

Appendix - Detailed Comments on the Panel's Report

This document is an appendix to a paper "Malice in Blunderland?" by J.A.L. Robertson published in two parts in the Canadian Nuclear Society Bulletin, Vol. 19, Nos. 2 and 3. That paper exposed flaws in the report of an Environmental Assessment Panel that reviewed AECL's concept for the disposal of nuclear-fuel wastes; and in the process leading up to it.

Comments made in the main text of the paper are not repeated in the appendix. There are no comments on the Executive Summary since these would duplicate what appears later. Repetition of comments in the appendix is due to repetition of faults in the report.

Page/Column

- 7/1 The Panel's World Wide Web site is very poor, with the selection of listed items incomprehensible.
- 7/2 The process included round table discussions on specific topics, e.g., ethics. However, this meant that only those living within easy access of the location for that hearing could participate in discussing that topic. Presumably an invitation was also required: although I made substantial submissions on ethics, and had urged that the topic should be discussed, I was not invited to participate in the round table on that topic. There is no evidence in the report of the round tables having proved useful.
- 9/2 The wording of 2.1.3 implies that high-level wastes from reprocessing would be in liquid form. In fact, they would be in solid glass blocks by the time they became wastes from the reprocessing plant.
- 13/1 While it is true that there is enough *space* to accommodate the wastes on-site, as stated at 135/1, this does not mean that there is "enough storage capacity", i.e., more wet or dry storage capacity would have to be built.
- 14/1 The statement that "the AECB does not have jurisdiction over the social, economic and lifestyle issues associated with nuclear development" is at odds with the the AECB's endorsement of the ALARA principle which includes the rider "social and economic factors being taken into account".
- 15/2 The word "minimize" is misused when describing an optimization that balances risk and cost.
- 16/1 The Panel, in recommending common risk criteria for radiation and chemicals, ignores the argument against this course, both in the document it quotes and in submissions. Briefly, there should not be a single acceptable risk for all activities: rather the acceptable risk for an activity should be commensurate with its benefits.
- 16/2 There is no evidence that a lack of a "social consensus" is the only reason for there being no disposal facilities for nuclear fuel wastes. The statement that "acceptance of disposal seems unlikely to come quickly or easily" is little more than a guess based on the Panel's own unique definition of "acceptance".
- 17/2 There is an implicit unjustified assumption in the wording that the submissions reflect societal

- values. The report fails to note the inconsistency in submissions that promoted recycling for everything except nuclear fuel.
- 18/1 The Panel notes deep societal divisions over "world views" *between participants at the hearings*, but errs in extrapolating this to society at large. Canadians are not revolutionaries and most fall into the broad middle ground in this respect. It is this majority, ignored by the Panel, that is likely to find the concept acceptable.
- 18/1 In addressing the "dread factor" the report fails to consider how this could be reduced by a clear and authoritative statement that the concept has been found adequately safe, and that radiation protection standards are well founded. Other technologies, now widely accepted, experienced this factor. Early cars had to be preceded by a flagman; people believed that train travel at speeds over ten miles per hour would make them ill; and electric light switches bore the sign "The use of Electricity is in no way harmful to health, not does it affect the soundness of sleep". The report refers to worst-case scenarios without pointing out that some, contributing to participants' dread factor, are not just extremely unlikely, they are inconceivable. Does the Panel really believe that a single accident could lead to the extinction of life on earth, assumed in one submission? If not, it is irresponsible in failing to dismiss such scare-mongering.
- 18/2 The report notes objections to the concept advanced by some participants without providing any of the rebuttals that were submitted. For instance, some participants believed that a better solution would be found in the future. Regardless of how likely this is, it would always be possible to postulate something better just over the horizon so that there would never be a decision. Also, the Panel was not required to find the best solution but whether the proposed concept is acceptable.
- 20/1 The statement that "This wide public discussion did not take place" is true but misleading. The *opportunity* for such discussion occurred at Ontario's Royal Commission on Electric Power Planning, at the Interfaith Program for Public Awareness on Nuclear Issues and at this Panel's hearings. The *absence* of discussion refutes the Panel's assumption of widespread public concern. With very few exceptions, only dedicated proponents and opponents have attended these discussions.
- 23/1 Different cost estimates are quoted here and on page 17.
- 30/1 "Implications" in the heading of 3.5 is misleading in that the section contains participants' concerns and some Panel opinions.
- 30/2 The argument that most participants did not discuss "other subject areas" because these were not well covered in the EIS is false: many participants discussed topics that were *excluded* by the Panel's terms of reference. The Canadian Shield is said to be "relatively sensitive". Relative to what? Sensitive to what? Certainly the trees and lakes are sensitive to acid rain from coal-fired plants.
- 31/1 Any "high levels of stress" or strain in "social cohesion", like the "dread factor", cannot be separated from the nature of the Panel's report. The Panel had the opportunity to assuage some of these concerns by clearly separating technical and perceived safety, but failed to do so, and so must share the responsibility for them. The Bruce and Chalk River areas are examples of communities that might have been expected to suffer from such stress and strain, but do not exhibit these symptoms.

- 31/2 The bottom paragraph poses rhetorical questions without advising the reader that they had already been answered on pages 17 and 28. If the Panel did not accept these answers it should have resolved the differences, and not have left uncertainty in the readers' minds.
- 32/1 The Social Implications noted here are not unique to this concept but would be common to all industrial projects. It is a fact of life that in any community some people want development and change while others oppose them. If such development is prohibited many residents of northern Canada will have the options of mining, lumbering (both demonstrably more dangerous than the nuclear industry), welfare or emigration to the south.
- 32/2 Again the report quotes participants' fears without noting that they have been answered. In this instance concerning transportation the Panel has expressed its view on the previous page that any risk from radiation would be much less than the conventional transportation risks, and these would not be unusually high.
- 33/1 It is not true to claim that neither safety nor acceptability can be measured. The insurance industry is based on actuarial tables that measure safety. Every election measures acceptability. What are needed are clear definitions and rigorous means of measurement.
- 34/1 It is not sufficient for the Panel to have used just personal and participants' views in judging acceptability. This ignores 30 million Canadians. It is similarly ridiculous to claim that "the public is demanding more openness, public scrutiny and debate, and shared decision-making". A vociferous minority is demanding these on each issue affecting their special interest but there is no evidence that the public at large is "demanding" them. Quite the reverse. Very few true members of the public attend inquiry hearings, or AEC Board meetings. Most people are too busy living their lives to be social activists. With or without public acceptance, "vigorous opposition" can be expected from those dedicated to opposing nuclear energy at every opportunity. The wording here perpetuates the myth, propagated by critics, that the Canadian nuclear industry has not been open with information. The Panel was repeatedly urged to challenge those claiming a lack of openness to state what they had requested that had been denied, and any reason given.
- 35/1 One of the Panel's criteria for acceptance is that the proponent and regulator should be "trustworthy". This is reasonable as worded here but subsequently "trustworthy" is equated to "trusted". As a consequence, the Panel rejects some organizations from the implementation stage because they were not trusted by some participations, even though no evidence was advanced to show them untrustworthy. This matter of trust is closely linked to the belief in myths, such as lack of openness, which the Panel did nothing to dispel.
- 36/1 "input from social and applied scientists" represents a possible means to an end, not an end in itself.
- 36/1 "Thus, Aboriginal people should design it (the concept)" is totally illogical. Because one group *may* be affected by something does not mean that they should control it. By this argument, the nuclear industry should design the concept, since it will be affected by it.
- 37/1 The desire to be "independent of conflicts of interest" is a worthy principle in isolation. However,

there should also be recognition of another worthy principle, that those producing wastes should be responsible for their safe and responsible disposal, that is part of the federal government's policy. The report itself states at 2.1.8.3:

"According to the 'polluter pays' principle, producers and owners are to fund, organize, manage and operate waste disposal and other management facilities."

- 37/2 The three safety criteria b), c) and d) could be combined in one: "be based on a sound and thorough analysis endorsed in peer review".
- 38/1 The Panel is naive in believing that any amount of participation would result in agreement on worst-case scenarios. Many submissions to the hearings demonstrated how unrealistic are some people's beliefs of what may be worst-cases. The Panel encouraged participation but did nothing to correct these misconceptions.
- 38/2 The requirement for "the best available technologies" will probably be interpreted as "the best, regardless of cost and other factors". This would be inconsistent with the ALARA principle and the whole thrust of the report that social factors must be taken into consideration. Demanding an expensive technology that makes one activity much safer than others constitutes a misuse of limited resources and hence is contrary to the wellbeing of society as a whole. "optimized to *reduce* risk" represents another distortion of the ALARA principle: optimization does not necessarily reduce the risk. The Panel's SRG stressed the need for cost effectiveness (39/1), as did the Auditor General of Canada in his 1995 report. Evidence of the proposed technologies having performed safely elsewhere is desirable but should not be essential: if this were enforced universally nothing new could ever be introduced.
- 44/1 Again the report quotes concerns that were expressed without any indication that responses were provided. To ask whether something is "safe or is not safe" is meaningless: the report has already pointed out that safety is not an absolute (33/1). The ability to weld the containers was not in question, but whether freedom from defects in the weld could be assured.
- 44/2 The CCEER is wrong in stating that professional experts tend to focus on probabilities: they define risk as the product of probability and consequence.
- 45/2 While confirmation of a model by comparison with a natural analogue is desirable, it should not be an essential criterion, as in the present wording.
- 49/2 The majority faction writing the report correctly notes that: "if decisions are not taken, Canada will run the risk of becoming dependent on outside technical skills to solve its own problem of managing nuclear fuel wastes". The minority faction apparently did not recognize the risk. Even the majority's solution implicitly assumes that other countries do not adopt the Panel's preference for indecision.
- 50/1 The Energy Probe quotation is misleading. \$13 billion is not required now but only when there are ten million bundles for disposal, i.e., about ten times the present inventory.
- 50/2 "Society must be confident that human institutions will have the knowledge and capacity to manage a risky situation" is one of the best reasons for favouring disposal that does not require institutional intervention. The section on technical safety has already concluded that any "scientific

uncertainties" are insufficient to cause rejection of the concept. Those assessing "Safety from a Social Perspective" are not competent to second-guess that finding. As argued in the main text, this whole section is not relevant to safety, but to acceptance.

- 51/1 The scientific community will always be divided on any issue, in that there will never be absolute unanimity. It is therefore necessary to assess the quality and quantity of the dissent. The Panel majority appear to have done this in finding the concept adequately robust. It is not acceptable for the Panel to state at this stage simply that "Some participants questioned" without providing an answer and evaluating the qualifications of those participants and the validity of their arguments. The report is according equal importance to detailed, documented and peer-reviewed analyses and unsubstantiated opinions, or even questions.
- 53/1 The report, like many submissions, fails to mention that R-104 includes the requirement that if predicted risks do not peak before 10,000 years, further "reasoned arguments" must be provided. It is technically correct but misleading in stating that R-104 does not reflect the latest ICRP recommendations: the fundamental criterion is risk, not dose, so that the dose limit at any time will depend on the conversion factor that the AECB endorses. The fact that radionuclides remain in the wastes after 100,000 years is irrelevant if by then the wastes are no more radioactive, no less corrosion resistant and no more accessible than natural ore bodies. The reference to the U.S. repository at Yucca Mountain is similarly irrelevant: that site is initially dry so that long-term predictions of an increased release would presumably be due to assumed entry of water, whereas the concept in the EIS assumes water present from the start.
- 54/1 The report cites "other disciplines" that it claims were not called upon in the preparation of the EIS. First, this is untrue as reference to the EIS can show. Second, the use of a "critical group" allows for much of what these disciplines could provide. Third, these disciplines will be more relevant to the siting stage than to concept assessment. Fourth, their input could affect only the biosphere model, and the technical assessment has shown that the overall model is sufficiently robust to allow for local uncertainties.
- 54/1 There is no justification for claiming that non-expert stakeholders were not involved in defining risk factors. That was one of the functions of the Panel's hearings.
- 54/2 If public safety issues have not been comprehensively identified in the Panel's existence of over eight years, that is the Panel's fault.
- 55/1 The fact that the CCEER was not satisfied by AECL's participation exercises should not carry much weight. Detailed rebuttals to the errors and misleading statements in their submissions were provided in other submissions but the CCEER provided no response.
- 55/1 The EIS did indeed consider the potential health risk for Aboriginals through use of the "critical group". The Panel should state in what respect it believes that this does not cover Aboriginals.
- 55/2 The Panel should be careful in rejecting a project because of its potential for "social turmoil and opposition". This would make all society's activities vulnerable to activist minorities willing to act illegally. There are several recent examples of Canadian governments doing what they consider to be in the interest of the population as a whole despite illegal and sometimes violent opposition.
- 55/2 It is simply untrue to claim: "Many of the operations that will be carried out routinely will be

unique to this type of facility". There is long experience in Canada of the transportation of used fuel, hard-rock mining and the manipulation of highly radioactive material. AECL's case studies provided sufficient confidence to the Panel's majority faction, and to several expert advisory groups. The minority faction's lack of confidence appears to be based on the false belief that there is no evidence that human health has been protected in projects of a similar nature and size. Workers affected by the proposed facility would be subject to the same, or more restrictive, radiation limits as for those at nuclear power stations; and large epidemiological studies have demonstrated that their workers have been protected. The public is even better protected.

- 55/2 The concept is designed so that institutional controls are not necessary but this does not prevent ongoing institutional controls if they are wanted. Similarly, long-term monitoring, which need not necessarily be intrusive, could also be incorporated. These are aspects of the "flexibility" that this section discusses. However, the report criticizes "no definition of the range within which site conditions could vary", i.e., the concept is criticized for being too flexible.
- 56/2 The minority faction's treatment of "Feasibility of implementation" ignores the technical implementation, which their more qualified colleagues believe to be feasible, and considers only the likelihood of finding an acceptable site. The EIS did propose siting exclusion criteria so presumably the criticism here is that these were insufficient. However, to include more than essential criteria at the concept stage would be contrary to the objective of participation that this faction embraces. As much as possible the setting of exclusion criteria should be left up to the potential host communities at the siting stage, to decide in the light of their own local priorities. The faction's argument assumes implicitly that potential sites should be ranked for priority but the report itself has stressed that community acceptance should be at least as important as the more technical factors in the choice of a site. Also, the Panel's terms of reference did not require it to identify a means for finding the best site, but to advise whether the concept is safe and acceptable. The fact that "there were contrary views from many participants" could have been predicted: the Panel should have determined the validity of these views.
- 57/2 Judging by the quality of submissions by "social scientists and ethicists" they have little of value to contribute to the discussion. These were severely criticized in other submissions and the Panel has failed to recognize the controversy, let alone resolve it.
- 58/1 As already pointed out, acceptance does not mean broad public support and the public cannot be made to know anything, or to participate. The Panel admits here to doubts as to how representative of the public participants were; and provides no information on the basis for its belief that "significant numbers of the public" are opposed to the concept. Even if this were true, significant numbers could still be a minute percentage.
- 59/1 "Safety from a social perspective" is an abuse of the language. If it means perceived safety it must be admitted that this is a factor against acceptance, but not cause for rejection. However, the same factor would count against the only practicable alternative, indefinite storage, that the Panel is recommending, de facto. Responsible governments cannot deny their people something with acknowledged benefits just because it is generally believed to be less safe than it actually is. Also the Panel has failed to examine how much of the perceived lack of safety is derived from false assumptions that were pointed out to the Panel but ignored by it in the report.
- 59/1 In discussing whether the concept was developed "within a sound ethical and social assessment

framework", just quoting what some participants disliked without giving any indication of the counterarguments in other submissions is unfair and suggests prejudice. Throughout the report, the Panel predominantly cites participants who were critical of the concept, and ignores rebuttals that were submitted. Here again, the Panel should have resolved these differences. To excuse this lack of resolution by stating (59/2): "This question requires further examination in the context of an ethical and social framework" at the end of a process lasting nine years is ridiculous. Supreme irony is to be found in the following sentence: "The panel's view is that, while greater attention should be paid to an enlarged choice for future generations, the present generation should not use this as a basis to justify postponing decisions indefinitely".

- 60/1 The question: "Does the AECL concept provide a net benefit to society at large?" is demanding of the concept something that few waste management processes could satisfy: the benefits are to be found in the product that results in the wastes. There are many good ethical arguments in favour of nuclear energy. The Panel was informed of them in the reprint of a published paper, and in submissions, but it failed to acknowledge any of this in 343 references. The proponent was prevented from defending, or responding to criticism of, the fuel cycle as a whole by having to respect the Panel's terms of reference. The concept is being penalized by the proponent obeying the Panel's instructions that were disregarded with impunity by many participants.
- 60/2 Reasons why "Support of Aboriginal people" is a desirable feature, but cannot be an essential criterion, are given in the main text.
- 61/1 While the Panel's guidelines document asked AECL to discuss alternatives, it was the Panel itself that was required to undertake this study, according to its terms of reference. It certainly had the time to do whatever it thought necessary. The Panel believes (61/2) "that the Canadian public no longer finds it acceptable to be asked to make a decision based on one option only". However, there is no evidence that the Canadian public would find it acceptable for the whole process to be set back twenty years resulting in gross waste of taxpayers' dollars.
- 62/2 It is for governments, not AECL, to decide who would implement the concept. A lack of trust, especially by dedicated opponents, says nothing about the trustworthiness of an organization. The report fails to acknowledge that the allegation of a lack of openness, which apparently contributes to the lack of trust, was repeatedly challenged in submissions. Once again, throughout the whole process there was no resolution of opposing claims. As already argued, the perception of a conflict of interest should have been offset by the principle that the wastes producer should be responsible for their disposal.
- 63/1 In discussing nuclear energy in general, the Panel claims "that a high degree of public confidence in the responsible agency is a prerequisite to acceptability". Since there is no evidence that nuclear energy is unacceptable to the Canadian public, and it is certainly acceptable to the governments concerned, either the Panel is wrong in its assessment of the public's confidence in AECL and the nuclear utilities, or such confidence is not a prerequisite to acceptance. The Panel has again built its conclusions on false assumptions about public opinion in Canada. As pointed out in a submission to the Panel, it was primarily the government bureaucracy, and not the AECB, that has been responsible for delays in publishing new regulations incorporating the most recent ICRP recommendations, not standards. Also the AECB has been most open in *allowing* "wide public participation in setting standards": its process for consultative documents could well have been copied by the Panel. Nobody can *ensure* public participation.

- 64/1 What the Panel claims without justification to have established is that the concept did not have broad public support, not any particular level of acceptability.
- 66/1 The Panel bases a recommendation on the possibility that it *may* help.
- 66/2 Establishing a new agency as the Implementing Organization (IO) is one option, but there is no indication that the Panel has considered the disadvantages, or examined the alternatives as it demands of concept proponents. Unless the IO hired experienced staff from existing agencies, that expertise and experience would be lost: if it did, it would be accused of being just the same old agency with a new name. Either way, opponents of nuclear energy would employ the same tactics to undermine trust in it as for the existing agencies, e.g., unfounded assertions that never have to be defended, as demonstrated in the Panel hearings. Supposing that the formation of a new agency would foster trust and confidence represents naive optimism. This whole discussion ignores the facts that the utilities own most of the wastes and that the federal government policy is that the owners are responsible for disposal (110/1). Requiring the sole purpose of the agency to be concerned with nuclear fuel wastes would exclude other radioactive wastes, necessitating another, separate agency calling on the same expertise and resulting in waste of another sort.
- 67/1 Contracting out is politically correct but one of the consequences is that the agency lacks staff with expertise and experience to direct and assess the contracts or to initiate any original thinking. Few people who are first rate in their disciplines find satisfaction in supervising contracts. Also, such a limited agency has neither the breadth nor depth to respond to unexpected events; and does not have the necessary backup when staff are absent or leave. These are some of the reasons for modifying the mandate of an existing agency rather than creating a new one.
- 67/1 The proposed financing does not provide any incentive for the agency to operate in a cost-effective manner. The report does not mention that the new Nuclear Safety and Control Act provides for financial guarantees.
- 68/1 Accountability is obviously necessary but it should be realized that "a redundancy of oversight mechanisms" can be counter-productive, in that staff spend a significant fraction of their time on accounting for what they do; in that initiative is discouraged since nothing can be initiated unless it is in the plan; and in that the best people seek a more stimulating environment. Too much of anything is too much.
- 68/2 The Panel has neither exposed its own analysis for review nor given reason for it to be trusted.
- 69/1 While the recommendation that the AECB review its documentation is valid, the report fails to point out that that process has been in progress while the Panel was sitting. In recommending that the AECB should improve its process for consulting the public, the report fails to mention the various measures the AECB has employed for years, including the admirable process of consultative documents which the Panel would have done well to adopt. The Panel seems determined to believe that the public can be forced to participate, and that their acceptance of the present situation is proof of their ignorance.
- 69/2 The Panel has produced no evidence to support its claim that "The public is vitally concerned" with any nuclear issue. When asked what concerns them in properly conducted polls, nuclear energy is not mentioned, and nuclear wastes are mentioned only in response to leading questions. In confusing "some participants" with "the public" the Panel appears to believe that the public

attended its hearings. Nobody knows how public opinion would react to learning that the concept is considered adequately safe as the result of a long and thorough review: and nobody ever will know since the public will not learn this from the Panel's report.

- 70/1 The proposal for Phase II represent policy making by public opinion poll. Unless the world changes dramatically, the most acceptable concept is unlikely to be the safest, since in this area technical and perceived safety differ by large factors. The government would then be faced with a dilemma of being responsible or popular. If it overruled the most acceptable concept in favour of the safest it would generate resentment and the sort of opposition that the Panel claims to be avoiding. This section ignores the fact that there was extensive public consultation in preparing the EIS: it is just that many participants at the hearings did not like the outcome. It will always be so however much the participation. It is ironic that the Royal Society of Canada should be recommending improved public involvement (70/2): the 1979 Committee on Nuclear Issues in the Community which it co-sponsored used to be cited for how not to achieve public involvement
- 70/2 Any proposal for an Information and Communication Plan is worthless until it is realized and acknowledged that the aims stated here have been attempted in all sincerity for at least two decades, with singularly little success. Unless the Panel can suggest some new approach it is unrealistic and naive to expect that some new agency will succeed.
- 71/1 The proposed Principles and Procedures for Development and Implementation are essentially the same as those used by the Siting Task Forces (STFs) for Low-Level Radioactive Waste Management (LLRWM). That process is now abandoned.
- 71/1 Under Development of Options the Panel recognizes that all options should not be examined in the same depth. Some judgement is necessary. But that is exactly what was done in arriving at the *Federal and Ontario governments'* decision to pursue the geological option. The report's Appendix L reviews the information on the options that have been raised and, using such judgement, concludes that long-term storage is the only realistic alternative to the EIS concept. It further finds that "no feasibility problems were identified" for it, in stark contrast to all the problems "from a social perspective" identified for geological disposal. In this respect AECL was caught in a catch-22 in that it obeyed the governments' directive to develop the chosen option, while the Panel wishes to reexamine the selection. If the Panel's recommendation were adopted there is no guarantee that a future panel would not reverse the choice again.
- 72/2 The submissions to the hearings by groups of "social scientists and ethicists" does not support their employment in any capacity. Their submissions were vigorously criticized, without any response from them or any attempt by the Panel to resolve the differences.
- 73/2 While acknowledging that the terms of reference *required* (not "asked") the Panel to "take into consideration the degree to which we should relieve future generations of the burden of looking after the wastes", the report passes this responsibility to the proposed agency which "must" find an appropriate balance in intergenerational rights.
- 74/2 It is a denial of responsibility by the Panel to require the proposed agency to "review all the social and technical shortcomings identified by the SRG *and other review participants*" without any indication of which ones the Panel considered valid.
- 75/1 It is nonsense to demand that "safety, health and environmental protection must never be

compromised" in the same document that demands that decisions be taken "from a social perspective". Safety is always being compromised, as required by the widely endorsed ALARA principle. And rightly so since society could not afford to have every activity as safe as physically possible.

- 75/2 Experience with the STFs for LLRWM showed the need to define and agree what is meant by "a community"; and that the Implementing Organization (IO) must have the government's mandate to conclude an agreement. The report does not offer any suggestions for avoiding the STFs' failure.
- 76/1 If there is to be any real participation by the potential host communities, the proposed agency would have to restrict site selection criteria to those that are absolutely essential, leaving the selection of other criteria to the individual communities in the light of their priorities. They would decide which of their criteria are essential and which desirable in assessing sites. The report makes no mention of provincial policies, priorities and preferences, or how they would be factored in.
- 77/1 The IO should not delegate negotiations to any other body. The STF's failure can be largely attributed to the government's refusal to honour the agreement reached by the STF with the local community. This history will undermine public trust in the undertakings of any future agency. The information package should include a case study of an EIS and Agreement in Principle for a hypothetical community, showing the likely effects on health and the environment, and the sort of benefits (over and above compensation) that the community might expect. The STF experience showed that the lack of such information resulted in people forming adverse opinions of the proposal at an early stage: opinions once formed tend to be reinforced by further information, not reversed. The Panel's proposed process for siting adds nothing to what was tried and failed in the STF process, giving little reason for optimism.
- 78/1 The requirement that a facilitator be appointed from outside the community seems unduly restrictive and unlikely to generate trust. The facilitator could develop the CLG's terms of reference but it should be the community's elected representatives that have the final decision. The CLG should be neutral in ensuring that the desired information is available and transmitting it both ways: it should represent only the interests of the community as a whole, and not of any special interest group. The Panel does not appear to have learned from history.
- 78/1 The municipal council, or equivalent, would be well advised to consult with the CLG and other groups but in our democracy it is the elected representatives that are responsible for binding decisions and this should be clearly understood. For continuity, members of the CLG should serve for the full period of the review, which should not exceed two years.
- 79/1 Public hearings are a normal requirement of the AECB's licensing process and need no special provision.
- 80/1 It is unethical and unjust for the Panel to pronounce on matters outside its mandate since the proponent was unable to present its position while opponents were under no such constraint by either their consciences or the Panel. The report exacerbates the offence by reporting what some participants claimed without providing any indication of rebuttals in other submissions. It is as if, in a court case, the prosecution is free to attack the accused's character but the defence is prevented from replying.
- 80/2 Specifically, the Panel cites a 1988 report by the House of Commons Standing Committee on

Environment and Forestry that recommended a moratorium on new nuclear power plants; but ignored a contemporary report by the Standing Committee on Energy, Mines and Resources supporting nuclear energy, that was drawn to the Panel's attention.

- 81/1 In discussing Foreign Wastes the report states that: "Many (unidentified) participants ... noted statements made by AECL officials to the media concerning the possibility of integrating power plant sales with waste management services". If this comes from the submission that seems most likely, the statement was a consultant's recommendation to AECL, not a statement of AECL policy. In a report that stresses the need for ethical input the Panel ignores the ethical argument for accepting foreign wastes advanced in other submissions: if disposal is shown to be safe in Canada it would be unethical to refuse acceptance of wastes from countries such as Holland and Japan with less favourable geologies.
- 81/2 The report's account of Mixed Oxide (MOX) Fuel is similarly biased towards opponents' views. While individual bundles "contain more plutonium" each bundle would have produced much more energy. The proposal does not require "the spent MOX fuel to be irretrievable", but that retrieval be sufficiently difficult and controllable that those seeking fissile material for improper purposes would prefer other available routes. "At an extreme, the initiative was seen as a device for disposing of the global inventory of surplus weapons-grade plutonium in Canada": is this an unethical objective? The "potentially higher temperature of the container surface" (82/1) is a trivial constraint on the design.
- 82/1 There is no self-apparent reason why low- and intermediate-level wastes would *require* "separate disposal", although this may be desirable.
- 106/1 The report fails to mention reasons why the risk factor should *not* be expected to increase seriously, notably the epidemiological studies of nuclear workers that provide upper limits.
- 111/1 Gaseous emissions from fossil fuel combustion actually do harm the environment, they do not just have that *potential*. Also the fact that they harm, even kill, humans should not be ignored. As pointed out in the published version of reference 30, it is meaningless to ask whether radiation or chemicals pose the greater risk; among other reasons, the acceptable risk from an activity should depend on the benefits it provides. The "dread factor" (111/2) is partly due to reports like the present one that obfuscate the fact that a safe concept for waste disposal is available. The report (here and at 113/2) recommends harmonization of the guidelines without mentioning that the reference cited warns against this, giving reasons.
- 113/1 The report again uses "minimize" for the ALARA process that is an optimization.
- 114/1 The preference for different types of disposal also reflects differences in confidence in institutional stability versus technological competence.
- 133/1 The Panel knows what was problematic for it, and for *some* participants, but not for the public. The proponents of nuclear energy would have been very happy to examine "the pros and cons of the entire nuclear cycle", if this had been permissible under the terms of reference.
- 134/2 Quoting "a recent report as proof that the feasibility of transmutation had been established" is an

example of a systemic flaw throughout the report: a failure to test and rule on claims on issues that the Panel considered important. Similarly, at 135/2, "The Panel cannot resolve the question of who does or does not benefit from nuclear energy".

- 136/2 The Panel's claim here that "the long-term safety of disposal is uncertain" is a contradiction of its own conclusion, given the normal meaning of words.
- 136/2 The Panel, which put so much emphasis on public opinion, fails to consider the probable reaction of the public to a proposal for Space, Ice Sheet or Seabed (137/2) Disposal.
- 137/2 "Although participants' preference for storage" should read "Although some participants' preference for storage". The EIS considered the consequences of an unsealed bore-hole.
- 139/1 The report presents the government with a forced choice between only two alternatives for siting, the EIS proposal in Appendix M and the Panel's in Appendix O, by ignoring significant improvements to the EIS proposal recommended in submissions. The binding commitment must bind the IO as well as the PHC. The initial ECs would be only those absolutely essential, leaving the selection of others to the PHCs. The information to be offered would include an illustrative EIS Summary and Agreement in Principle, so that PHCs would have some idea of possible risks and benefits before prejudices are formed. The IO would invite bids from PHCs, indicating the conditions under which they would accept the wastes. Technical suitability would be determined by a balance of favourable and unfavourable characteristics ("favourable" alone appears three times). Sites would not be ranked but the IO would select between bids by the PHCs.
- 141/1 It is illogical to argue that most review participants did not discuss the "other subjects" because these were not "well developed in the EIS". The absence from the EIS of topics excluded by the terms of reference did not deter many participants from pontificating on them in their submissions. It is also illogical to state: "To justify the project, there ought to be a net benefit to public health", especially for the disposal of wastes in isolation. Virtually every human activity involves some risk to health, and this wording ignores ethical, social and environmental factors stressed by the Panel. The criterion should be a net benefit to society, including health effects. Nuclear proponents argue that nuclear energy provides a net health benefit *when compared with available alternatives*, if all relevant factors are included, but waste management in isolation should not be required to demonstrate a net health benefit for any product.
- 141/2 The extent to which an activity is responsible for anxiety resulting from a misunderstanding of the activity's risks, especially when organized opponents have propagated the misunderstanding, is a topic deserving debate, that was not debated by the Panel. This is blaming the victim for the crime. If this is to be counted as a negative factor, relief of anxiety resulting from the consequences of burning fossil fuels, and from fears of unemployment should be counted as positive factors. Similar comments apply to references to "social and community stresses" and the "dread factor" elsewhere in the report. The "critical group" already allows for what is demanded here: it includes those at highest risk, not just those with greatest exposure to radiation (see also 145/1).
- 145/2 While it is always desirable to achieve agreement, the Panel's experience should have convinced it that agreement on worst-case scenarios is unlikely to be achieved. Thus, agreement should not be made a requirement.
- 147/1 The nuclear wastes that have been stored for decades at AECL's Chalk River Laboratories have

not discouraged tourism in the Upper Ottawa Valley. The reverse in fact, since visits to the laboratories are advertised as one of the tourist attractions. Property values could increase due to access to new recreational and other facilities in a thriving community.

- 151/1 The report should point out that the Nuclear Liability Act is already under review and that the \$75 million limit is likely to be raised. Requiring negotiations with communities to allow the legal passage of goods would create an unfortunate precedent.
- 152/1 To require the CLG to rubber-stamp an appointment is unacceptable.
- 152/2 CLG members should be selected for their personal qualifications, not as representatives of any group. To do otherwise leaves many community members unrepresented and creates resentment and dissent within the community. Also it is impossible to decide fairly which groups should be represented, since not all can be. Members should serve for the duration of the process, which should not exceed two years. To require "agreement" may sound good, but in practice it is not always achievable, so that there must be a clear understanding of who is ultimately responsible for decisions. As argued in the main text, intervenor funding should not be dispensed for any functions already covered.
- 153/1 As argued in the main text, there should be no selection or identification of a transportation route from all those legally possible. There should be no ranking of sites except finally by the IO within valid bids. Any negotiation between the STF and the PHC would have to be equally binding on both parties to avoid a repeat of the fiasco following the "agreement" by the previous STF.
- 153/2 This report confuses "compensation" and "benefits" as defined by the previous STF. Compensation refers to restitution for harm caused by the project, e.g., loss of property value and repair to roads damaged by additional traffic, while benefits (what is described here as compensation) refers to the payment to the community to accept an obligation that society as a whole wants done but regards as unattractive. The benefits would not be negotiated but would be determined by the PHC in submitting its bid.
- 153/2 The agreement on a monitoring program should include an agreement on the actions to be taken, binding on the IO, in the event of certain defined occurrences.
- 154/1 The implication of the Panel's proposal that the AECB's successor should base its decisions on public acceptance would put that body in breach of the Nuclear Safety and Control Act that establishes it. That act requires the Canadian Nuclear Safety Commission to prevent unreasonable risk to health, safety, the environment and national security, without regard to public acceptance. The report ignores the admirable process that the AECB operates for *allowing and encouraging* public participation in the drafting of regulatory documents, and at licensing hearings. The fact that so few members of the public take advantage of these opportunities demonstrates the fallacy in the Panel's assumptions regarding public participation.

(End of Appendix)