



Independent Environmental Monitoring Agency

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Re: Agency Comments on the Aquatic Effects Monitoring Program Guidelines

The Agency would like to thank you and your staff for your work on the Aquatic Effects Monitoring Program (AEMP) Guidelines and the workshop that was hosted on October 21 and 22, 2008. The Agency is of the view that this is important work that can benefit from the experience gained on the AEMP at the Ekati mine site.

We provide below some general comments on the draft guidelines document. More detailed comments and comments on the technical volumes are found in the attachment to this letter

The Agency commends the authors of the draft guidelines and they are headed in the right direction but further work is needed, especially regarding Traditional Knowledge (TK). The document is very heavily based on USEPA practice which, as the authors acknowledge, may not work very well in largely unpolluted areas. Many of the descriptions used do not ring true for a northern environment. At the very least, there should be a concerted effort to adapt this for the northern environment and it would be useful to use northern examples to a much greater extent.

The description of the regulatory system is focused largely on the Mackenzie Valley and the environmental management regime under the *Mackenzie Valley Resource Management Act (MVRMA)*. If this document is to be used outside the Mackenzie Valley, either within the NWT (including the Inuvialuit Settlement Region), in Nunavut, and/or the Yukon, this needs to be fixed. Even if the focus remains on the *MVRMA* boards, there are errors in the text which need to be corrected. The Agency would be prepared to work with the authors in making these changes

The structure of some of the documents needs work - the sections in the document do not correspond to the order laid out in the introduction. For example, in Volume 1 the introduction suggests there are six sections when in fact the document is ordered as 1,2,4,3,?,?,6 where “?” indicates that the section is not described in the introduction. This

will not help those who are trying to follow the guidelines from start to finish.

Ground water is essentially 'missing in action'. There is the occasional reference to 'surface water and groundwater' but there is no realistic consideration of either the impact of development on ground water or the potential impact of ground water on development. The example of high chloride in ground water comes to mind but there are certainly others.

Because AEMPs need to be tailored to the particular ecosystem features in which the project being monitored is situated, local knowledge of environmental components and characteristics can be brought to bear in the design, implementation, and interpretation of such programs. The prevailing situation is that AEMPs implemented today in the north lack incorporation of local knowledge or TK that could significantly improve the results. In our view, the draft guidelines, somewhat silent on this issue, need to consider some principles and approaches as to how this could be effectively accomplished.

The Agency recognizes that this is a challenging issue. Experience to date with incorporating TK into the environmental management systems of large industrial projects is not good. Usually, it is attempted as an after-thought or adjunct to an already well-developed environmental management or monitoring scheme. Here are some ideas which might be helpful in strengthening the guidelines.

First, it should be recognized that the integration of TK with western science will have greater chances of success the earlier in the design process it is attempted. For most situations this means effective consultation with affected Aboriginal communities in the scoping stages of the design process—whether it is for an environmental impact assessment of a proposed project or the design of an AEMP in the regulatory stage. An AEMP does not suddenly appear out of nowhere—it has, or should have, its beginning in the earliest stages of designing the impact assessment and mitigation for a new project. The guidelines should make this link to the precursor stages of AEMP development—the design and conduct of baseline studies that incorporate TK about the components, function and structure of the local ecosystem.

TK, properly identified, can be especially important in determining which components of the aquatic community to focus on in designing baseline studies and the aquatic effects monitoring program. It may be found through the acquisition and understanding of TK that important aquatic resources identified by Aboriginal peoples may not be the same as those of the scientific community. This is certainly the case with Aboriginal taxonomies. Aboriginal classification of aquatic biota often recognizes behavioural or anatomical differences within species that are yet to be recognized by biologists. For example, the Dene classification of broad whitefish along the Mackenzie River into a lake-dwelling form and a riverine form is something only recently investigated by fisheries geneticists.

Second, as a scientific literature review is a starting point for scientific inquiry, the guidelines might suggest that TK literature review be done prior to implementing a TK information collection program in the communities. This could, for example, illuminate

Aboriginal taxonomies relevant to the proponent's research. As an aside, the establishment of a central public repository of TK documents as they become available would be a great benefit to the intellectual development of northern TK use in contemporary environmental management systems.

Third, as the first step in consulting with an affected community about the role of TK in the developer's program, a protocol about how and in what form TK might be used should be negotiated between the parties. This protocol should not be pre-designed—it will most likely need to be tailor-made by each community, and proponents should, within reason, attempt to accommodate the approach being taken by the Aboriginal government.

Fourth, the guidelines should highlight the need for proponents to consult with potentially affected communities about the use of local knowledge in the developer's plans.

Fifth, it should be recognized that there are different methods to acquiring TK for use in environmental programs. Formal data collection programs can be designed and implemented as a collaborative exercise between the proponent and the community. Alternatively, more informal discussions where community members and leaders are exposed to information about the developer's project, and allowed to consider the information and then respond, will reflect ideas and suggestions that have been implicitly run through a 'TK filter'. Both approaches, for example, were utilized beneficially with Tlicho leadership as part of DIAND's closure planning process for the Colomac mine. The guidelines will need to make clear that several approaches to identifying and incorporating relevant TK are possible, and that flexibility in designing the approach is an important consideration.

Finally, the Agency is prepared to assist DIAND in improving the TK component of the AEMP guidelines by participating in a working group with other interested parties. As we understand it, the working group would provide advice to DIAND in setting terms of reference for a literature review on TK and its use in aquatic monitoring and management. Please contact our Manager when DIAND is ready to move forward with this work.

We would be happy to discuss these comments with you at your convenience.

Sincerely,



Bill Ross
Chairperson

cc. Society Members
Anne Wilson, Environment Canada
Bruce Hanna, Fisheries and Oceans

Specific Comments on the AEMP Guidelines and Technical Volumes

AEMP Guidelines Document

- page 3, last bullet. This should probably read "To identify the need for additional impact mitigation measures to reduce or eliminate project-related effects...." It is the job of the AEMP to identify the need and the job of the Adaptive Management Plan (AMP) to identify what needs to be done. The original (incorrect) statement appears many times throughout the document (p. 14, 15, 19, 21, 26, 38) although the authors did get it right on page 36, section 6.2, end of first paragraph. There is an important distinction between AEMPs and AMPs but this document appears to be quite fuzzy on this distinction in a number of places.
- page 3, last paragraph. The role of the AEMP is to provide the data and information needed to evaluate the contribution of a particular project to the cumulative effects, not to evaluate the cumulative effects themselves.
- page 4. Somehow the role of AEMP to allow the assessment of the protection of the environment seems to be missing from the list in the last paragraph in section 1.3.
- page 6, chapter 2 (2.0, 2.1, 2.2, 2.3). The regulatory process is very poorly, and in several areas incorrectly, described. As an initial comment, this Chapter is largely unnecessary. A short paragraph indicating the main users of AEMP's would be sufficient. If the information is to remain it needs to be fixed and sorted out into a more logical presentation.
- page 11, section 2.4. Enforcement needs to be added to the list in the first sentence. Much of this section is very fuzzy, especially when it discusses special studies vs. ongoing monitoring as they are not the same thing and have different requirements. Adaptive management is not the same thing as either of the other two, although they are all related and mutually supportive.
- page 14, section 3.2. Many useful points listed in Appendix 1 appear to have been lost. How was this selection process (from appendix to main text) accomplished and why were some of these concepts discarded? The guiding principle that 'AEMPs must be designed and implemented in a manner...' should be reviewed.
- page 17. States: "While it is important to define the role of TK in the development and implementation of AEMPs, the AEMP Guidelines does not represent the most appropriate vehicle to deliver such guidance. Rather Aboriginal governments/organizations will explicitly define the applications and uses of TK on a project-by-project basis." However, the Agency believes there are some aspects of TK that can and should be universally applied for all developments requiring AEMPs.

- page 18. Understanding Aboriginal taxonomy can help to address the 2nd and 4th bullets on how TK can contribute to AEMPs: "Some of the reasons for including TK in the AEMP development process include...
 - TK provides an understanding of the structure and function of the aquatic ecosystem within the study area
 - TK enhances understanding of the linkages between environmental components, which can help to identify exposure pathways and key receptor groups."
- page 20. This section should more fully describe the need for incorporating Aboriginal people's holistic approach, thusly "...plants and animals (including birds and mammals) that utilize aquatic habitats.."
- page 21, section 5.1.1. While this may be very desirable, is this step really likely to occur at the very earliest stages of exploration and development?
- page 22. Should there be a 'no' in the second sentence in the last paragraph before section 5.1.1?
- page 26, section 5.1.3. Critical effect sizes are more likely to be part of an AMP, see earlier comment.
- page 27. The AEMP may not be the best place or may not be able to specify how inferences will be drawn from the measurement endpoints to the assessment endpoints.
- page 29. The use of land and water board throughout the document limits the use of the document to the Mackenzie Valley, excluding the Inuvialuit Settlement Region. It might be preferable to use the reference to 'regulatory agencies' as was done on page 38, last paragraph.
- page 32, first line. Delete 'and any cumulative effects that have occurred'.
page 32. The Agency strongly supports the involvement of all parties in environmental monitoring and management and supports the statement that "... it is strongly recommended that workshops be scheduled on an annual basis to present the data and the results of data analyses to the responsible land and water board, Aboriginal governments/organizations, regulators, and other interested parties."
- page 32. This is an entire step in implementing AEMPs devoted to applying AEMPs "within an adaptive management framework". The Agency strongly supports this approach.
- page 35, second line. Fix "within the NWT or elsewhere in the NWT". The rest of this paragraph should be reviewed.

- page 35, second paragraph. It is not clear how the framework will 'support the design of monitoring programs conducted prior to project development'. How do you develop the AEMP without some baseline data? The two need to be compatible but there is a logical sequence of development that this appears to reverse. Similarly the second paragraph in section 6.2 appears to have the same problem with sequencing. The framework can inform the collection of baseline data but not support it.

Volume 1

- page 4 and 5. Some of the points on consultation seem a bit confused. For example, the explanations are not clear for 'consultation should be inclusive', the intent of 'well facilitated' and 'interactive and deliberative' should also be explained more clearly.
- page 8. In addition to Land Use Patterns in the Study Area there should be information on any Land Use Plans which exist in a given area. There does not appear to be a single reference to Land Use Plans in any of the documents.
- page 9. The section on 'Local Hydrologic Conditions' is missing although there are passing references to the subject in later sections.
- Table 1. This is very generic and would be more useful if the northern industries were highlighted or included in a separate table. The useful northern information tends to get buried.

Volume 2

- pages 5 and 6. Why the emphasis on surface water? The role of ground water needs to be addressed in a meaningful way.
- page 10. The term "assessment endpoint" seems needlessly convoluted.
- page 13. The phrase 'identify the need for further mitigation' is correct in this context. This phrase has been transposed and has a very different meaning in much of the summary document.
- Table 2. This seems incomplete for northern activities.
- pages 40 to 200. Why is this section included as part of a guidance document? This is only one of the documents referenced and should not be included. Furthermore, it doesn't really help as it is for a highly contaminated area and in a southern environment.

Volume 3

- Appendix 1. Why is this section included? (see last comment on Volume 2)

Volume 4

This is a strong piece of work but the coverage of groundwater could be improved.

- page 2. The wording 'repeatedly expressed' might be removed to make the message more informative and less judgemental.

Volume 5

In general, this document seems to be a bit of overkill - basically, the report needs to document that which has gone before. There is a major tendency towards “alphabet soup” in this volume and the following one (#6). Plain language would benefit the reader and the plan.

- page 5. The field sampling program document (Section 3.1) is over complex and repetitive of other documents. It would be more helpful to focus on 'implementation' not a repetition of the development of the AEMP, objectives of the AEMP, or sampling program design. It might be useful to add a paragraph similar to the last one in Section 3.2.
- page 7. This section could be simplified along the lines suggested directly above.

Volume 6

no comment

Volume 7

This is interesting information but may not belong in a guidance document for developing AEMPs. To the extent that it shows how the information from the AEMP would be used, it is a useful addition. It could lead to confusion between the purposes of the two plans. It may be preferable to see this document included in the AMP development process, with a very short (one page) description of how the two are related, left in the present document.