Response to NWMO Discussion Document 2: *Understanding the Choices*

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Introduction

This document is our response to the NWMO's second discussion document, *Understanding the Choices*. Please note that we also responded to the first document, *Asking the Right Questions*. Following this introduction, we organise our comments about this second report into four broad areas: 1) Framing the issues; 2) Assessment team evaluation; 3) Public and Aboriginal consultation initiatives and 4) Siting a waste management facility.

We would first like to begin by mentioning some of the positive aspects of the document. First, it was refreshing to see a nuclear waste management agency, such as the NWMO, admit that any assessments made about the human and physical environments beyond the 175 year time span, are fraught with uncertainty and thus, speculative at best. Second, it was also admirable that the NWMO has acknowledged that the management of nuclear fuel waste is embedded within the larger discussion about waste production and energy policy. Third, we also note that the NMWO acknowledges many of the difficulties associated with the potential siting of some type of waste management facility.

Despite these positive attributes, as we outline below, we found this second discussion document to be deficient in several respects.

1.0 Framing of the issues

We are concerned first and foremost with the manner in which the NWMO is approaching Nuclear Fuel Waste Management. This includes the concepts used by the NWMO to define the issues deserving of consideration with respect to nuclear fuel waste and to elaborate the possible ways to act. No way of framing nuclear fuel waste management is neutral. We worry, however, that the concepts expressed in *Discussion Document 2* (many of which we have also flagged in our response to *Discussion Document 1*) do not promote open, fair and participatory discussion about nuclear fuel waste management and in fact help to constrain debate and discussion in favour of the goals and objectives of the nuclear industry. The result is to paint an overly generous picture of the nuclear industry and avoid engaging with important but controversial topics that are particularly difficult for the nuclear industry and have implications for the management of nuclear waste.

We have previously elaborated our concerns about some of the representations that re-appear in this document. We will nor re- articulate these concerns, they can be found in our response to *Discussion Document 1* (http://www.nwmo.ca/Default.aspx?DN=519,352,86,21,1,Documents). These concerns include the NWMO's: selective presentation of the Seaborn Panel's recommendations; a-historical treatment of their controversial mandate and *Nuclear Waste Act* from which this mandate derives; and by our reading, biased depiction of the development of the

nuclear industry. As a pubic discussion document, which this document is in part intended to be, we feel that information should be presented in a more independent manner.

The following sections outline our concerns with the concepts used in discussion Document 2 to frame nuclear fuel waste management.

1.1. Nationalism and Canadian Identity

The document makes constant use of the language of nationalism to qualify the various publics' and interest groups' experiences and participation in nuclear waste management. Frequent mention is made of 'Canadians' , 'Canadian preferences and perspectives', 'Canadian Values', Canadian communities', 'conversations with Canadians', 'Dialogues with Canadians' 'National Citizens' Dialogues', and 'Canadian Citizens'. Significant effort is also made in the document and the work of the NWMO to develop a set of 'Canadian Values' with which to guide their analysis and decision making.

The language of nationalism and Canadian Citizenship make reference to a form of shared and idealized Canadian Identity, an identity which the historical and present development (including policy and technological development) of nuclear power and the nuclear industry is part. The president's *Forward* for example, states that "Canadians reveal an immense respect for technological progress to date, coupled with an immense sense of optimism for the future" (p.3). Following this, the *Executive Summary* (p. 4) states that "For decades, Canadians have benefited from nuclear power". This reflects an assumption that in general <u>all</u> Canadians have had the <u>same</u> experience with the nuclear industry, and conveys the sense that this experience is a <u>positive</u> one. We are concerned with this for the following reasons, outlined below.

1.1.1. We are not sure how various forms of Aboriginal citizenship and Aboriginal identities and senses of belonging within Canada cohere or align with the ideas and experiences communicated by the metaphor of Canadian Citizenship-especially as this sense of belonging relates to nuclear energy. One has only to think of the varied and difficult relationships that different Aboriginal peoples and Nations have had with the crown through Canada's colonial history. It is especially unclear from the NWMO's research, whether Aboriginal peoples and Nations within Canada in fact share the same experiences, values, and ideas about belonging to Canada as do perhaps Canadians of other ethnicities.

1.1.2. The idea that all Canadians share the same experiences and values with respect to the development of nuclear energy in Canada is perhaps an overstatement. This statement ignores the regional differences in the development of nuclear power and nuclear related industries (including uranium mining milling, refining….). These activities are not evenly spread over the entire country, and many provinces, territories and communities have had very little exposure to either the costs or benefits of the nuclear industry, while others have had substantially more. This is not to discount the medical benefits of medical radioactive therapies, whose benefits (direct and indirect) have likely been widely experienced throughout certain parts of the world as well as Canada. It would be inaccurate to present the picture that the use of radioactive isotopes for medical purposes either requires or legitimates all other uses of nuclear technology (nuclear power generation, development and export of CANDU technology etc.).

1.1.3. Of particular concern is that the promotion of a common set of Canadian values and experiences that are overwhelmingly based on a positive experience with the nuclear industry, erases the specific experiences of Aboriginal peoples and Nations with virtually all parts of the nuclear industry. Overwhelmingly uranium mining, milling, processing (including uranium oxides refineries and sulphuric acid generation facilities), nuclear power generation, low, intermediate and high level waste storage, as well as long term permanent radioactive tailings disposal occur on lands (and in some cases reserve and treaty lands) to which Aboriginal peoples and Nations have Aboriginal and Treaty rights protected under section 35 of the *Canada Constitution Act*. This remains, to date, unrecognized in NWMO documents. Overwhelmingly, aboriginal nations and peoples have reported, and continue to report, negative experiences of the nuclear industry (cancers, increase rates of illnesses, deterioration of local food systems, loss of lifestyles, environmental contamination, the breakdown of social systems etc).

The promotion of a Canadian identity (including 'Canadian values') directly tied to positive experience with the nuclear industry, not only masks the experiences of Aboriginal peoples and nations, but also serves to de-legitimize, discount, and discredit their experiences and knowledge. This exclusion of the distinct and valuable experiences of Aboriginal Peoples across Canada, not only continues to ignore various injustices (historical and present) perpetuated by the nuclear industry on Aboriginal peoples, but continues to reproduce and ensure these same forms of social exclusion and marginalization, this time enacted through nuclear fuel waste management policy and process.

Our view is that it is important to attend to the distinctly different experiences of Aboriginal peoples and Nations within Canada of the nuclear industry in order to best understand the implications and impacts of the disposal of radioactive materials, especially high level nuclear fuel waste, as well as to better frame our understanding and definition of the problem presented by nuclear waste disposal.

1.2. Values VS. Knowledge

A distinct split is maintained within this document (and in the first discussion document) between 'knowledge' and 'values'. The document, for example, builds a framework out of 'Canadian values' drawn from public 'engagement' initiatives, while continually reminding of the need for the knowledge of experts about the techniques methods and risks related to nuclear waste disposal: "*Used nuclear fuel management must be founded on robust science and engineering. Equally it must be responsive to ethical, social, cultural, environmental and economic considerations as expressed and experienced by Canadians*" (17, emphasis added). While we do not disagree with the need for the perspectives gleaned from science and engineering to be included, we are disturbed by the exclusive association of science, technology and engineering, with knowledge. The NWMO, throughout this document consistently conflates the technical and scientific knowledge of nuclear experts with 'knowledge', and the knowledge of Aboriginal peoples and other publics with 'values', thus diminishing its importance. In the NWMO's description of its 'Study Context and Concept' for example, the NWMO states:

> To ensure that we understand society's perspectives on these issues, we have initiated dialogues to solicit and bring the insights of a broad range of citizens and interest groups to our study. To ensure that we have taken advantage of the best scientific and technical knowledge and expertise available in Canada and abroad, we have commissioned and received reports from …a wide range of experts describing the state of knowledge which can be brought to bear on the study (17).

Here, and in many other places, knowledge, science, and experts are invariably connected, as are their opposites, 'the public', and their 'perspectives', 'views', or 'values'. Aside from being an inaccurate and undemocratic representation of knowledge, this arbitrary maintenance of a division between 'knowledge and 'values' contributes to several important problems:

1.2.1. This division promotes first, the view that knowledge, and therefore science, is neutral, value free and apolitical, and second, the idea that knowledge and values/ethics are separate. Science therefore is cast as having no values, politics, or ethics associated with its generation, application and articulation. Ethics and values, in the document, are external concepts that get applied to knowledge (read science) when policy decisions are to be made.

Much excellent work in the humanities, social sciences, and philosophy of science fields over the past 30 years at least, has demonstrated that knowledge and values can never be separate. All knowledge, including science, contains assumptions about how the world is and should be, and about how best to truthfully experience the world (ontology and epistemology). Far from being neutral these are extremely contingent normative propositions, which underlie the generation, articulation and use of all knowledge, especially science. Ideas about objectivity for example depend on a number of assumptions about how to morally position the knower with respect to what is being observed. The NWMO's separation of knowledge and values, allows the political positions, standpoints, values, and ethical systems already articulated in various scientific, engineering, and technical perspectives to go unexamined.

1.2.2. Maintaining this separation makes it easy to insist that the public and aboriginal people have no real knowledge about nuclear waste management and its impacts, only generic ideas about right and wrong, and the priorities they would like to see upheld. Claims made by Aboriginal groups, other communities, and public groups (environmental, nuclear awareness…) about the impacts of radioactivity, the validity of energy policy related to nuclear waste, and the impacts of a potential long term disposal plan are easily dismissed as fears, perspectives, or distilled into values about protecting the environment and future generations. For example, though more than any other group living in Canada Aboriginal peoples and nations have experienced the effects of all parts of the nuclear industry, and are in an excellent position to inform the NWMO about the effects, impacts, and implications of, for example, the behaviour of radioactivity in human bodies and ecosystems over the relatively long term, the NWMO expresses their potential contribution as limited to 'views', 'perspectives', and 'insights'- never as 'knowledge'. On page 21 we learn from the NWMO that "*the views, perspectives, and insights of aboriginal peoples are important to our study" and that "The NWMO is sensitive to the concerns expressed by aboriginal peoples about their role, and participation in planning and decision making processes around the long term management of used nuclear fuel*" (emphasis added).

1.2.3. An important effect of this separation is that it privileges the experiences of unaffiliated individuals who are unfamiliar with the history of nuclear waste management policy, the nuclear industry, the issues surrounding nuclear waste management, and who have few experiences with the nuclear industry and its effects (positive or negative). These people, who are not mobilized, active, or necessarily knowledgeable about nuclear waste management, easily become the natural proxy of the 'Canadian public' engaged by the NWMO for their 'values' and 'perspectives'. This excludes public groups in society that are knowledgeable about nuclear waste management and its related issues, and who can contribute knowledge, experience, and informed judgement to debates about nuclear fuel waste management. These groups which have mobilized around nuclear issues (environmental groups, women's groups, aboriginal nations, social justice organizations, and rate payers associations for example) represent the knowledge and experience of various people who come together as a result of familiarity and experience with issues relating to nuclear waste management. These groups do research and collect and produce knowledge, but are excluded by the current division maintained by the NWMO between 'values' and 'knowledge', 'public' and 'experts'. Evidence of the effects of this can be found by reviewing the various public engagement efforts (citizens' dialogues, polls, and conversations) which overwhelmingly target unaffiliated members of the public unfamiliar with the NWMO, their mandate and nuclear waste related issues). Very little effort on the part of the NWMO has been made to locate, involve and include the knowledge of groups mobilized around the issues.

1.2.4. In the case of Aboriginal peoples and Nations, the overwhelming use of the term values, (in place of knowledge p.21-22) to describe (and constrain) their contribution to nuclear waste management, conflates values with rights. As described above, Aboriginal peoples and Nations in Canada, not only have had extensive experience with all parts of the nuclear fuel cycle, from uranium exploration to waste disposal or storage, but have intimate and valid knowledge about the impacts of these processes, on communities, human health, and ecosystems. The inclusion of their knowledge about nuclear issues and radioactivity in decisions about nuclear waste disposal in Canada, for this reason alone, is a fundamental matter of social justice, and thus a human right.

Secondly, with the exception of its single, non committal, and vague mention of Aboriginal and treaty rights on p 21, the Discussion Document does not acknowledge the importance of aboriginal and treaty rights, except to mention that aboriginal peoples themselves have continually pointed to their importance (21). Aboriginal and treaty rights to almost all of the territory of Canada are protected and affirmed in section 35 of the Canadian Constitution Act. The discussion document shows no evidence that the NWMO acknowledges, affirms or supports these rights in their discussion, and makes no commitment to uphold these rights, only to be sensitive to aboriginal 'concerns' and 'values'(21). This seems to us, short sighted. The long term management of nuclear fuel waste will necessarily involve territories to which aboriginal and treaty rights are attached. The NWMO needs to make more explicit its consideration of the rights of aboriginal peoples, as well as clarify to the public (who may not understand why 'aboriginal values' matter in the discussion) why the rights of aboriginal peoples and nations necessitate their specific consideration and inclusion in the management process.

1.3. Volume

Critics of the NWMO's mandate, and of the NWMO's narrow interpretation of their mandate, have suggested that discussions about the long term management of nuclear fuel waste cannot focus on the storage and disposal of the waste alone, but must require management of the entire nuclear fuel cycle. They suggest that not only is it unwise, short-sighted and irresponsible to discuss only how and where to isolate the waste, but that it is tantamount to a nod in the direction of the rest of the nuclear industry to continue and expand the Canadian nuclear programme. We agree that in order to legitimately manage nuclear waste for the long term, the NWMO must consider not only how and where waste must be managed, but also how much should be produced, why, and how. This does not necessarily entail considering the phase out of nuclear energy, but could include the promotion of energy alternatives as part of nuclear waste management, technologies to more effectively utilize and perhaps re-use fuel bundles, or a reduction in the generation of nuclear energy. This requires that the NWMO engages in discussion about energy policy and the future and legitimacy of the nuclear program and power generation in Canada, or at the very least make a public statement explaining its reluctance to do so, accompanied by an explanation of why it is reluctant to consider energy policy.

We fear that the reason for their unwillingness thus far to do so is related to their conflict of interest as producers and owners of nuclear waste. In an attempt to address this issue (p 6-7), Discussion document 2 converts this issue of waste production into one of the 'volume' of waste to be disposed of, and report that they are considering 3 different 'volume' scenarios in their assessments (p 26-27). We feel that the NWMO must consider as part of their study the management of the entire nuclear fuel cycle in order to legitimately and effectively manage the waste that is produced. This requires that the NWMO do more than consider different amounts or volumes of waste. It requires that they include serious discussion of energy policy, the role of nuclear power in energy policy, and of methods for managing and reducing the amounts of waste produced. In light of current trends (such as the Manley report, the refurbishment of mothballed reactors in Ontario, and an AECL proposal to develop 8 new reactors across Ontario) as well a past statements by federal and industry officials that nuclear fuel waste management will further support the expansion of nuclear power generation and the spread of the CANDU option both in Canada and abroad, we worry that the NWMO (an organization of the owners and producers of nuclear waste) are not only acting in a conflict of interest situation, but are actively trying to secure the interests of the Canadian nuclear industry through waste management. We are eager for the NWMO's actions to provide evidence that this is not the case.

1.4. Treatment of Aboriginal Knowledge (TAK)

Problems with the NWMO's characterization of aboriginal knowledge as 'values', and subsequent assimilation of aboriginal values into generic 'Canadian values', in the discussion document have been explained above. It is worth noting that the Assembly of First Nations, in section 2.1.1 of their evaluation of the first discussion document states that the NWMO (in document 1):

> Treats ATK in a patronizing manner and does not allocate the appropriate weighting which ATK deserves. First Nations have extensive knowledge about their traditional territories and have had considerable experiences with the nuclear industry, placing them in a unique position to guide the discourse on nuclear

> fuel waste management…. By characterizing Aboriginal knowledge as "perspectives" and "values", rather than knowledge it undermines the validity and importance of Aboriginal involvement. Document 1 is lacking in that there is no concrete mechanism for inclusion of First Nations knowledge. Presumably, any inclusion of First Nations knowledge and input is left to the discretion of the NWMO.

We maintain that the NWMO have done little to remedy this in discussion document 2. This severely constrains the participation and contribution of Aboriginal peoples and Nations in the process, and contributes significantly to their exclusion from the NWMO's process. According to our understanding of the ideas of fairness and justice this directly contravenes fundamental principles of both substantive and procedural justice.

The NWMO, in their discussion of 'Aboriginal Views and Perspectives' (p21-22) continue to emphasize the role of aboriginal peoples in designing their own participation process, and the integration of the 'values', 'insights' and 'principles' inherent in what they term 'traditional aboriginal knowledge'. Far from being about the respect, understanding, and reasoned use of the actual knowledge of Aboriginal peoples, we fear that the NWMO is only carefully constraining the influence of Aboriginal knowledge. By our reading, the NWMO is defining Traditional aboriginal knowledge in a language to avoid legitimizing the actual and varied knowledge and real experiences of aboriginal peoples and nations with ecosystems, the nuclear industry, radioactivity, and human health, as explained in the above quotation from the AFN.

2.0. Assessment Team Evaluation

We are concerned with the quality and content of the evaluation performed by the Assessment Team. On first reading, the assessment of the three alternative management methods is impressive. However, careful scrutiny reveals numerous problems. Indeed, the presentation in *Understanding the Choices* (UC) is insufficient. As most of the discussion has been garnered from the Assessment Team report, *Assessing the Options* (AO); we will refer to both.

Considering the effort the NWMO has put into soliciting the opinions of a sample of Canadians[1], the relative influence of these on the evaluation of options has been minimal. The larger themes of sustainable development and the precautionary principle are difficult to discern or are so deeply embedded in the assessment as to make them moot. It is not at all clear if the assessment team even took these into consideration or if they did, how they may have affected their assessment.

2.1. Team Composition

We were struck by the lack of multidisciplinary, and diversity of experience represented on the Assessment Team, and concerned by the overwhelmingly technical backgrounds of most members. We are concerned by the number individuals connected to the nuclear industry (Canadian, USA, and international) and that many of the team members were currently, or at one time, employees of either Ontario Power Generation, the NWMO, the Canadian Nuclear Safety Commission, or the US Department of Energy, nuclear division. We also note the lack of

[1] See for instance, Responsible Action: Citizens' Dialogue on the Long-term Management of Used Nuclear Fuel, Watling, J., J. Maxwell, N. Saxena and S. Tashereau., 2004, Canadian Policy Research Networks, Report P/04.

membership from groups representative of environmental organizations and civil society, from experts in ethics and social justice, and from Aboriginal organizations or Nations to name only a few.

The fact that the assessment team was composed of only 9 members, including 3 from the NWMO itself, and that their assessment is presented as being comprehensive, is troubling. The opaqueness of identifying these individuals in the UC document and the complete lack of explanation of the details of how they arrived at their conclusion that geologic disposal is the best option of nuclear waste is unfortunate. In fact, even a detailed read of the Assessment Team report fails to reveal how and why various "influences" were derived, assessed and included in the analysis.

It is perhaps ironic that on p 64 (UC) , during the discussion of the '*Community Well Being*', that the discussion document states: "*while the importance of factoring in and addressing the concerns of aboriginal people is recognized in general, and specifically concerning this objective, the Assessment team did not feel capable of anticipating the perspective of aboriginal peoples*". The same statement is made in the Assessment Team report. This indicates to us that a respected member of an Aboriginal Nation or organization should have been part of the Assessment Team. We are concerned that the above quoted statement is indicative of the NWMO's attitude towards the actual inclusion of Aboriginal peoples and Nations in the decision making process. We are lead to believe by this that they will make mention of the importance of Aboriginal perspectives, but when it actually counts, they will make no moves to include Aboriginal peoples and Nations in the decision making and continue to exclude their perspectives. It would perhaps have been wise for the NWMO to have a more representative, multidisciplinary, and independent assessment team.

2.2. Methodology

Even more appropriate than a reformulated assessment team would have been the striking of several teams of varying membership and interests to undertake the assessment of options. If these various teams had all come to the same conclusions as the current Assessment Team, some credence could then be attributed to the assertion that geologic disposal of nuclear waste is the best option. As it now stands, it is not clear that the conclusions reached by the Assessment Team stand up to the scientific standards of replicability, reliability and verifiability. Further, for most people reading the NWMO report (UC), the conclusion was reached by nameless and faceless team members. This is unfortunate and it completely contradicts the NWMO's own principle of openness and inclusion.

The selection of the "multi-attribute utility analysis" (AO, p. 58) is poorly justified. We are only given a hint as to how and why this methodology was selected or if other methodologies were considered. All we are told is that the "*Team searched out and selected a methodology that would allow for the systematic integration* …. (UC, p. 39). One short paragraph is used to justify the selection in the AO document (p. 58).

In undertaking their assessment, the Team identified 234 "influences" which subsequently are rated according to a colour code ranging from green ("no significant issue") to red ("very high or

among the most extreme…deserving significant attention") (AO, p. 77). The Assessment Team assessed each indicator on the basis of their "qualitative reasoning and judgment" (AO, p. 78) or "gut feeling" (AO, p. 76) and subsequently present quantitative assessments in the end favouring the deep geologic disposal option. It is extremely difficult to accept these findings as scientific or rigorous. No information is given on the assessment of each indicator, how they were selected and if there was agreement within the Team.

A check of the robustness of the results is equally as opaque (AO, pp. 99 – 103.) Again, "team members' personal values" were used to assign various weights to the eight objectives. These weights were then used to check if the deep geologic disposal option remained the best. Of course, in each case, the option remained "the best". The check is more a function of the fact that the geologic option was preferred by the assessment team then its purported superiority *vis a vis* the other options. What has emerged, unfortunately, is the masking of the Assessment Team's preference for the geologic option under the guise of quantification. If the team assessed centralized storage as the best option, their "sensitivity analysis" would also have justified that choice. This analysis proves nothing.

2.3. The Objectives

2.3.1. The discussion document outlines the relationship between the original 10 questions and the final set of 8 objectives. The diagram on page 54 suggests that 1) the ideas of technical adequacy and aboriginal values are now subsumed under the 8 objectives, 2) the question of safety, security, environmental integrity and economic viability match up specifically with final objectives (in fact, safety is subdivided into 3 of the final 8 objectives) and 3) that governance, public participation and continuous learning are not incorporated in any direct manner into the final set of objectives. There is little discussion regarding how this final set of 8 objectives was determined, or on what basis the initial questions were prioritised, subsumed or eliminated from the list of objectives. Although a bit more discussion of these issues is provided in the Assessment Team report, the reasons given still appear arbitrary. For instance, although fairness and certain aspects of community well-being and perhaps even adaptability are components of public participation, designing the objectives in this way downplays the importance of public participation and also buries its other important characteristics such as openness, accountability, trustworthiness of the proponent and access to information.

In the case of institutions and governance, the assertion in the Assessment Team report that this question can be completely dealt with by the idea of adaptability seems unfounded. Environmental governance pertains to the range of government, non-government and civil society approaches, rules and mores that together affect how the environment is managed. Although governance is certainly part of the adaptability issue, this does not exhaust the full range of issues affected by governance. In terms of nuclear fuel waste management, environmental governance includes decisions made by four levels of government (federal, provincial, municipal and Aboriginal), the influence of non-government organisations (e.g. Northwatch, Greenpeace) and, in civil society, the prevailing perspectives of the nuclear and business community as well as the oft forgotten views of interest-based and locality-based communities. How can all of this possibly be subsumed under the umbrella of "Adaptability"?

2.3.2. Further, these original 10 questions and 8 objectives are far from an exhaustive range of values that could be the focus of the current analysis. Yet, the Assessment Team report states as its first rule "*Every effort should be made to ensure that all distinct, fundamental objectives critical to decision-making are included*" (p. 59). Of particular concern, is the glaring omission of a detailed discussion of the idea of acceptability, since this was the cornerstone of the terms of reference for the nuclear fuel waste environmental assessment of the deep geologic disposal concept and the subsequent Seaborn Panel inquiry. Although the NWMO's overall objective states that the agency will strive "*to select an approach for the management of used nuclear fuel that is the most socially acceptable*" (p. 53), no explanation or elaboration is provided. While the safety criterion that was part of Seaborn's approach is explicitly included and discussed at length in the NWMO's second report, the discussion of the overarching criterion of acceptability is strangely absent. At the very least this should be acknowledged and reasons should be provided for its absence.

On page 53 the NWMO states that the "*objectives selected had to be a "fundamental choice objective" and not a process objective. In other words, the objectives needed to capture that we as Canadians desire to achieve as an end point…, rather than the means we use to achieve it…*" According to the Assessment Team report, this was the second rule '*for governing the choice and design of objectives*' (p.59). Beyond the obvious difficulty of determining what 'Canadians desire', on what basis were outcome objectives valued over process objectives? Both the social justice and environmental justice literatures emphasis that both types of objectives are crucial to arrive at equitable decisions. Indeed, many renowned experts on this topic, such as Iris Marion Young, argue that process objectives are far more important than those related to outcomes. Indeed, the NWMO itself states "*We believe that how any approach is implemented will be every bit as important as which approach is selected*" (p. 86, emphasis in the original). This appears to contradict the NMWO's own position and suggests that process objectives are of critical importance for the long-term management of nuclear fuel waste. NWMO's list of objectives should be amended to include process objectives.

2.3.3. Within the assessment of each objective, it is not at all clear how team members took into account the influence of all the various factors depicted in the 8 'influence diagrams'. Were values assigned to each of these factors that were then cumulatively added up to create the final 'score' for this objective? Were these factors weighted in some way? How did the team deal with the plethora of interrelationships delineated? Beyond these questions, is also appears that there are so many factors and interrelationships given that it would be virtually impossible for each team member to consider such complexity consistently across options and that all team members would define the various factors in the same way. This calls into question the validity of any final quantitative score that is assigned.

Another concern when examining the 'influence diagrams', is the idea that the choice of factors and their interrelationships seems illustrative and arbitrary rather than forming the basis of any definitive understanding of the objective. Using the environmental integrity objective as an example, note that a 'used nuclear fuel packaging accident' is suggested as an 'off-normal scenario' (p. 67), but that a nuclear reactor leak is not mentioned. In terms of the 'airshed' factor, why does this contribute to the 'stresses imposed by the approach' while the 'watershed' does not? And, why is anthropogenic change linked to 'off-normal scenarios' – is all change

abnormal? This further illustrates our concerns regarding the Assessment Team's approach to assigning quantitative values for each option to the objectives.

2.3.4. A related issue revolves around the explanations and definitions associated with the 8 objectives. These are often loaded with assumptions, particularly around the siting of a facility. The 'fairness' objective is used for illustration purposes, but the same concerns were noted with many of the others. Under the general principle for the fairness objective it states that the people *most directly affected* should have the opportunity to participate in decisions (p. 56). This assumes that it is easy to determine those most affected and that others who are deemed 'less affected' do not have the same rights to be heard. When siting noxious facilities these are terribly contentious issues related to the rights of, for instance, the host versus adjacent communities and the local versus broader scales of concerns. These types of general, blanket statements obfuscate the complexity and difficulty of the issues involved.

Several of the objectives also make reference to the differences in population densities and exposures associated with the various options. The fairness objective states that both the centralized storage and geologic disposal options could involve facilities located away from existing communities. Another objective, public health and safety, talks about the higher exposure to leaks and mishaps in industrial areas due to increased population densities. These types of statements make assumptions about rural/periphery and urban/core spaces. First, it assumes that peripheral areas contain some essentially 'empty spaces' that are not valuable or significant to anyone. According to this understanding, it should, therefore, be relatively easy to construct a facility in these areas. This ignores the fact that most rural space is known, named and used, regardless of the visible location of a nearby settlement. This is particularly true in Canada's northern regions where most land forms part of Aboriginal traditional territory. Second, these types of statements suggest that because of higher population densities, the needs of the urban spaces should predominate over those of rural areas. This is a utilitarian reading of the ethics associated with siting. On this reading, since a leak in the city potentially exposes more people, it is more equitable to locate a waste facility in a less populated area, even though this would override the individual rights of people in the affected rural area.

2.4. Omission of Specific Criteria Relating to Aboriginal Peoples

We note that the Assessment Team, (as reported in the discussion document and in the Assessment team report) omitted the consideration of specific criteria relating to aboriginal peoples from the evaluation framework. Whereas the original evaluative framework included a distinct consideration of Aboriginal peoples and Nations in the question "*Have aboriginal perspectives and insights informed the direction and influenced the development of the management approach*?" (p.54), the logic of the Assessment Team is that that element is represented in the 8 objectives such as fairness, public health and safety etc (p.54). We are surprised to see little justification of this in either the discussion document or the Assessment Team Report, especially as the assessment team did not have any Aboriginal membership. We find the irony mentioned above even more exaggerated, when the assessment team feels authorized to remove a criteria requiring specific aboriginal consideration to be given to the approach, but shies away from being able to speak of the perspectives of Aboriginal peoples. Perhaps the team and the NWMO would prefer to exclude the difficulty and inconvenience of

Aboriginal peoples entirely for the assessment of the options. We feel that Aboriginal peoples and Nations for the various reasons stated above require specific consideration in the activities of the NWMO, and are confused as to why the NWMO would support taking this out. We also question the Assessment team legitimacy in removing this Aboriginal consideration when they had no Aboriginal representation.

3.0 Public and Aboriginal Engagement Initiatives

3.1 Public Engagement Initiatives

In chapter 2 of *Understanding the Choices,* the document asserts that citizens require accountability and transparency to rebuild trust in government institutions. More specifically it states, "*There must be real engagement of experts, citizens, communities and other stakeholders before any decision is made*" (p. 20). Although the NMWO has undertaken several public consultation forums, we contend that these have not provided the opportunity for 'real engagement'. As we mentioned in our response to the first discussion document, there has yet to be an open forum where all interested, *informed* and *knowledgeable* stakeholders can publicly express their views of the NWMO's activities and discussion documents. Instead, there have been a series of tightly managed web-based dialogues and web-postings, discussions with uninformed members of the public, individual conversations with stakeholder groups, public surveys, and so on. These are offered up as fulfilling the obligation for public participation. In contradistinction to the literature pertaining to state of the art in public participation, these venues have primarily resulted in the one way flow of information towards the NWMO and qualify mostly as consultative, rather than participative mechanisms.

In contrast, we point to the type of public participation that is required for comprehensive environmental assessments under the Canadian Environmental Assessment Act. Here, a Panel, such as held by Seaborn, holds hearings in which all who are interested can listen and participate. In the case of Seaborn, in order to move even beyond this model and facilitate the flow of two way communication, the Panel organised a series of round table discussions among interested stakeholders. This allowed for a truly transparent and honest dialogue, and from our extensive discussions with many stakeholders, the vast majority felt that their views were heard.

The NWMO's approach, although meeting the letter of the law, does not fulfill the spirit of the Seaborn Panel report nor, on our reading, the subsequent nuclear waste management legislation that guides NWMO's work. We once again ask the NWMO to organise an open forum to allow informed stakeholders to provide input into this critical decision-making process. To be effective, notice of this forum should by distributed as widely as possible, with sufficient lead time to allow adequate preparation. Transportation funding should be provided to allow stakeholders from distant parts of the province to participate. Further, the forum should encourage the two way flow of information. Only in this way can the NWMO hope to be viewed as accountable and begin to rebuild the trust of all Canadians.

3.2. Aboriginal Engagement Initiatives

In the appendix the NWMO states that it has consulted with a number of Aboriginal groups including the Assembly of First Nations, the Metis National Council, the Ontario Metis Aboriginal Association and the Inuit Tapirrit Kanatami (p. 97). We would like to point out that the two Metis organisations mentioned do not represent the views of Metis located east of Ontario and further, that the Metis National Council does not represent the views of all Metis in the country. For instance, the Metis of Labrador and other maritime provinces are not recognized by the Metis National Council or by any level of government. Certain Metis groups in the western part of the country are also not represented by this 'national' council. We note this as one example of the problems associated with the claim that collaborative arrangements for dialogue have been made with *nation-wide* organisations. On our reading, the claim that these dialogues enhance the capacity of national Aboriginal organisations and support dialogue on key NWMO study areas, seems both vague and unsupported.

We would also note that Natural Resources Canada approached five national Aboriginal organisations in 1999, however, the NWMO has only entered into collaborative agreements with three of these. The NWMO should identify the other two organisations and explain why agreements were not reached with these groups.

4.0 Siting a Waste Management Facility

4.1. Existence of Centralized Storage Facilities

In Chapter 5, under the 'economic viability' objective, the NMWO states that neither centralized storage nor geologic disposal facilities have been previously constructed (p. 70). In terms of the storage option, this is simply incorrect information. For instance, Sweden, among several countries, has been operating a highly successful centralized storage facility for many years. Thus, due to its status as an untried technology, the uncertainty associated with the geologic disposal option is much higher than that of centralized storage.

4.2 Economic Regions

In regards to the siting of some form of waste management facility, the NWMO states that although the agency is not required to choose a specific site, it "*…must identify economic regions appropriate for each of the options. An economic region is a grouping of census divisions for analysis of economic activity. Economic regions for the implementation of the methods were not factored into this preliminary assessment by the Team*" (p. 39). The NWMO states that in the next few months their focus will be on "*developing characteristics that would be appropriate for choosing specific economic regions for deep geological disposal and centralized storage approaches*" (p. 86).

We contend that there are a number of problems with this approach. Since the NWMO's next report is a draft of the final report, there will not be an opportunity to comment on NWMO's economic region characteristics, prior to the selection of the region. Further, it is not at all clear on what basis, or through what mechanisms, those characteristics will be selected. At the very

least this document could have provided some discussion of this issue since this is likely to be a very contentious part of the final report. And, as we made clear in our report about economic regions, the borders of these regions are fluid, human constructions and do not necessarily coincide with other equally valid definitions of the area, particularly those of Aboriginal communities. This could potentially lead to conflict and divisiveness if, for instance, one portion of the community is included in the economic region, while another is not.

4.3 Siting Approaches and Contexts

4.3.1. Under the centralised storage option, the NWMO asserts that site conditions would not be a major constraint for this alternative and that it should be possible to find a site within 10 years (p.46-47). For geologic disposal, a remote location on the Canadian Shield is assumed to be where this option would be sited with a proposed time line of 10-15 years (p.49-40). In both cases transportation of the waste to the new facility is briefly mentioned as occurring over 25 to 40 years. We are concerned that these timelines are offered up with virtually no discussion. Given the highly charged public debates that often revolve around nuclear waste issues, these timelines seem overly optimistic. The NWMO indirectly acknowledges this at several places in this discussion document when it mentions the problem of cost overruns due to delays, the impact of siting processes on communities and the difficulty that may occur when "*well informed and reasonable people…disagree on how a particular method should be assessed, even against the same set of objectives*" (p. 84).

4.3.2. The 'community well-being' objective is the objective most centred on siting issues. The NWMO notes a number of important issues important within this context including: 1) impacts may be more severe in remote communities, 2) geographically-bounded communities (host and adjacent) as well as interest-based communities may experience economic impacts, anxiety, polarisation, stigma or conflict, 3) Aboriginal peoples may be particularly affected by siting initiatives, 4) transportation route communities would likely have numerous concerns about waste shipped through their areas, 5) the impacts will vary depending on whether or not the 'community is a willing host' (p.62) and the centralised storage and geologic disposal options 'have the advantage of allowing a voluntary process for picking the site of the respective facilities…(p.64).

Additional detail regarding siting concerns is also found under the 'economic viability' objective (p. 70). Quite rightly, the Assessment Team raised concerns about 1) the high probability that there could be an underestimation of the costs of geological disposal, 2) the high costs of transportation, particularly if there are delays (e.g. protest and litigation could hold up the movement of waste), 3) "*localized or wide-scale political or economic problems might result in inadequate funding being provided to one or more of the on-site storage facilities*" (p.70).

These issues raised by the NWMO are all of critical importance, however, the agency provides no discussions regarding their resolution. While they hint several times that some type of a 'voluntary' siting process might be undertaken, no details are provided. This is problematic, since under the current legislation, economic regions must be determined prior to the initiation of siting processes. Thus, we can only surmise, this must mean that only communities within the region could be potential 'volunteers'. This contradicts the fundamental principle of the

volunteer siting process which is based on the absolute right of communities NOT to be pressured into hosting a facility. The current configuration may lead to conflict within the chosen region, with communities seeking to shift siting attention onto others. Especially in Canada's north where economies are already fragile, this kind of controversy would be quite detrimental for the area involved. Moreover, what will happen if none of the communities in the region volunteer as willing hosts – will site selection be imposed?

Beyond, these issues we would also like to mention some of the more fundamental problems with the process of volunteer siting. Some early literature on the volunteer siting process maintained that if communities could be encouraged to come forward and volunteer to 'host' a noxious facility, this would automatically lead to increased fairness and equity. More recent studies suggest that, overall, communities that volunteer to host any type of noxious facility are poor, have little political clout and are often located in remote areas. Further, it is impossible to fully delineate the boundaries of the host community and to ascertain whether all community members support the initiative. Typically, the municipal border is chosen as the boundary, yet in reality the geographic and interest-based communities of the area may not coincide with this definition. Also, this siting process tends to rely on negotiations with elected municipality officials, who may or may not represent the views of their community.

Given these plethora of concerns about economic regions and siting, we feel the NWMO should have provided far more discussion of these issues, prior to the selection of an economic region and the release of their next document.

5.0 Conclusion

Although the NWMO outlines and highlights many important issues in this report, we find this document, *Understanding the Choices*, to be deficient in comprehensiveness and detail. The way in which the NWMO glosses over such controversial subjects as the difficulties of defining some generalized set of 'Canadian values' within a multicultural society or the issues associated with siting, are particularly problematic. We note that Aboriginal knowledge and perspectives are sidelined in this document. We question the scientific validity and rigor of the Assessment Team's methodology and the replicability of their conclusions. In terms of the objectives, we can find no clear justification regarding how these were chosen or used to assess the options. Finally, our evaluation of the NWMO's approach to public participation suggests that the NWMO has not truly engaged with interested and knowledgeable Canadians, including Aboriginal people.

We hope that the NWMO and other interested stakeholders will find these comments useful and constructive as we move along in this nuclear fuel waste decision making process. We would appreciate an opportunity to have an open debate about these concerns, as well as those raised by other stakeholders.