-hours worked, with 0 fatalities and 0 radiation exposures over 25 rem. Addressing the subject of radioactive materials management, transportation and disposal a subsequent paper outlined operating objectives (emissions targets are 1% of the AECB limits, resulting in doses to the public that are small in comparison with the natural background), co-author G.A. Vivian pointing out that "variations in natural background exposure due, for example to travel, altitude variations etc. are regarded as 'non-risks' and therefore I'd suggest that we should also regard the exposures we've been discussing".

Public perceptions of risks, however, are sometimes as removed from the actuality as far as appearance from reality in a Shakespearian tragedy. This fact was especially emphasized in the concluding session where panellists under the chairmanship of AECL's Ernie Siddall discussed the reasons for what seems to be a widespread and gross misapprehension of the risks imposed by nuclear energy. Tom Claridge from the Toronto Globe & Mail (one of Canada's best informed journalists on nuclear-related topics) reminded his audience that "negative" news stories about nuclear energy would inevitably be more frequent than "positive" ones "the statement 'the sky is falling' will inevitably attract more attention than the statement 'the sky is blue and the sun is shining'" he reminded his audience. Claridge touched on three areas where he felt the nuclear industry could perhaps do something to allay public concerns: the "private" nature of the regulatory process, an unwillingness to give adequate publicity to potentially unsafe operational situations and some seeming anomalies in the definition of adequate safety and acceptable risk within the industry. "The (Atomic Energy) Control Board deals behind the scenes" he said, adding "this won't get us to the point where actual risks and perceived risks match". A solution Claridge suggested was the institution of public licensing hearings, modelled on such hearings as those of the Ontario Energy Board.

CONFERENCE REPORTS

Reactor operators could do more, he suggested, by being more expeditious and more comprehensive in their release of information concerning problems at nuclear power plants. A significant problem in public perception, Claridge added, was the fact that different nuclear reactor operators seemed to accept different standards, citing Ontario Hydro's use of vacuum containment and commitment to control room simulators as two examples which do not seem to have been followed by other reactor operators or prospective operators.

MPP Donald MacDonald (NDP York South) is a well-known figure to all those in the nuclear industry who followed the proceedings of the Ontario Legislature's Select Committee on Hydro affairs. His contribution to the panel discussion centred on the valuable role played by that committee (of which he was chairman) in bringing nuclear issues into the public forum and increasing the amount of information available to the public. Mr. MacDonald had high praise for the Canadian approach to the regulation of nuclear energy through the Control Board's providing guidance for wise men rather than demanding obedience from fools. He then appeared to contradict himself by then calling for the Control Board to introduce emission limits based on Hydro's operating guidelines. The other politician on the panel, Sean Conway (whose constituency includes Chalk River and Rolphton), echoed many of MacDonald's comments and cited a continuing and urgent need for more information and more frankness from the nuclear industry.

The panel discussion made it quite clear that there is a general demand for more information from the nuclear industry as well as a growing demand for public involvement in the regulatory process.

CONFERENCES & MEETINGS

Materials in Nuclear Energy

The Canadian Council of the American Society for Metals and the Canadian Nuclear Society are hosting a conference on materials in nuclear energy to be held at the Hidden Valley Inn, Huntsville, Ontario, September 29 - October 2. The programme will include invited and contributed papers to be presented in either oral or poster session format.

Topic areas to be covered include: materials and fabrication of components for nuclear steam supply systems, balance of plant and supporting and allied systems; materials performance in nuclear systems; materials for future nuclear systems.

Refereed conference proceedings will be published and will include all papers presented.

For further information, contact:

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Windsor, Ontario
N9B 3P4
(519) 253-4232 ext. 343/486

George Field
Nuclear Systems Dept.
Ontario Hydro
700 University Avenue
Toronto, Ontario
(416) 592-5925

Control of Radiation Exposure

CNS members are invited to attend a seminar June 18 on the control of radiation exposure, hosted by the Niagara-Finger Lakes Section of the American Nuclear Society, at the Sheraton Brock Hotel, Niagara Falls. The seminar starts at 14:00 and will be followed at 17:30 by a cash bar and dinner.

The speakers will be:

F. Campbell (AECB)
"Cosmos satellite clean up".

L. Sennema (Ontario Hydro)
"Control of radiation exposure by design".

E. Leach (Niagara Mohawk - Nine Mile Pt.)
"Operating Control in the Field".

J. Krasznai (Ontario Hydro)
"Plans for decontamination of a Pickering reactor".

For further details including registration information, contact Roy Tilbe at (416) 356-1543.

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Please forward completed form to: CANADIAN NUCLEAR SOCIETY

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111 Elizabeth St., 11th Floor, Toronto, Ont., Canada M5G 1P7

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University, College, Institute, etc.	Discipline	Degree or Diploma	Date of Degree or Diploma
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(Date) _____ (Signature of Applicant) _____

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(Signature du candidat)

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