Court File No._____

IN THE SUPREME COURT OF CANADA
(ON APPEAL FROM THE FEDERAL COURT OF APPEAL)

B E T W E E N :

INVERHURON & DISTRICT RATEPAYERS' ASSOCIATION

Appellant
(Applicant)

and

THE MINISTER OF THE ENVIRONMENT,
THE ATOMIC ENERGY CONTROL BOARD
and
MINISTER OF FISHERIES AND OCEANS
and
ONTARIO POWER GENERATION INCORPORATED

Respondents
(Respondents)

APPLICATION FOR LEAVE TO APPEAL
Pursuant to Section 40 of the *Supreme Court Act*

VOLUME 3 of 3
(legal memorandum for application for leave to appeal)

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MEMORANDUM OF ARGUMENT

I. FACTS

A. Nature of the Appeal

1. This is an application by Inverhuron & District Ratepayers' Association (IDRA) for leave to appeal the decision of the Federal Court of Appeal dated June 20, 2001, which dismissed applicant's appeal from the decision of Pelletier J. dated May 23, 2000. Both courts dismissed IDRA's request for judicial review of a decision to approve an environmental assessment of a proposed facility for storing spent nuclear fuel at the Bruce nuclear power development (BNPD), near the community of Inverhuron, Ontario.

2. IDRA further seeks leave to appeal the related decision of the Federal Court of Appeal dated October 24, 2000, which dismissed its appeal (with no reasons) from the decision of Pelletier J. not to admit the affidavit of Dr. David Hoel, which was tendered by IDRA as reply to epidemiological evidence deposed by the respondents.

B. The Project and the Environmental Assessment

3. The IDRA is an association of over 300 households of permanent and seasonal residents who live between 2-4 km from BNPD.

   Ref.: Chevrotiere aff., paras.4-6 [Leave Application, Tab C(1), p. 8]
   Chevrotiere c-x, q.11-16 [Leave Application, Tab C(1), pp.16-17]

4. In 1996, Ontario Hydro [now, Ontario Power Generation (OPG)] announced plans to build a new facility to store spent nuclear fuel from the Bruce nuclear generating stations. The new dry storage facility would be the world's largest, involving 744,000 bundles (18,600 tonnes) of spent fuel. One bundle of spent fuel is so toxic that unshielded "contact" within one metre with it would kill a person within 1 hour. Spent fuel remains extremely radioactive and deadly for several hundred years and requires over 17,000 years to return to natural radiation levels. Currently, such waste is shielded from the

public by a combination of storage in water and the concrete walls of the Bruce reactor buildings. The storage project is designed to place such waste into concrete containers for storage in a new building on the BNPD site.

Ref.: December 1997 EA [Leave Application, Tab C(2), pp. 21,22, 23-7]
International Atomic Energy Agency Proceedings 1997 [Leave Application, Tab C(2), pp.28, 29, 30, 31-32, 33, 34, 35-36, 37-38]
Ontario Royal Commission [Leave Application, Tab C(2), pp.39, 40-41, 42-45]
Ontario Legislative Committee Report [Leave Application, Tab C(2), pp.42-43, 44-45]

At one time, Hydro committed itself to removing all high-level radioactive waste from the Bruce site by the year 2005. However, it now appears such waste could be at the Bruce site long into the future. Hydro statements indicate that this "interim" dry storage option at the Bruce site may last for up to 100 years.

Ref.: Chevrotiere Aff. [Leave Application, Tab C(1), pp. 8-15]
Hydro Radioactive Materials Management [Leave Application, Tab C(1), p.18]
Hydro letter dated September 26, 1997 [Leave Application, Tab C(1), p.19-20]
Ontario Legislative Committee Report [Leave Application, Tab C(2), pp.42-43, 44-45]

The dry storage project triggered federal environmental assessment under the *Canadian Environmental Assessment Act* (CEAA). Initially, in 1996, Hydro proposed to carry out a project "screening" assessment, as defined by CEAA, but in early 1997, the Atomic Energy Control Board (AECB), the federal authority responsible for ensuring that an assessment was carried out, concluded that the project required "comprehensive study". Projects are subject to comprehensive study only where they are within a class of projects designated by the federal cabinet, under s.59(d) of CEAA as "likely to cause significant adverse environmental effects". In this case, the trigger for comprehensive study was that the project involves more than 500 tonnes of nuclear fuel and is not located within the boundaries of a presently licensed nuclear facility.

Ref.: Howard Aff. [Leave Application, Tab C(3), p. 46]
CEAA, s.59(d) [Leave Application, Appendix]

Pursuant to the CEAA comprehensive study requirements, Hydro was required to assess the storage project and alternative designs for their environmental effects, the risks of accidents associated with it, and their cumulative effects in combination with all existing and foreseeable projects and activities. In scoping the assessment, the AECB advised

Hydro that, among other things,

> "The cumulative effects assessment ... should focus on the issue of increase [sic] risk of exposure to radiation. ... Any uncertainty whether it arises from information gaps, selected methods, etc, should be explicitly stated".
>
> Ref. : AECB March 1997 letter [Leave Application, Tab C(4), p. 47-49]

8. During all public information meetings on the project, held from 1996 to 1997, Hydro proposed a new, Bruce-specific container design and a facility that would house approximately 1,260 storage containers. Hydro also proposed the "dry" transfer technology, whereby spent fuel would be loaded without the container being immersed into radiated water storage bays. Site-specific design was required because of the type of reactor fuel, fuel rods and fuel trays at Bruce, which differed from other Hydro nuclear stations.

> Ref.: December 1997 EA [Leave Application, Tab C(5), pp. 50-66, 80-85]
> July 1998 Addendum [Leave Application, Tab C(5), pp. 67-77]
> Bruce Safety Report [Leave Application, Tab C(5), pp.86-87, 88, 89-91]
> Pickering 1994 Safety Report [Leave Application, Tab C(5), pp. 92, 93, 94, 95-97]

9. In December 1997, Hydro provided its environmental assessment report. The only design that received quantitative assessment in the December assessment was the Bruce-specific or "reference" design, described in the public meetings. Hydro predicted that the reference design could double the radiation dose to the public measured at the BNPD boundary.

> Ref.: December 1997 EA [Leave Application, Tab C(5), pp. 50-66, 80-85]

10. The assessment also referred to other designs, which were asserted to have the same radiological effects as the reference design. The only evidence offered in support of this statement was a reference to a 1994 Hydro Safety Report relating to the Pickering nuclear power facility. However, a review of the Pickering facility reveals that it involves

(a) different fuel (28 radioactive elements, not 37),

(b) different containers (384 bundles per container, not 600),

(c) different facility sizes (a 71,040-bundle facility, not a 744,000-bundle facility).

(d) different bundle transfer technology ("wet" transfer involving containers loaded while immersed in the radiated water storage bays, not "dry" transfer); and

(e) different transportation risks (several hundred metres with no crossing, not 4 km with uneven terrain and at least one road crossing).

Ref.: Pickering 1994 Safety Report [Leave Application, Tab C(5), pp.92,93,94,95-97]
Bruce Safety Report [Leave Application, Tab C(5), pp. 86-87, 88, 89-91]

In July 1998, Hydro filed an addendum to its environmental assessment. In this document, Hydro advised for the first time that it had a tentative preference for a different container design and a different method for loading the spent fuel into the containers. The July addendum did not purport to assess the implications of these design changes. It simply repeated the December 1997 assertion that the effects of the new design would be within the same range of effects as the reference design, now citing Hydro's 1998 Safety Report for the Pickering facility (which repeats the predictions of the 1994 Safety Report). The addendum also stated that the final decision on project design would be announced in September 1998.

Ref.: July 1998 Addendum [Leave Application, Tab C(5), pp. 67-77]

12. In September 1998, the AECB and the Minister of Environment notified the public that the project assessment was available for public comment. There was no suggestion that any aspect of the project had changed.

Ref.: CEAA public notices [Leave Application, Tab C(6), pp.98-99]

13. On October 9, 1998, during the public comment period, Hydro wrote to the AECB advising that it now intended to pursue the revised design option, and made a commitment to release a public newsletter on this change. The letter to the AECB was not placed on the public registry required by CEAA for the project. Hydro did not subsequently release a newsletter or any other document announcing the design change to the public.

Ref.: Trial Division judgment, para.31 [Leave Application, Tab D(2), pp. 249]
October 9, 1998 letter [Leave Application, Tab C(6), pp. 100-101]
Johansen c-x [Leave Application, Tab C(6), pp.102-108]

In November 1998, pursuant to s.22 of CEAA, the IDRA made a submission to the Minister of the Environment focussing on the radiation emissions of the project and

cumulative effects. The IDRA retained Dr. Goldberg, a toxicologist who had chaired an Ontario advisory body on standard setting which had found major discrepancies between radiation risk assessments and risk assessments for other environmental toxins. Dr. Goldberg addressed toxicology issues associated with radiation. In addition, three fisheries biologists, Drs. McKinley, Power and Rosenfeld, addressed cumulative environmental effects on fisheries. The IDRA was unaware of any design change and, received no notice of such a change during the period of public comment.

Ref.: IDRA Submission to Minister [Leave Application, Tab C(7), pp.109-119, 120-122, 123-126]
Chevrotiere Aff. [Leave Application, Tab C(1), pp. 8-15]

15. The IDRA submission to the Minister provided detail to support its earlier submissions relating to increased rates of cancer in the Bruce area, as shown in reports of the Ontario Cancer Registry and the AECB. The AECB reports were prepared in response to studies released in the early 1980s, showing statistically significant evidence of increased childhood leukemia within 5-10 km of several nuclear facilities in Europe and the United States. The AECB reports examined five nuclear facilities in Ontario, including Bruce and Pickering. The reports used a zone of 25 km around all five facilities. In spite of the greater distance used (which, all things being equal, would understate radiation effects), the AECB reports showed childhood leukemia deaths around the Bruce and Pickering nuclear reactors at a level that was 40 percent higher than expected. Statistically, these levels were less than 5 percent likely due to chance. However, using a standard of statistical significance which demanded that there be less than 2.5 percent likelihood of chance, the AECB study concluded that there were no statistically significant findings. The IDRA identified these increased leukemia deaths, other increased cancer rates, and lack of study of other issues as evidence of uncertainty about the environmental and health effects of this project in combination with existing emissions from the Bruce nuclear development.

Ref.: IDRA Submission to Minister [Leave Application, Tab C(7), pp.109-119, 120-122, 123-126]
AECB leukemia study: summary article [Leave Application, Tab C(8), pp.127-134]

16. In December 1998, the AECB and the Canadian Environmental Assessment Agency wrote to other federal departments advising them that there were three "major design

changes" in the project, that an "addendum" to the environmental assessment would be required to address these changes, and that a new period of public comment would be provided to address the addendum. In fact, no addendum was ever required or provided, and no new period of public comment was offered. Instead, the Minister of Environment approved the project with the new design in April 1999.

Ref.: December 1998 letters [Leave Application, Tab C(9), pp.135-145]
Minister's decision [Leave Application, Tab C(9), pp. 146-150]

The Judicial Review Application

In May 1999, the IDRA commenced this judicial review application. Through Rule 317 disclosure provided in June and July 1999, the IDRA learned of the design change documents. In August 1999, IDRA filed affidavits from its President, Normand de la Chevrotiere and Drs. Goldberg and Power. Dr. Goldberg's affidavit and supplementary affidavit explicitly raised the issue of cancer rates and the AECB-commissioned studies, stating that he was not in agreement with the AECB's 25 km zone and "97% or 98% level of confidence", since each of these approaches would understate the existence of a correlation between cancer rates and nuclear facilities.

Ref.: Design change documents provided to AECB [Leave Application, Tab C(10), pp.151-158]
Goldberg affidavit and supp. affidavit [Leave Application, Tab C(10), pp.159-162]
October 9, 1998 letter *ibid.*

18. In August 1999, the IDRA filed an affidavit of Dr. Gordon Edwards, a mathematics professor, with 30 years of experience with nuclear issues, including assistance to a 1970s Ontario Royal Commission into nuclear power. Dr. Edwards carefully traced the references in the various OPG/ Hydro assessments and safety reports to show that OPG/ Hydro had never studied the effects of the design changes and that there were major risks of accidents associated with the new design that were not present with the earlier design.

Ref.: Edwards affidavit [Leave Application, Tab C(11), pp. 163-166]

In response to the IDRA affidavits, OPG filed the affidavit of Mr. Kurt Johansen, the environmental assessment project manager for OPG. Attached to Mr. Johansen's

affidavit was the summary of a report on the design changes prepared for OPG by GE Canada in early 1998. Following disclosure to IDRA of the entire GE Report and supporting studies, it became evident for the first time that subconsultants to GE, whose views were expressly incorporated into various GE Reports, believed the design change required "major changes" to the environmental assessment and the safety report for the project.

Ref.: Trial Division judgment, paras. 4, 27, 58 [Leave Application, Tab D(2), pp. 234, 247, 264]
GE Reports on major amendments to EA and Safety Reports [Leave Application, Tab C(12), pp.67-71]

20. Also in response to the IDRA, on October 13, 1999, the respondent Ministers and the AECB filed the affidavit of Ms. Suzana Fraser, an epidemiologist with the AECB, who deposed that the AECB reports did not demonstrate statistically significant increases in childhood leukemia deaths near Ontario nuclear power facilities. She also deposed that Ontario Cancer Registry data showing statistically significant rates of adult cancer in the Bruce area did not demonstrate that the increases were due to the operation of the Bruce nuclear facilities.

Ref.: Fraser affidavit [Leave Application, Tab C(13), pp.172-177]

The case management schedule required that IDRA file reply affidavits by October 27, 1999. On that date, Drs. Edwards and Goldberg advised legal counsel for IDRA that they did not believe they had the epidemiological expertise to reply to Ms. Fraser's affidavit.

Ref.: Abouchar affidavit [Leave Application, Tab C(14), pp.178-180]

22. IDRA counsel then commenced efforts to identify and retain an epidemiologist to reply to Ms. Fraser. These efforts continued throughout the month of November 1999.

Ref.: *ibid.*, Abouchar affidavit

23. On November 30, 1999, the IDRA submitted its legal argument without the benefit of epidemiological evidence to reply to Ms. Fraser. The argument focussed on the design changes and contended that the failure of Hydro and its consultants to carry out major

changes to its environmental assessment and safety report meant that there was no technical or scientific evidence in the record before the Minister relating to the radiation effects of the project as finally designed. IDRA argued that the effects of the project were therefore "uncertain" within the meaning of s.23 of CEAA, and that the Minister was therefore required to submit the matter to an independent and expert mediator or review panel for a hearing.

24. Concurrent with the filing of the IDRA legal memorandum on November 30, 1999, IDRA counsel formally advised the respondents of the on-going search for an epidemiologist to respond to Ms. Fraser. On or about December 2, 1999, counsel retained Dr. David Hoel, Distinguished University Professor of the Medical University of South Carolina, who has decades of research experience on radiation issues and is a member of the some of the most prestigious international radiation research bodies. On December 8, 1999, a draft affidavit from Dr. Hoel was provided to the respondents. On December 12 and 13, 1999, a sworn affidavit and exhibits from Dr. Hoel were provided to the respondents.

Ref.: November 30, 1999 letter [Leave Application, Tab C(15), p. 181]
December 8, 1999 letter [Leave Application, Tab C(15)p. 182]
December 21, 1999 letter [Leave Application, Tab C(15), p.183]

25. In this affidavit, Dr. Hoel reviewed the Fraser affidavit and the AECB studies referenced in the Fraser affidavit. He advised that the international standard for statistical significance is a 90 percent probability that a correlation is not due to chance, and cited two leading international studies using this standard. Dr. Hoel also advised that, had the AECB followed international standards, the increased rates of adult cancer and childhood leukemia mortality around nuclear facilities would be statistically significant. He rejected Ms. Fraser's conclusion that the increased rates were "most likely" due to chance. To the contrary, he deposed, the AECB reports indicate that there was less than a 5% probability that the results were due to chance. Dr. Hoel also advised that the issue of cancer incidence around nuclear facilities was not settled internationally, but rather required and was the subject of further research. He concluded that the AECB should be following up its studies with an extensive research program.

Ref.: Hoel affidavit and CV[Leave Application, Tab C(16), pp. 184-194; 195-217]

26. By the case management schedule, the respondents were required to file their legal arguments by November 30, 1999 for a hearing on January 10, 2000. To accommodate this schedule, IDRA counsel advised that Dr. Hoel was available for cross-examination in Toronto on January 4, 5 and 7, 2000.

Ref.: December 21, 1999 letter [Leave Application, Tab C(17), p. 218]
December 31, 1999 letter [Leave Application, Tab C(17), p. 219-220]

27. Respondents replied by asking the Court to strike the Hoel affidavit on January 5, 2000. By order dated January 6, 2000, Pelletier J. refused to admit the affidavit of Dr. Hoel on two bases: (1) it was not filed in a timely way, and (2) it raised "academy of science" issues that were irrelevant to the application. He also awarded costs to the respondents at the highest tariff.

Ref.: Pelletier J. judgment (January 6, 2000) [Leave Application, Tab D(1), pp. 224-229]

28. Pelletier J. heard the main application on January 10 and 11, 2000. At the end of the hearing, in response to submissions of counsel, the court agreed to deal with the issue of costs following the disposition of the application.

29. The IDRA appealed the order of Mr. Justice Pelletier concerning the exclusion of the Hoel affidavit on January 14, 2000.

30. By order dated May 24, 2000, Mr. Justice Pelletier dismissed the IDRA application. According to Mr. Justice Pelletier,

(1) the "academy of science" approach precluded the court from identifying and correcting poor science;

(2) the design change and the effects associated with it were beyond the scope of judicial review as the quantitative assessment of the reference design rather than the final design was simply a "choice of methodology";

(3) as long as there was some "consideration" of the statutory factors set out in s.16 of the CEAA, it was not for the court to say that some other methodology would result in a more thorough consideration or that quantitative assessment is

required;

(4) the failure to put certain design change documents on the public registry during the period of public comment was simply a technical breach of the s.55 obligation to provide "convenient public access" to all assessment records; and

(5) on the issue of uncertainty in s.23, the Minister had made no finding of uncertainty and it was not the function of the court on judicial review to substitute its opinion for that of the Minister's.

Ref.: Leave Application, Tab [Leave Application, Tab A, pp.1-3]

31. Mr. Justice Pelletier also awarded costs to the Respondents without hearing submissions on the issue.

D. The Appeals

In June 2000, the IDRA appealed the order of Mr. Justice Pelletier and sought to consolidate its appeal of the exclusion of the Hoel affidavit with its appeal of the judicial review application. The respondent, OPG, then sought to quash the appeal of the Hoel affidavit. By orders dated October 24, 2000, the Federal Court of Appeal quashed the Hoel appeal with costs and denied the IDRA motion to consolidate. Neither order was supported by reasons. The Court of Appeal also granted the OPG motion for security for costs, requiring the IDRA to post a $10,000 certified cheque with the court.

Ref.: October 24, 2000 Court of Appeal orders [Leave Application, Tab D (3,4,6)]

IDRA did not immediately seek leave to appeal the exclusion of the Hoel affidavit to the Supreme Court of Canada because the affidavit is so tied to the overall merits of the judicial review application that it seemed impractical and imprudent to attempt to appeal the affidavit issue in isolation.

Ref.: Chevrotiere leave affidavit [Leave Application, Tab B, pp.4-5]

In September 2000, the respondents brought a motion to assess costs on the judicial review application and motions relating to the Hoel affidavit. In an assessment released

April 30, 2001, the assessor ordered the IDRA to pay $33,148.10 to OPG and $21,990.67 to the federal respondents.

Ref.: Trial Division costs assessment orders [Leave Application, Tab D(5), pp. 284, 284a]

35. Following a hearing in May 2001, the Federal Court of Appeal dismissed the appeal with costs on June 20, 2001. According to the Federal Court of Appeal:

> (1) the Court should avoid being an "academy of science" for reasons of efficiency and compliance with the scheme of the CEAA;
>
> (2) the cabinet designation under CEAA that a class of projects be on the comprehensive study list because they are likely to cause significant adverse environmental effects does not create a presumption that a specific project in the class is likely to cause significant effects unless proven otherwise;
>
> (3) there is no one single method for conducting an environmental assessment and that the lack of quantitative assessment of the ultimate design was not critical as there were "explicit statements" indicating that the same conclusions applied to both designs.
>
> (4) the radiation doses of the facility, however designed, were "minuscule"; and
>
> (5) there was no requirement upon Hydro to ensure that radiation levels will be "as low as reasonably achievable" (ALARA).

Ref.: [Leave Application, Tab D(6), pp. 285-317]

II. ISSUE FOR LEAVE

36. It is submitted that this case involves issues of public importance for the following reasons:

(1) it involves the health of persons, especially children, living near nuclear plants;

(2) it raises access to justice issues, namely, should a reviewing court give citizens groups a realistic opportunity to present expert evidence in reply to scientific evidence tendered by government authorities to support a decision that a particular project will not adversely affect the health of those citizens

(3) it raises a question central to judicial review of any environmental assessment, under federal or provincial legislation, namely does the "academy of science" principle operate

to preclude scientific evidence tending to show that scientific evidence relied on by government is uncertain or controversial;

(4) it raises the question, also central to any environmental assessment, whether proponents may predict insignificant adverse environmental effects from a project without providing any technical or scientific evidence to support that prediction;

(5) it raises the question, central to any public process like environmental assessment, whether governments and proponents may limit the scope of public comment by failing to provide access to relevant documents, particularly where there was a legislative obligation to provide convenient public access to such documents;

(6) it raises an additional access to justice issue, namely should public interest applicants have costs awarded against them in the same circumstances and on the same scale as private litigants.

III. ARGUMENT

A. Hoel Affidavit

37. The courts below relied on the "academy of science" principle in refusing to admit the Hoel affidavit, and in rejecting IDRA submissions relating to the design change. The principle was originally formulated by Strayer J. (as he then was) as follows:

> "It is not the role of the Court in these proceedings to become an academy of science to arbitrate conflicting scientific predictions..."
>
> Ref.: Court of Appeal judgment, quoting from Mr. Justice Strayer in *Vancouver Island Peace Society v. Canada* [1992] 3 F.C. 42 at 51 [Leave Application, Tab D(6), p. 303]

38. Section 23 of CEAA provides that, upon receipt of a comprehensive study report, the Minister of Environment "shall take one" of several courses of action specified in the section. Where "the project is not likely to cause significant adverse environmental effects", the Minister shall refer the project back to the responsible authority so that it may proceed [s.23(a)(i)]. Where "it is uncertain whether the project...is likely to cause significant adverse environmental effects..., the Minister shall refer the project to a mediator or a review panel..."[s.23(b)(i)].

Ref.: CEAA, s.23 [Leave Application, Appendix]

39. Similar language is set out in s.20 of CEAA, thus making the judicial interpretation of this provision relevant to all of the approximately 6,000 assessments conducted annually under the CEAA.

Ref.: CEAA, s.20 [Leave Application, Appendix]
Five Year Review of the CEAA [Leave Application, Tab B(1), pp. 6-7]

40. It is submitted that the courts below erred in excluding the Hoel affidavit on the basis of the "academy of science" principle because the applicant did not ask the court to "arbitrate conflicting scientific predictions" from Dr. Hoel and Ms. Fraser. The courts were not asked to find on a balance of probabilities that Dr. Hoel's evidence was preferable to Ms. Fraser's evidence. The affidavit was tendered, rather, to demonstrate that the AECB's childhood leukemia reports, which were referenced in the material before the Minister, made it "uncertain" whether the proposed facility would adversely affect human health. The courts were not asked to decide any scientific question; rather, it is submitted, they were asked to decide a legal issue, namely, did the Minister properly conclude that the project would not likely have adverse effects, or was it in fact "uncertain" whether it had such effects.

Ref.: AECB letter to Hydro [Leave Application, Tab C(4), pp.47-49]

41. Thus, far from asking the courts to determine the truth or falsity of scientific evidence, IDRA was asking the courts to determine only whether there was "uncertainty" within the meaning of CEAA. If there was uncertainty, CEAA requires that the project and its assessment be put in the hands of independent and expert scientists for their detailed review. It is submitted that the courts in this case erred in failing to consider the legal obligation in CEAA to identify uncertainty, and have erroneously avoided the CEAA requirement for independent and expert review of the serious scientific issues concerning human health which arise from this project and its location.

42. It is further submitted that the exclusion of the Hoel affidavit skewed the judicial review

process in its entirety because this exclusion prevented the IDRA from advancing the argument that the childhood leukemia study and other cancer studies made it "uncertain" whether the project would adversely affect human health. The exclusion prevented IDRA from properly responding to the submission ultimately adopted by the Court of Appeal that the increased emission levels were "minuscule".

43. As indicated, Dr. Hoel deposes that the increased cancer and childhood leukemia rates around nuclear facilities are statistically significant and that further study of these results is required. It is submitted that the Hoel affidavit is cogent evidence that there is scientific uncertainty about the effects of nuclear facilities on human health, and that Trial Division erred in refusing to admit the affidavit on the basis that the courts are not an "academy of science".

44. The IDRA also submits that the decision to exclude the Hoel affidavit on the basis of the case management schedule is unjust and inappropriate, because citizens' groups do not have access to in-house science and expertise like governments and proponents invariably do. As demonstrated by the circumstances of this case, retaining a properly qualified expert to review and comment on scientific evidence relied on by government takes considerable time, and may be impossible within the confines of a rigid case management schedule. Case management is designed to expedite judicial proceedings, it is submitted, but should be flexible enough to give public interest litigants a realistic opportunity to reply to expert evidence tendered by government.

B. The Design Change

45. The academy of science principle was also relied on by both the Trial and Appeal Divisions to dismiss IDRA's contention that the environmental assessment provided no evidence to support the assertion that the final design would have the same effects as the reference design.

Ref.: Trial Division, paras.46-7, 53-6, 67-71 [Leave Application, Tab D(2), pp. 258-259, 261-263, 270-272]

Appeal Division, paras.46-8, 54-60 [Leave Application, Tab D(6), pp. 307-308, 310-314]

46. The IDRA submits that its design change submissions should not be subject to this principle for two fundamental reasons:

(1) its submissions rely upon Hydro's own documents and consultant reports, not on any "conflicting scientific predictions"; and

(2) the IDRA submissions do not ask the court to determine the truth or falsity of any of Hydro's predictions; to the contrary, they ask the court to find that the lack of evidence supporting Hydro's predictions before the Minister meant that their truth or falsity was uncertain.

47. The original or "reference" design, which was assessed in the December 1997 environmental assessment, was described as including:

. *dry loading* from the fuel bays directly into the dry storage containers;
. *600-bundle* dry storage containers; and
. common services (welding, leak-testing, etc.) located at the generating stations.

Ref. : December 1997 environmental assessment [Leave Application, Tab C(5), p.51]

48. The design finally selected involved:

(1) *wet transfer*, meaning that the containers would be immersed in radiated water, resulting in contamination of the containers;
(2) 384-bundle Pickering dry storage containers;
(3) Centralization of common services at the dry storage site (such as welding, leak-testing, inspection, etc.).

Ref. : July/98 EA Addendum [Leave Application, Tab C(5), p. 71]

49. The July/98 EA Addendum does not purport to assess the environmental effects of a wet transfer system, with substantially more smaller containers, on-site processing, etc, as opposed to the dry transfer 600-bundle design originally preferred. It asserts that the study was already done in the December 1997 environmental assessment.

Ref. : July/98 Addendum [Leave Application, Tab C(5), pp.71-72]
July/98 Addendum [Leave Application, Tab C(5), p.74] (Supplementary Report on BNPD Cumulative Environmental Effects Assessment Overview ("Cumulative Effects Overview")

50. The December 1997 environmental assessment does not assess the effects of any design other than the reference design. It simply asserts that the options to the reference design are anticipated to have similar effects to the reference design.

Ref.: December 1997 environmental assessment [Leave Application, Tab C(5), pp.55, 56]

51. Both the December 1997 environmental assessment and the July 1998 addendum support the contentions that the effects of other designs would be similar to the reference design by referring to the Pickering Safety Reports. Based on Hydro's own documents and consultant reports, it is submitted that the documentation relating to the Pickering dry storage facility is not relevant in predicting the effects of the Bruce facility for at least three reasons:

(1) Hydro documents predict that spent fuel bundles from Bruce reactors emit more radiation than bundles from Pickering reactors.

Bruce bundle: Figure 3 in Appendix C to the Dec/97 EA provides the dose rate for 24 unshielded 10 year old bundles from the Bruce reactors. On contact, the 24 bundles emit between 40 and 50 sieverts per hour on top (for an average of 45 sieverts) and 30 sieverts on the side. [Leave Application, Tab C(5), pp.78,79]

Pickering bundle: Table 3-6 in the 1994 Pickering Safety Report (p. 3-12) indicates that a module containing 96 unshielded bundles of 10-year Pickering fuel emits 85 sieverts per hour. [Leave Application, Tab C(5), p. 95]

(2) Hydro documents predict that a Pickering container, with a smaller number of less toxic bundles, emits more radiation than a Bruce container, with a larger number of more toxic bundles.

Bruce container: the December 1997 EA states that the Bruce container loaded with 600 bundles of 10 year old fuel is predicted to emit 55 microsieverts per hour on contact [Leave Application, Tab C(5)]. The 1997 Safety Report makes the same statement [Leave Application, Tab C(5), pp. 53, 89-91]

Pickering container: the 1994 Pickering Safety Report states that a Pickering container loaded with 384 bundles of 10-year fuel emits 80 microsieverts per hour on contact for the front and side of the container, while the top is less (Table 4-3) [Leave Application, Tab C(5), p. 97]

(3) Hydro documents also predict that the Bruce dry storage facility will be much larger than the Pickering facility.

(1) *Bruce*: Section 1.3 of the December 1997 EA [Leave Application, Tab C(5), p. 50] indicates that the Bruce facility is designed to store 744,000 fuel bundles. Dividing that number by 384, the

number of bundles in a Pickering container, the Bruce facility will store 1,937 Pickering dry storage containers.

(2) *Pickering*: The 1998 Pickering Safety Report indicates that the Pickering facility is designed to house 185 dry storage containers [Leave Application, Tab C(5), p.93]

52. It is submitted that none of this evidence is within the "academy of science" principle since it comes from the respondents and is relied upon by the applicant.

It is further submitted that, since the Pickering studies are the only evidence offered to support the contention that the final Bruce design will have similar effects to the original reference design, there was in fact no evidence in the record before the Minister to support Hydro's contention that the effects of the final design have been assessed pursuant to CEAA requirements. This lack of evidence means, it is submitted, that the environmental effects of this project are necessarily "uncertain" for purposes of s.23 of CEAA.

Costs Issue

54. Unlike the Trial Division, which provided no reasons for its cost award, the Court of Appeal provided three reasons in support of its award against the IDRA:.

(1) the IDRA made very little reference to its extensive affidavit and other filed evidence;
(2) the IDRA argument rehashes arguments made to the Minister, and were neither truly novel in law or in fact
(3) acting in the public interest is not a basis for not awarding costs against the IDRA, as all of the local governments were supporting Hydro.

55. In reply to (1), IDRA makes two submissions. First, much of the evidence tendered by IDRA, especially the affidavits of Drs. Goldberg and Edwards, related to the effects that radiation may have on human health. Dr. Goldberg commented on the AECB childhood leukemia study, another AECB study related to increased Down's syndrome levels near the Pickering facility, increased tritium levels in apples and groundwater near the Bruce facility, etc. In reply, the respondents filed the affidavit of the epidemiologist, Ms.

Fraser, who opined that none of these studies found statistically significant effects that could be traced to nuclear facilities. Drs. Goldberg and Edwards were not epidemiologists and could not comment on Ms. Fraser's evidence. When the Hoel affidavit was excluded, the human health issue that was to be a central part of IDRA's case lack a proper evidentiary foundation. IDRA did not extensively refer to the human health evidence in the record because the exclusion of the Hoel affidavit effectively rendered that point unarguable.

56. Second, much of the IDRA evidence, especially the affidavit of Dr. Edwards, related to the design change and the need to assess the environmental implications of the facility as finally designed. After filing its initial affidavits, IDRA obtained a copy of the GE reports through the Hydro affidavits and disclosure. These reports unequivocally stated that both major and minor revisions were required to the December 1997 environmental assessment. IDRA did not refer extensively to the evidence it had tendered on the design change, and the environmental implications of these changes, because Hydro's own documents made IDRA's point in the clearest possible terms.

In response to (2), above, it is submitted that the fact that IDRA made submissions to the Minister similar to the submissions it addressed in court should not count against IDRA on the costs issue or otherwise. IDRA made submissions to the Minister as part of the public comment process mandated by CEAA, because the Minister was the relevant decision-maker and because the Minister could refer the matter to an independent review panel. Moreover, had IDRA not raised its issues with the Minister, it may have been unable to later raise them in court because the submissions and the evidence relating to them were not before the Minister when she made her decision.

In reply to (3), the IDRA submits that the record shows numerous parties objecting to the Hydro project and seeking further review, including Ovid Jackson (M.P., Bruce-Grey), the Assembly of First Nations, Bruce-Grey Owen Sound Health Unit, Canadian Federation of Agriculture, Chippewas of Nawash First Nation, Citizens for Renewable

Energy, Ecological Farmers Association of Ontario, Great Lakes United, Bruce Peninsula Environment Group, and Port Elgin and Saugeen Township Beachers' Organization. Of the 193 stakeholders submitting comments, 22 supported the project, while 171 expressed concerns and raised questions about the project.

Ref.: memorandum to Minister [Leave Application, Tab C(18)]

IDRA submits that the approach taken by the Courts below undervalues the importance of "public interest" and misunderstands its foundation. It is submitted that the question of the public interest is not a judgment about the number of supporters or opponents, but a judgment about the nature of the interest raised and the record of concern of those expressing the interest. IDRA submits that the test for costs in public interest litigation should resemble the test for public interest standing.

60. It is further submitted that awarding costs against public interest litigants to the same extent as private parties raises a significant access to justice issue, in that large costs awards effectively prevent citizens from seeking a judicial remedy when they have reason to believe that government action is improper or illegal. It is submitted that costs disincentives are particularly inappropriate where citizens challenge the legality of conduct by government officials charged with the responsibility to protect public health.

Conclusion

61. In short, IDRA submits that leave should be granted in this case because it raises significant potential public health issues, significant access to justice issues, the increasingly important academy of science issue, and also the important question whether environmental assessment legislation requires proponents to provide relevant and recognized scientific data to support the predictions they make about the environmental effects of a particular project.

IV. ORDER REQUESTED

62. The IDRA respectfully requests that the Court:

(1) extend the time for appealing the order dismissing the Hoel affidavit;
(2) permit the respondents the opportunity to cross-examine Dr. Hoel; and
(3) grant the IDRA leave to appeal the main appeal and the appeal of the Hoel affidavit.

All of which is respectfully submitted this 18th day of September, 2001.

Earl Cherniak, Q.C.

Rodney Northey
Birchall Northey

for: Kirk Stevens
Lerner & Associates LLP.