REPORT ON THE DIAVIK DIAMOND MINES WATER LICENCE RENEWAL WORKSHOP

Sponsored by the Environmental Monitoring Advisory Board

Diavik Environmental Monitoring Advisory Board
2nd floor, 5006 Franklin Ave., Yellowknife, NT
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EXECUTIVE SUMMARY

EMAB sponsored a workshop for its members and representatives from affected communities to get input and direction on the following.

- Key issues to be addressed in the upcoming Water Licence renewal process and possible approaches/solutions;
- Expectations for EMAB's role at the water licence renewal hearings including: conducting studies; providing information to affected communities, preparing and presenting interventions; and
- Ways to improving the implementation and effectiveness of the Water Licence.

Three key issues identified by EMAB were the focal point of the workshop. The issue areas are *air quality* (*dust), aquatics (water and mud), and abandonment and Restoration and Restoration Research (closure)*. There was no consensus about what else EMAB could do to help the Aboriginal parities prepare for the Water Licence renewal. The consensus was that EMAB had done all it could do in advance of the Water Licence renewal and agreed that EMAB would focus its Water Licence intervention on water quality, abandonment and restoration and restoration research, and dust issues; and follow through into the technical sessions following the Licence hearings.

Figure 1- Courtesy of EMAB

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Workshop Organizers
John McCullum Executive Director, EMAB
Michele Letourneau, EMAB
Dar Lebrun, EMAB

Translators
Dogrib - Philip Rabesca, Violet Mackenzie
Chipewyan - Bertha Catholique

Sound - First North Productions - John Gon

Accommodation
Sah Naji Kwe B & B
Tlicho Motel

Figure 2 - courtesy EMAB Chair Doug Crossley

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1. INTRODUCTION

1.1. BACKGROUND AND PURPOSE

EMAB retained Terra Firma Consultants to facilitate a workshop for EMAB members and representatives from affected communities for the purpose of acquiring input on:

- Key issues to be addressed in the upcoming Water Licence renewal process and possible approaches/solutions;
- Expectations for EMAB's role at the water licence renewal hearings including: conducting studies; providing information to affected communities, preparing and presenting interventions; and
- Ways to improving the implementation and effectiveness of the Water Licence.

Three key issues identified by EMAB were the focal point of discussion at the workshop. The issue areas are *air quality* (*dust), aquatics (water and mud), and abandonment and Restoration and Restoration Research (closure)*.

2. DISCUSSION OF WORKSHOP PRESENTATIONS

2.1. DDMI's Aquatic Effects Monitoring Program

A technical review of Diavik Diamond Mines Inc. (DDMI) *Aquatic Effects Monitoring Program* (AEMP) was undertaken for EMAB by North/South Consultants Inc. Elaine Irving, on behalf of North/South, gave a Power Point presentation to the workshop on the key findings of this review.

North/South analyzed the four core components of the DDMI AEMP—water quality, sediment quality, benthic invertebrate communities, and phytoplankton and zooplankton communities. This review focused on AEMP monitoring activities since the program began back in the summer of 2001, with particular attention to recent activities as summarized in the 2004 AEMP report. Key reference points for North/South's work were the AEMP program design approved by the Mackenzie Valley Land and Water Board (MVLWB) in June 2001 and the conditions of DDMI's Water License N7L2-1645. Specifically, the review took its direction from the Water License requirement for the AEMP to "*determine the short and long-term effects in the aquatic environment resulting from the Project, test impact predictions, measure the performance of operations and evaluate the effectiveness of impact mitigation*."

On **Water Quality monitoring**, the review commends DDMI for its commitment and effort. However, it has some concerns about the present program, and questions the program's ability to "meet its primary objective (i.e., "*to ensure that the project does not have significant adverse impacts on the aquatic ecosystem of Lac de Gras*"). To address these concerns, the report makes several recommendations. An important recommendation calls for DDMI to add a reference lake—a lake not affected by project activities yet that is similar in some ways to the lake that maybe affected—to its monitoring design. The report also recommends that: the data analysis approach including triggers be reviewed; that the derivation of baseline statistics be reconsidered;

that all water quality data be gathered in a single report; that some data treatments be changed; and, the QA/QC procedures be reviewed.

Next, on the **Phytoplankton and Zooplankton** component, the reviewers believe that this generally follows the design approved in the original Water Licence AEMP document. However, the report still raises several concerns about the program design, data analysis, and presentation of monitoring information. It makes a number of recommendations for improving this component of the AEMP. It calls for DDMI to provide detailed information on the compilation of AEMP baseline data on zooplankton and phytoplankton, and to review its adequacy. It recommends that reference lake sites be located outside of the area potentially affected by the mine project, and that routine AEMP "near-field" monitoring sites be installed. Further, it argues for specific QA/QC criteria to be developed to evaluate differences in phytoplankton and zooplankton duplicate samples.

On **Benthic Invertebrate monitoring**, the review believes that DDMI has "moved the program in the right direction" since the AEMP began in 2001. However, it identifies additional "measures" which are needed if this component is to comply with the original AEMP objectives and with Water License requirements. The report argues that the benthic study design should be re-evaluated, and that it should be "refocused towards the reduction of among and within area, and within area variability to improve the ability to detect change…" The reviewers believe that potential short and long-term Project effects on Lac de Gras benthic communities should continue to be monitored both spatially and temporally. They further recommend that cumulative effects should be assessed and discussed in the annual AEMP reports, and that the weight of evidence approach should also be correctly applied in these reports.

The **Sediment Quality** review argues that the present program "does not fulfill the main objective of the approved program design and Water License requirements." North/South Consultants agrees with previous reviewers that the sediment quality design study is "the main obstacle to fulfilling the mandate of the AEMP." Generally, the reviewers believe that it should be revised and better integrated along with the benthic invertebrate component. They recommend that the sediment component be revised in these ways: a gradient design should be used in near-field/mid-field areas; the number of far field sites should be increased and located away from potential cumulative sources; a reference lake should be added to help determine regional impacts; and, sampling efforts should concentrate on independent sites within the hear-field, mid-field and far-field areas. Among other things, they also call for metal/nutrient loading into Lac de Gras to be considered, and for cumulative effects in Lac de Gras and on the far-field site to be assessed in annual AEMP reports.

Overall, the report concludes, the AEMP study design was "perhaps the main limiting factor preventing the program from meeting its primary objective…" North/South makes a point of reiterating its call for DDMI to add a reference lake to its study design. In its view, introducing such a reference lake will give DDMI "the ability to partition and control variability, define reference conditions and assess cumulative effects." Only by doing this will the company be able to determine if observed effects are due to its mine Project, and be able to take appropriate mitigation measures. North/South also calls attention to the lack of Traditional Knowledge and to the inadequate assessment of cumulative effects in the AEMP—both being required by the Environmental Agreement.

Finally, the report argues that its various recommendations on DDMI's AEMP should receive "particular consideration" in view of the upcoming Water License renewal hearings. It suggests that EMAB make use of these recommendations as it participates in the MVLWB hearings and in any discussion of program design which takes place during the regulatory process after these hearings.

2.1.1. Discussion

Workshop participants spent the rest of the afternoon discussing the issues raised in North/South's technical review of the Aquatic Effects Monitoring Program. They had a whole range of general and specific questions and concerns about the AEMP and about the reviewers' findings. Many of the community representatives expressed concerns about the impacts of the mine Project on water quality, and about the ability of the AEMP to adequately determine the extent and nature of such impacts. The participants didn't wish to assign any particular priority to the issues identified in the technical review, although several people stressed the importance of including a "reference lake" in revisions to the AEMP. It was generally felt that priorities should be established by each Party represented on EMAB, after consulting with community people.

Eventually, the workshop agreed that EMAB should raise the report's central technical recommendations on the AEMP with the MVLWB in the upcoming Water License hearings; EMAB was also asked to table the North/South report with the Board. Participants felt that relying on EMAB to intervene in this way would avoid duplication of effort and would be the most effective use of scarce resources. Community representatives emphasized their desire to take the technical findings back to their communities for more discussion and direction on how they should be dealt with in the hearings.

Part of the afternoon was taken up with a discussion of how DDMI's monitoring programs conformed with the Environmental Agreement. There was broad general agreement that DDMI was not meeting key requirements of the De Beers Snap Lake Environmental Agreement in the design and implementation of its environmental monitoring programs. In particular, several people questioned the adequacy of DDMI's efforts to incorporate Aboriginal Traditional Knowledge into the AEMP. No clear consensus emerged on what actions EMAB should undertake to rectify this situation, either during the Water License hearings or afterwards. Various participants wanted to see EMAB involved in a process of redesigning the AEMP after the hearings, but provided no specific recommendation on this.

The workshop also gave some attention to the ways in which DDMI's Water License is being administered, especially by the MVLWB. EMAB has a variety of concerns about this Licensee's administration, and these were briefly discussed. Several participants were critical of the MVLWB position that it isn't responsible to determine whether a report meets License requirements unless this report is "for approval." But, at the end of the day, there wasn't clear agreement on priorities or on what actions EMAB should take to address its concerns about administration.

At various points, throughout the day, workshop participants raised questions and concerns about the adequacy of financial resources to support their participation in the

MVLWB hearings and, more broadly, in the regulatory process relating to DDMI's Water License. Many of the participants felt that they might not be able to intervene in the hearings, given the limited funding available to them.

2.2. DDMI'S ABANDONMENT AND RESTORATION AND RECLAMATION RESEARCH PLANS

The technical review of DDMI's plans for when it closes was undertaken by Randy Knapp; and Tony Brown of SENES gave a PowerPoint presentation on the report results. This review focused on the DDMI Interim Abandonment and Restoration Plan dated October 2001 (A & R Plan) and its Reclamation Research Plan dated June 2002 (RR plan).

2.3. Interim Abandonment and Restoration Plan

In general, the review note DDMI's Abandonment and Restoration Plan has no "fatal flaws." It stresses that although the Plan is now dated, DDMI proposes to use "proven approaches to reclaim the site." SENES's main concern with the RR Plan is that it does not provide enough information/detail to give the reviewer confidence that DDMI has answers to a number of significant questions.

The technical review highlights unanswered questions relating to the A & R Plan. These have to do with the Underground Workings, the Open Pit and Dyke Enclosures, the Country Pile Rocks, the Processed Kimberlite, and DDMI's Early Shutdown Strategies. Key questions are: After the mine is flooded, will water discharge to Lac de Gras or the surface? Will the water contain contaminants and how would this be managed? Could the pit become saline after it is flooded? If yes, how will it affect the environment and what can be done about it? Do the pit walls have naturally occurring materials that might contaminate the pit when it is flooded? If yes, what will be done to prevent it from happening? How have potential climate changes been considered in reclamation planning? If the mine closes early, how will it affect A & R activities and costs?

The report also calls attention to areas in the Plan which need to be improved. First, regarding Vegetation Plans, it notes that DDMI hasn't decided about revegatation of disturbed areas. This leaves it unclear whether the company plans to restore vegetation at the site, and where the site vegetation program will be effective. Without knowing this, costing of closure plans cannot be completed. Second, on Climate Change, it notes that this hasn't been specifically addressed in the closure plan. The Plan's success crucially depends on disturbed areas freezing and staying frozen. The review argues that more information is needed to confirm that the Plan will still work if the climate changes. Third, on the Detailed Care and Maintenance Plans, it seeks more information on the monitoring of man-made structures as well as on their repair and maintenance, risk analysis, and short term maintenance of vegetation. Finally, on Visual Aids, the review calls for: larger scale drawings of what is being proposed and how the site would appear after closure; conceptual design sketches for all proposed reclamation works; and, improved site plans and mapping showing current and human drainage sites.

The review emphasizes that the lack of detail "makes it difficult to know if each part of the Plan will be able to prevent specific impacts to the environment." Also, without these details, "accurate closure cost estimates cannot be prepared."

The review believes that if the A & R Plan is improved, then it can be used successfully to protect the environment. If the deficiencies that SENES identifies are fixed, then this will help "regulators and the public to be sure that DDMI is aware of potential impacts and has a good plan to make sure they don't occur." It recommends that the missing information should be provided the next time this Plan is revised. And, it suggests that reclamation research activities will help answer many of the questions raised.

2.4. RECLAMATION RESEARCH PLAN

The technical review only briefly analyzes DDMI's Reclamation Research Plan. It finds no significant gaps or deficiencies in the Plan. It notes that; "Once fully implemented, the R & R Plan will help to address the key information gaps that are in the A & R Plan."

2.4.1. Discussion

The workshop participants discussed DDMI's Interim Restoration and Abandonment and Reclamation Research Plans at some length. They had a number of concerns and questions about the company's approach to restoration and abandonment. Some of the key issues they raised are supported by and dovetailed with the findings of the SENES review. Many participants wanted to take these findings back to their communities for further discussion, and to receive direction on how they should be dealt with at the upcoming DDMI Water License hearings. It was generally felt that this information must be distributed more widely and better understood at the community level. The workshop was unanimous in recommending that EMAB should bring forward the key issues highlighted in the technical review to the Mackenzie Valley Land and Water Board; EMAB was also requested to provide the SENES report to the Board. The workshop further agreed on the need to address the central issues in the SENES report in the next revisions to DDMI's A & R Plan.

2.5. DDMI'S AIR QUALITY MONITORING PROGRAM

The technical review was undertaken by Bohdan Hrebenyk (SENES) and Katherine Enns (Delphinium Holdings), and Shelagh Montgomery for SENES provided a Power Point presentation on their report. Overall, the reviewers had similar concerns about both DDMI's Air Quality Monitoring Program and its Research Proposal for Dust Distribution and Monitoring. In both cases, they found inadequate knowledge about standard sampling procedures, not enough information to allow for an independent review, and the need for more technical support if the programs are to succeed.

2.5.1. Discussion

The report identifies several key issues relating to DDMI's Air Quality Monitoring Program. It argues that standard methods for monitoring dust were not followed, so it is difficult to be certain about the accuracy of the DDMI's results. Also, it notes that the reports from DDMI don't give enough information about how snow was sampled, so it is

difficult to confirm the winter results from the Program. Third, it says that: "If the results that DDMI reports for the amount of dust falling to the ground around the mine site are correct then the amounts are much higher than what they predicted in 1998 when the project was going through an environmental assessment."

The review stresses the importance of these three issues. They are of concern because, first, it is not possible to be certain whether the three years of results reported by the company are accurate. Further, if there is uncertainty about the air quality results, then DDMI's Air Quality Monitoring Program isn't doing what is should. And, finally, if the results are uncertain due to sampling and measurement problems, then it isn't possible to know whether air quality at the mine site is the "same, better or worse than it was before the mine was opened."

The report believes that these issues will remain until the uncertainty about DDMI's reported results is corrected. It argues that once the company's sampling methods are more comparable to standard methods, then there can be confidence in these results.

Based on these findings, the report recommends that DDMI's dust sampling program be redesigned to meet "standard test methods." It suggests that if DDMI keeps accurate notes of data on when snow stays on the ground and when lake freeze-up begins, the accuracy of the snow core sampling program will improve. Also, it calls for more detail in the company's reports on methods used to calculate "annual average total deposition rates for both the dust gauge and snow core sampling programs." SENES believes that this will allow the results to be independently verified.

2.6. Research Proposal for Dust Distribution and Monitoring

The report also raises questions about DDMI's Research Proposal for Dust Distribution and Monitoring. It argues that there seems to be a lack of knowledge about methods for collecting, storing, drying and preparing lichens. Also, the Proposal doesn't describe several "main features" of a lichen monitoring program. Existing data from plant sampling already conducted by DDMI is not mentioned in the Proposal. Further, it is unclear what statistical methods will be used in the proposed study. Overall, the reviewers simply are not clear whether the researchers have the background to carry out the study.

The report thinks that these deficiencies are significant for several reasons. It suggests that DDMI's Proposal is not properly planned, that the methods are not "fully understood" and that there isn't adequate technical support or expertise. It is concerned that the proposed study might get underway without some necessary changes.

The report makes several recommendations for improving the Proposal. It believes that a "thorough understanding" is needed of methods for processing lichens for analysis. It calls for a review of previous lichens collections and metals analysis before a species is chosen for use in the monitoring program. It would also like to see more details on the objectives, methodology and analysis that will be used to determine risk to caribou. As well, it recommends that advice be sought from professionals with experience in the fields of lichen, dust and animal uptake.

2.6.1. Discussion

The workshop participants discussed DDMI's Air Quality Monitoring Program and Research Proposal in less detail than its A & R Plan. They voiced several significant concerns about the company's approach to air quality monitoring. Some of their concerns were supported by the findings of the technical review. As with the A & R Plan, most participants wanted to take these findings back to their communities for discussion, and to receive direction on how they should be addressed at the upcoming DDMI Water License hearings. It was generally felt that this information must be distributed more widely to community people, and that EMAB provide the SENES report to the Mackenzie Valley Land and Water Board. Finally, the workshop recommended unanimously that EMAB should raise the key issues highlighted in the technical review with the Mackenzie Valley Land and Water Board.

Figure 3 - courtesy EMAB

3. Findings and Recommendations

EMAB identified three key issues through the course of its mandate for which it sought expert input by way of peer reviews. The peer reviews and presentations provided the workshop participants a focal point of discussion. The key issue areas are air quality (dust), aquatics (water and mud), and abandonment and Restoration and Restoration Research (what happens when all the diamonds are mined?).

EMAB over the course of its work has identified and categorized Water Licence issues into those being of a general natural; those conforming to the management and monitoring programs in the Water Licence as prescribed by the Environmental Agreement, and 3) issues with the administration of the Water Licence. These issues were discussed at the workshop but a majority of the time was dedicated to discussing the dust, water and mud, and closure issues.

These are the notable outcomes of the workshop.

3.1. EMABs ROLE WITH RESPECT TO THE WATER LICENCE RENEWAL

EMAB commissioned peer reviews of the three key issues it believed affected DDMIs Water Licence performance. The issues and their respective regulatory instruments are as follows; dust deposition through air quality monitoring and Water Licence provisions; aquatic monitoring through the Aquatic Effects Monitoring AEMP program; and, abandonment and restoration, and restoration research through the abandonment and restoration clauses in the Water Licence.

The workshop attendees all agreed that EMAB should intervene in the DDMI Water Licence renewal by at least submitting the peer review documents to the Mackenzie Valley Land and Water Board. The participants requested EMAB provide the respective parties copies of its intervention in advance for their use and benefit.

3.2. ISSUE WITH THE MANAGEMENT AND MONITORING PROGRAMS IN THE WATER LICENCE MEETING THE REQUIREMENTS OF THE ENVIRONMENTAL AGREEMENT

Most participants agreed that DDMI is not living up the Environmental Agreement because the monitoring programs in place are not meeting the six criteria required of all monitoring programs as set out in the Environmental Agreement; they are:

- consider traditional knowledge,
- establish or confirm thresholds or early warning signs,
- trigger action by adaptive mitigation measures where appropriate,
- provide opportunities for involvement or active participation of each of the Aboriginal Peoples in implementation and,
- provide training opportunities for each of the Aboriginal Peoples Clause 7.6 also requires the participation of Aboriginal Peoples in the design and implementation of Environmental Monitoring Programs.

The workshop participants were ambiguous about how to address the issue of conformance with the Environmental Agreement.

3.3. ISSUES WITH THE WATER MANAGEMENT AND MONITORING PROGRAMS

Management and monitoring program issues included the AEMP, baseline data, sampling, seasonal trend considerations, and selection of an appropriate reference lake. Participants were not quite sure how to address all the issues or if EMAB could intervene independently of the parties that created EMAB. In the end the group agreed to have EMAB intervene as itself; and not a representative of its constituent parties, and that its participation was only based on its technical and scientific contribution.

3.4. ISSUE OF ADMINISTRATION OF THE WATER LICENCE

EMAB also identified the following administrative issues with the DDMI Water Licence:

- Approval of reports,
- Assessment of AEMP report results,
- Changes to Plans / Programs in the WL,
- Technical capacity and the decision process for where issues are raised,
- Determination of compliance, and
- Intervener funding.

Intervener funding and availability of resources in general were discussed several times over and cut across several discussions over the two days. A majority of the participants were certain and clear about their resource challenges with respect to the Water Licence renewal; however, there was considerable ambiguity about how to address the other administrative issues.

3.5. ISSUE OF EMABs ON-GOING ASSISTANCE TO THE PARTIES

Three key issues identified by EMAB were the focal point of discussion at the workshop. The issue areas are *air quality* (*dust), aquatics (water and mud), and abandonment and Restoration and Restoration Research (closure)*. There was no consensus what more EMAB could do to help the Aboriginal parities prepare for the Water Licence renewal, and collectively felt EMAB had done all it could do in advance of the Water Licence renewal. Everyone also agreed that EMAB would focus its Water Licence intervention on water quality, abandonment and restoration and restoration research, and dust issues; and follow through into the technical sessions following the Licence hearings.

Appendix A: Workshop Agenda

AGENDA
Rae-Edzo Cultural Center

DAY ONE: TUESDAY NOVEMBER 8, 2005

8:30 – 9:00 **Arrival**

9:00 – 9:45 **Welcome and Introductions - Facilitator**

- Opening Prayer - Elder
- Welcome to Tlicho - To be Announced
- Welcome to the EMAB Workshop – Doug Crossley Chair, EMAB
- Introduction of Participants
- Purpose, Objectives and Outcome - Facilitator
- Roles and Responsibilities - Facilitator
- Agenda Review - Facilitator

9:45 – 10:00 **Refreshment Break**

10:00 – 12:00 **Water Licence Renewal Application to the Mackenzie Valley Land and Water Board**

- History of the Water Licence – Gordon McDonald, DDMI
- How Governments Regulate Water Licence Renewals – James Edmonson
- Relationship of the Environmental Agreement to the Water Licence – James Edmonson
- Components of the DDMI Water Licence and EMAB issues with respect to the mine – John McCullum, Executive Director
- Roles and Responsibilities - Facilitator
- Agenda Review - Facilitator

12:00 – 1:00 **Lunch Served at the Workshop**

1:00 – 5:00 **Aquatic Effects Monitoring Program North/South Consultants – Elaine Irving**

- Overview
- Results to date
- Issues
- Recommendations
- Recommendations for Aboriginal involvement and use of TK/IQ

DAY TWO: WEDNESDAY NOVEMBER 9, 2005

9:00 – 9:30 Welcome to Day Two - Facilitator

- Purpose, Objectives and Outcome - Facilitator
- Recap Day One
- Day Two Agenda Review - Facilitator

9:30 – 12:00 Interim Abandonment and Restoration Plan and Restoration Research Plan – Tony Brown, SENES Consultants Ltd.

- Overview
- Results to date
- Issues
- Recommendations
- Recommendations for Aboriginal involvement and use of TK/IQ

12:00 – 1:00 Lunch Served at the Workshop

1:00 – 3:00 Air Quality Monitoring and Proposed Lichen Monitoring – Shelagh Montgomery SENES Consultants Ltd.

- Overview
- Results to date
- Issues
- Recommendations
- Recommendations for Aboriginal involvement and use of TK/IQ

3:00 – 3:15 Refreshment Break

3:15 - 4:30 Other issues as identified under item 1

4:30 – 5:00 Wrap-up

- Summary of conclusions and recommendations
- Further comments
- Next steps

Appendix B: Workshop Participants

Workshop Participants	Representing
Doug Crossley	Chair, EMAB, Kitikmeot Inuit Association
John McCullum	Executive Director, EMAB
Michele Letourneau	Communications, EMAB
Geoff Clarke	Kitikmeot Inuit Association
Ronald Tologanak	Kitikmeot Inuit Association
Terri Enzoe	Lutsel K'e Dene First Nation
Florence Catholique	Lutsel K'e Dene First Nation
Monica Krieger	Lutsel K'e Dene First Nation
Lawrence Goulet	Yellowknives Dene First Nation
Paul Mackenzie	Yellowknives Dene First Nation
Eddie Jones	North Slave Métis Alliance
Ashton Hawker	North Slave Métis Alliance
Sheryl Grieve	North Slave Métis Alliance
Erik Madsen	Diavik Diamond Mines Ltd.
Gordon Macdonald	Diavik Diamond Mines Ltd.
Kathleen Racher	Indian and Northern Affairs Canada
Eddie Erasmus	Tlicho Government
Philip Husky	Tlicho Government
Pierre Tlokka	Tlicho Government
Tony Brown	SENES
Shelagh Montgomery	SENES
Valerie Meeres	NSMA
Wayne Langenham	NSMA
Dora Enzoe	Akaitcho Interim Measures
Louie Azzolini	Terra Firma Consultants
Jim Edmondson	Terra Firma Consultant
Bertha Catholique – Translator	Lutsel K'e Dene First Nation

Appendix C: Background Paper on the Legislative and Regulatory framework for DDMI's Application for Water License Renewal

1. INTRODUCTION

This paper briefly summarizes key features of the legislative and regulatory framework within DDMI's application for Water Licence renewal will be processed.

1.1. LEGISLATION

1.1.1. What legislation most directly applies to DDMI's application for Water License renewal?

Two pieces of federal legislation should be highlighted. First, and perhaps most important, is the Mackenzie Valley Resource Management Act (MVRMA), which legally empowers a land and resource management regime for the Mackenzie Valley. In so doing, it gives legal effect to provisions on land and resource management in the land claims agreements of the Gwich'in and the Sahtu Dene and Metis, and more recently, the Tlicho. Among other things, the MVRMA establishes a number of co-management bodies operating at the Mackenzie Valley-wide and regional levels, defines the membership of their Boards, and gives general direction on their operations, powers, areas of jurisdiction, and relations with other management authorities. Two of these bodies are the Mackenzie Valley Land and Water Board and the Wek'eezhii Land and Water Board.

Second is the Northwest Territories Waters Act which governs the use of waters and the deposit of wastes in waters in the Northwest Territories. The application of this Act is modified by the MVRMA (see MVRMA s. 60), but it still provides direction on the need for Water Licenses for water uses and waste deposits in the NWT. The Northwest Territories Water Regulations give more specific directions on the legal requirements for water licenses; in particular, it requires projects and activities to obtain Class A or Class B Licences before they can go forward.

1.2. Regulatory Authorities

1.2.1. What regulatory authorities will be primarily responsible for administering DDMI's application for Water License renewal?

The Mackenzie Valley Land and Water Board (MVLWB) is currently processing an application from Diavik DDMI to renew Water License N2L2-1645. The MVLWB is a co-management body established under the Mackenzie Valley Resource Management Act (MVRMA), which is based on provisions of the Gwich'in and Sahtu regional claim settlements and now, as well, on the Tlicho Agreement. This Board's objectives are to: "provide for the conservation, development and utilization of land and water resources in a manner that will provide the optimum benefit generally for all Canadians and in particular for residents of the Mackenzie Valley (MVRMA, s.101.1(1)). It shares its

authority with regional panels operating in “management areas” in each claim settlement area.

The MVLWB is made up of a Chair, two members appointed after consultations by Canada with the First Nations and the Tlicho Government, one member appointed by the GNWT and one other member; it also includes all the members of the regional boards operating in the Gwich’in, Sahtu and Tlicho regions (see MVRMA, s.99). The MVLWB has authority over activities or projects that take place in or impact on more than one management area, in a management area and an area outside any management area, or in an area wholly outside any management area (MVRMA, s.103.(1)). It is also empowered to issue directions on general policy and on matters relating to land or water use or waste deposits, which it believes “require consistent application throughout the Mackenzie Valley” (MVRMA, s.106).

If the MVLWB decides to issue a Class A Water Licence, this must be sent to the federal Minister for approval before it takes effect. The Minister has 30 days to review the draft License and decide whether to approve or reject it, and must give written reasons for his or her decision. This Ministerial review period may be extended by another 30 days if necessary. A Class B Water License is directly issued by the Board. Similar requirements apply to its regional panels when they deal with applications for Class A Water Licenses.

On August 4th of this year—the effective date for the Tlicho Land Claims and Self-Government Agreement—the Wek’eezhii Land and Water Board (WLWB) became a legally recognized management authority. For its first six months, the WLWB will be an administrative and advisory body. Then, on February 4th, 2006, it becomes a regional panel of the MVLWB as well as a decision making body within its “management area” (Wek’eezhii). The WLWB is required to: “regulate the use of land and waters and the deposit of waste so as to provide for the conservation, development and utilization of land and water resources in a manner that will provide the optimum benefit generally for all Canadians and in particular for residents of its management area”(MVRMA, s.58.1).

Membership of the WLWB will be as follows—apart from the Chair, 50% of its members shall be appointees of “government” (Canada, the GNWT) and the other 50% will be appointed by the Tlicho Government. Tlicho representation on the Board will be subject to any agreement between the Tlicho and another Aboriginal people in the Northwest Territories (Tlicho Agt, s.22.3.3). The Chair will be nominated by other WLWB members, and is appointed jointly by Canada and the Tlicho Government. The Mackenzie Valley Resource Management Act states that the WLWB will have five members, including the Chair (MVRMA, s.57.1(2)).

The WLWB has authority over activities and projects “no part of which is outside Wek’eezhii and that have no impact outside Wek’eezhii” (Tlicho Act. s.22.4.3). Inside Wek’eezhii, the WLWB’s authority doesn’t apply to activities in national parks, national historic parks or sites managed by Parks Canada, or in Tlicho communities where the community government regulates land use. Under section 103.(4) of the MVRMA, the

MVLWB is empowered to decide whether an application falls within its jurisdiction or that of the WLWB.

The federal Minister has authority to issue policy directions to either the MWLWB or the WLWB, after consulting with them and the Tlicho Government. The Tlicho Government has similar authority to give written directions to either Board, after consulting them, on the exercise of their powers over the use of Tlicho lands. These directions are binding to the extent that the Board isn't required to "exceed its approved budget" in meeting them (MVRMA, s.83, s.109). Where such policy directions conflict, directions from the Tlicho Government will prevail.

As "regulatory authorities" under the MVRMA, both the MVLWB and WLWB must conduct preliminary screenings of applications to see if the proposed water uses or waste deposits will have negative environmental impacts or will cause significant public concerns. Based on these screenings, a Board will decide whether: (a) the application should go to the Mackenzie Valley Environmental Review Board (MVEIRB) for environmental assessment (b) further studies are needed, or (c) it will continue on through the Board licensing process. If an application is then sent to the MVEIRB, the MVLWB or the WLWB will do no further work on it until a decision comes back from the Review Board. At this point, the MVLWB has ruled that DDMI's Water License renewal application is exempt from preliminary screening (see letter from Peter Lennie-Misgeld dated Sept. 8, 2005).

1.3. Environmental Agreement

1.3.1. What is the relationship between the DDMI Environmental Agreement and the water license renewal process?

The Environmental Agreement was negotiated (signed on March 8th, 2000) during the period when Diavik Diamond Mines Inc. was receiving the initial regulatory approvals for its mine project. Parties to the Agreement are Canada, the GNWT, DDMI, Dogrib Treaty 11 Council (now the Tlicho Government), Lutsel K'e Dene Band, Yellowknives Dene Band, North Slave Metis Alliance, and Kitikmeot Inuit Association. It establishes an Environmental Monitoring Advisory Board (EMAB), sets out some guiding principles and purposes, defines a mandate for EMAB, gives broad direction on various aspects of environmental management and reporting for the DDMI mine project, and details a security and enforcement system for this project. **Overall, this Agreement applies to the water licensing process under the MVRMA only in a general and indirect manner; one crucial exception is the security deposit requirements.**

The Agreement spells out EMAB's Mandate. It is responsible to: "…(c) serve as a public watch dog of the regulatory process and the implementation of this Agreement (d) review Environmental Plans and Programs, Annual Reports, Environmental Protection Measures, compliance or monitoring reports and other reports and data bearing on environmental quality that are produced by any of the Parties or regulatory authorities pursuant to this Agreement, Regulatory Instruments and laws of general application…(l)

participate as an intervener, as appropriate for the achievement of its mandate, in regulatory processes…etc"(Art 4.2).

Article 5 on Environmental Compliance states that: "DDMI shall carry out the Project in compliance with all environmental laws and regulations and Regulatory Instruments applicable to the Project including, without limitation: (a) the Water License…"(Art 5.1).

Article 6 commits DDMI to conduct environmental management of the Project through implementation of Environmental Management Plans, as part of a broad "program of adaptive management." These Plans are expected to include a number of plans which are also required in DDMI's Water License N2L2-1645. In particular, these plans include: "…(f) Emergency Response Plan (g) Processed Kimberlite Containment Management Plan…(i) Dredged Lakebed Sediment Management Plan (j) Reclamation and Abandonment Plans(s)" (Art 6.2).

Article 10 requires DDMI to: "submit Reclamation and Abandonment Plan(s) as and when required pursuant to the Northwest Territories Waters Act, the Mackenzie Valley Resource Management Act, and the Territorial Lands Act" (Art 10.1(a)). Part L of DDMI's Water License N2L2-1645 sets out requirements for abandonment and restoration of the mine project in some detail.

Article 13 deals with Regulatory Authority, and states that: "In the event that any provisions of this Agreement are in conflict with or inconsistent with any legislation or Regulatory Instrument with respect to the Project, the terms of such legislation or Regulatory instrument shall prevail over any of the terms of this Agreement to the extent of the conflict or inconsistency"(Art 13.1).

Article 15 sets out complex details and schedules of payment for DDMI's provision of a Security Deposit, EA Security Deposit, and Additional Security Deposit to the federal Minister. These are intended for use as "security for the performance by DDMI of its reclamation and abandonment obligations under the Water Licences and Land Leases, any other obligations of DDMI under environmental laws and regulations or under any other Regulatory Instruments for which the Minister is responsible…" (Art 15.1). These provisions overlap with the security deposit provisions in Part B "General Conditions" of DDMI's Water License.

The relationship(s) between these two sets of security requirements can't be discussed within this paper. But, one provision of the Agreement should be noted: "The amount of each security deposit which DDMI posts with the Minister pursuant to the Land Leases or the Water Licence shall be credited first against the Security Deposit and then against the Additional Security Deposit provided that any credit against the Additional Security Deposit shall exceed 67% of the Additional Security Deposit" (Art15.1(f)).

Appendix D: Executive Summaries of the EMAB Commissioned Peer Reviews

1. Interim Abandonment and Restoration (A&R) and Reclamation Research (RR) Plans

1.1. INTRODUCTION

SENES Consultants Limited (SENES) was hired by the Environmental Monitoring Advisory Board (EMAB) to conduct an independent peer review of the Interim Abandonment and Restoration (A&R) and Reclamation Research (RR) Plans for the DDMI Project. This document provides a brief overview of the report that was submitted to the EMAB.

1.2. WHAT ARE THE KEY ISSUES?

No “fatal flaws” were found in the A&R Plan. However, a number of areas requiring improvement were identified. In general, not enough detail is provided to answer some important questions. Examples of some of these questions include:

1. After the mine is flooded, will water discharge to Lac de Gras or the surface? If yes, how much water is expected? Will it contain contaminants and how would this be managed?
2. Could the pit become saline (salty) after it is flooded? If yes, how will it affect the environment and what can be done about it?
3. Do the pit walls have naturally occurring materials that might contaminate the pit when it is flooded (e.g., metals and acid)? If yes, what will be done to prevent it from happening?
4. How have potential climate changes been considered in reclamation planning? More details are needed to show that the proposed covers and barriers will still work if the climate changes.
5. If the mine closes early, how will it affect A&R activities? What changes to the plan would be needed? Would costs change?
6. What are the long-term maintenance requirements for the site?

In addition to these questions, we found a number of specific areas that need more detail. A few examples include:

1. Drawings and maps showing the mine area before it was built, during operations and after reclamation. This would help people to understand what is being proposed and how the site would appear after the mine closes;

2. A vegetation plan that shows where and how plants will be grown (based on our review, it is unclear whether there is any commitment to restore vegetation to the site);
3. Grading and drainage plans showing final slopes and access routes for caribou (if necessary).

Once fully implemented, the R&R plan will help to address the key information gaps that are in the A&R plan. We are not aware of more studies that should be completed at this time.

1.2.1. WHY IS IT AN ISSUE?

The lack of detail makes it difficult to know if each part of the plan will be able to prevent specific impacts to the environment. In addition, without more details, accurate closure cost estimates cannot be prepared.

1.2.2. FOR WHO IS IT AN ISSUE?

The environmental impacts that could occur after the mine is closed are similar to many other sites. Also, proven ways to avoid or mitigate the potential impacts are available. Because of this, we think that if the plan is improved and implemented it will be able to protect the environment.

However, the deficiencies should be fixed. This will help regulators and the public to be sure that DDMI is aware of all potential impacts and has a good plan to make sure they don't occur.

1.2.3. WHERE IS IT AN ISSUE?

If significant impacts occurred, they would probably be close to the mine.

1.2.4. WHEN IS IT AN ISSUE?

Post-closure.

1.2.5. HOW CAN THE ISSUE BE ADDRESSED?

The missing information in the plan should be provided the next time it is revised. The reclamation research activities will help to answer many of the questions we have. Because the mine has operated for several years and they have a better idea of future activity, DDMI should be able to prepare a much more detailed A&R plan.

1.3. CONCLUSION

The Interim A&R Plan was prepared to address the conditions set out in the water licence. In general, it proposes to use proven approaches to reclaim the site. The main weakness in the plan is that it doesn't have enough detail. This is in part to be expected because the A&R Plan is a living document that is supposed to be modified as more information becomes available. However, based on the information that DDMI now has, significantly more detail should be provided in the A&R plan.

2. AIR QUALITY MONITORING

2.1. INTRODUCTION

SENES Consultants Limited (SENES) was hired by the Environmental Monitoring Advisory Board (EMAB) to conduct an independent peer review of DDMI's Air Quality Monitoring Program. Regular air quality monitoring at the DDMI site has to be done as part of the permitting that allowed DDMI to open the mine. DDMI has produced three annual reports about its air quality monitoring in 2002, 2003, and 2004. These reports were used for the review. This document provides a summary of the key issues from the technical report that was submitted to EMAB.

2.2. WHAT ARE THE KEY ISSUES?

The technical review found several key issues of concern about the air quality monitoring being done by DDMI. The key issues are:

1. Standard methods for monitoring of dust in air were not followed. This means that it is difficult to be certain about the accuracy of the results presented by DDMI.

2. The DDMI reports do not give enough information about how snow was sampled. This means that it is difficult to confirm the winter results presented by DDMI.

3. If the results that DDMI reports for the amount of dust falling to the ground around the mine site are correct then the amounts are much higher than what they predicted in 1998 when the project was going through an environmental assessment.

2.2.1. WHY ARE THESE KEY ISSUES?

The three key issues presented above are important because it is not possible to be certain that the three years worth of results reported by DDMI are accurate. The uncertainty about the air quality results reported by DDMI means that the air quality monitoring program is not doing what it should. That is, if the results are uncertain because of sampling and measurement problems then it is not possible to say whether air quality at the DDMI mine site is the same, better or worse than it was before the mine opened.

2.2.2. FOR WHO ARE THESE KEY ISSUES?

These are key issues for anyone who wants to know what is happening with air quality at the DDMI mine site. When three years of monitoring are conducted and it is not possible to have confidence in the results EMAB should be concerned.

2.2.3. WHERE ARE THESE ISSUES?

These are issues around the entire DDMI mine site.

2.2.4. WHEN ARE THESE ISSUES?

These are issues until the uncertainty about the reported results is corrected. That is, when the sampling methods can be shown to be comparable to standard methods then it will be possible to have confidence in the results.

2.2.5. WHAT NEEDS TO BE DONE?

The uncertainty about the air quality results reported by DDMI needs to be corrected. This can be done by ensuring that the sampling and measurement methods used are accepted and approved standard methods. Based on the technical review of SENES it is recommended that:

1. The dust sampling program be re-designed to meet standard test methods.

2. DDMI needs to keep accurate notes of the date when snow stays on the ground and when lake freeze-up begins. This will help with the accuracy of results from the snow core sampling program.

3. More detail is required in the annual reports about the methods used to calculate the annual average total dustfall deposition rates for both the dust gauge and snow core sampling programs. This will allow the results to be independently verified, for example, when a technical review is done.

2.3. CONCLUSION

The technical review of DDMI's Air Quality Monitoring Program identified concerns about the accuracy of the results reported for 2002, 2003, and 2004. The main reason for these concerns is that the sampling methods used for collecting dust around the mine site have not used standard procedures.

If there is not confidence in the sampling methods used then it is not possible to have confidence in the reported results. This means that the air quality monitoring program is not doing what it should.

One purpose of conducting the dust monitoring program is to verify the accuracy of the dustfall deposition rates predicted in 1998. If the reported levels from the 2002, 2003, and 2004 dust monitoring program are accepted as being an accurate measure of actual deposition rates then they are significantly higher than what was predicted. However, the three annual reports produced by DDMI do not make note of the differences between what has been measured and what was predicted. In fact, the discussions of the results in the three DDMI reports imply that observed levels are consistent with the predicted levels.

The uncertainty about the air quality results reported by DDMI needs to be corrected. This can be done by ensuring that the sampling and measurement methods used are accepted and approved standard methods. Based on the technical review done by SENES we recommend:

1. The dust sampling program needs to be re-designed to meet standard test methods.

2. DDMI needs to keep accurate notes of the date when snow stays on the ground and when lake freeze-up begins. This will help with the accuracy of results from the snow core sampling program.

3. More detail is required in the annual reports about the methods used to calculate the annual average total dustfall deposition rates for both the dust gauge and snow core sampling programs. This will allow the results to be independently verified, for example, when a technical review is done.

3. Water Quality and the Aquatics Effects Monitoring Program (AEWP)

3.1. INTRODUCTION

North/South was hired by EMAB to do a technical review of the DDMI Diamond Mine Inc. (DDMI) Aquatic Effects Monitoring Program (the AEMP). Monitoring means "*keeping track of*". This monitoring program, which has been running since 2000, was started to keep track of changes in Lac De Gras and to ensure that the requirements of the DDMI Water License (N7L2-1645 [Part K]) and the Environmental Agreement (Section 7) are being fulfilled. The program looks at the aquatic environment in Lac de Gras; that is, the quality of the water and the mud on the lake bottom, and the plants and small animals that live in the lake. The main purpose of the monitoring program is to see if and how the lake may be changing because of DDMI mining activity on the lake. Lac de Gras is monitored throughout the year and DDMI issues an annual report every year. The monitoring program was designed by DDMI and after much discussion with regulators, technical experts and First Nations stakeholders the plan was revised and approved.

This monitoring program looks at how the water quality, lake-bottom sediments (mostly mud), plants and animals (bugs living in the water and the mud) may be changing over time (years), or how they may be changing between different parts of the lake. Water in lakes is made up of many things, including nutrients and some metals that supply the food chain and are necessary for life. The description of all the things in the water is called water quality. In every lake, water quality can change naturally over time, either from season to season, or from year to year. Some change is normal, but too much change can affect the living things in a lake. For example, high levels of metals can be harmful and can accumulate in fish. Nutrients are very important because they affect the productivity of the lake. Lac de Gras is naturally low in nutrients so an increase in nutrients will change the lake. This is a bit like adding fertilizer to a lake, and it is a process called enrichment. The acidity (pH) of lake water is also one of the things measured. If the pH of water goes up or down it can affect living things in the lake.

In 2000 DDMI designed the program based on information they had collected in the previous six years or so. This information was collected before any mine construction began and so it represented what Lac de Gras was like before mining construction and operation started. This information is very important because it lets us know how lake conditions changed naturally over a period of years. Everything varies naturally and we call this natural variability. It is important to have an understanding of how water quality, lake-bottom sediments (mud), plants and animals (bugs living in water and mud) change naturally over time and also between different areas of the lake. Then changes that are actually due to DDMI mine operations can be more easily detected.

Monitoring of water quality, lake-bottom sediments, plants and animals was conducted at locations (sites) in near-field, mid-field and far-field areas. Near-field means close to the mine, mid-field is a few kilometers from the mine and far-field is much further away (tens of km). For example, some far-field sites were at the other end of the lake near the outlet to the Copper Mine River. DDMI looked to see if the water, the lake bottom, or the animals and plants were different close to the mine compared with the two areas located further away from the mine, or if changes have occurred over time since mining started.

3.2. WHAT ARE THE KEY ISSUES?

The most recent results of the AEMP suggest that 2004 levels of pH, sediment suspended in the water, water clarity and three metals (aluminium, nickel and arsenic) at some sites were different from levels recorded before the mine started. Only changes in levels of arsenic and nickel were possibly due to DDMI operations. The changes were within levels predicted by DDMI in their original Environmental Impact Assessment (EIA), and were below levels considered to harm the environment. Algae (very small plants in the water) were more abundant in 2004 than in previous years and the highest levels were recorded at sites close to the mine effluent discharge. The increase in algae close to the mine site suggested that nutrients being released into the lake might be increasing algal abundance close to the mine (enrichment). Enrichment by nutrients was predicted by DDMI and they have already taken measures to try and reduce the amount of nutrients being discharged to the lake. Bugs that live in the lake bottom mud (benthic invertebrates) were also found to be more abundant close to the mine. This also suggests that there may be more nutrients in the mud and water close to the mine due to nutrient discharges to the lake from the DDMI mine. Levels of two nutrients and six metals (arsenic, cadmium, copper, lead, nickel and zinc) in the lake bottom were different at some sites from levels recorded before the mine started. However, DDMI concluded that DDMI operations did not appear to be the cause because levels were not always highest close to the mine. Overall, DDMI did acknowledge that improvements in the AEMP should continue and suggested several improvements, including a review of water quality analysis methods, and a review of some laboratory methods and lake sampling methods.

To be able to detect change in water quality, lake-bottom sediments, plants and animals, caused by the DDMI mine, you have to be able to compare conditions at areas that may be affected by mine activities with areas not affected by mine activities. Also you have to

be able to compare conditions before and after construction and mining started. You also have to be able to tell whether a change in water quality, lake-bottom sediments, plants and animals is due to something else, and not the DDMI mine. For example, EKATI mining activities may also be affecting the lake. Also, there may be something happening to the entire area or region, not just the Lac de Gras area. This could be due to man's activities elsewhere or it could be natural. An example would be global warming.

DDMI has put a lot of effort into the AEMP in order to fulfill requirements set out in the Water License and Environmental Agreement, and also the AEMP plan approved by the DDMI Technical Committee (DTC) and the MVLWB. There are, however, some key issues which have prevented DDMI from being able to achieve some main goals common to all these regulatory documents. For example, the AEMP has had some difficulties in being able to measure short and long term effects in the aquatic environment resulting from the DDMI Project, and so ensuring that the project does not have significant adverse impacts on Lac de Gras.

3.3. WHY ARE THESE KEY ISSUES?

The main issue is the design of the monitoring program. That is, what is monitored, where, when and how often. A successful design is one that is strong enough to be able to detect changes in water quality, lake-bottom sediments, plants and animals, and is also able to identify the source(s) of those changes. Changes could be due to DDMI operations, a combination of DDMI and EKATI operations, natural variability, or regional impacts. The design should also be able to tell us whether these changes are only happening in Lac de Gras, or if they are also happening in nearby lakes as a result of impacts on the entire region due to natural factors or man's activities.

3.4. WHAT NEEDS TO BE DONE AND WHAT NEEDS TO BE DONE?

The findings of our technical review indicate that the design of the AEMP needs to be strengthened, over and above changes DDMI have already made or suggested over the years. One key factor in strengthening the program design is the addition of a reference lake. A reference lake is a lake not affected by project activities (the mine), that is similar in some ways to the lake that maybe affected by Project activities (the mine). By looking at the affected lake and an unaffected lake at the same time, it would be possible to tell what changes seen in Lac de Gras are due to the DDMI mine; and what changes are happening in other lakes in the region, and are not due to DDMI. It is often difficult to find an ideal reference lake, but the addition of an appropriate reference lake would benefit the program. DDMI originally intended that Lac du Sauvage would be used as a reference lake, but unfortunately, this lake was found to be unsuitable.

DDMI uses a four-step process to analyze the results of the AEMP. This process is currently being reviewed by DDMI and the DTC, and it has been found that it does not work for benthic invertebrates (bugs in the mud). Our findings suggest that the process should also be reviewed for the other parts of the AEMP. Also, DDMI already uses water quality guidelines in their assessment of water quality information, and we feel that they

should also use sediment quality guidelines (for lake-bottom mud) like other monitoring programs do.

The Environmental Agreement says that the AEMP should include Aboriginal involvement and should consider the use of Traditional Knowledge (TK) and Inuit Qaujimajatuqangit (IQ). Upon review of the documents provided to us we did not find any documentation to suggest that TK and IQ had been incorporated into the AEMP to any extent.

APPENDIX E: EMAB IDENTIFIED ISSUES WITH THE EXISTING DDMI WATER LICENCE

EMAB identified the following DDMI Diamond Mines water licence issues over the course of its mandate.

3.4.1. Description of Parts of Licence (more detailed summary in application)

A – Scope and definitions

B – General Conditions; sets fees, security deposit, requirement for annual report on all aspects of the licence; requirement for Surveillance Network Program (SNP).

C – Conditions Applying to Construction; need for all plans/designs to be approved by engineer; tests required on rock, soil etc.

D – Water Use; amounts of water DDMI can use; annual water management plan; plans for detailed fracture zone characterization for each pit required.

E – Dewatering; dewatering of lakes; dewatering management plan; quality of discharge water, reporting requirements.

F – Waste Management Plans; requirements for waste management plans: tailings, wastewater, PKC monitoring, North Inlet sediment and wastewater management and monitoring; settling pond plan; rock management and annual updates for approval; hazardous materials plan for approval; requirement to review plans annually and submit changes for approval; seepage survey reports. *EMAB identified an issue with changes to the definition of Type 1, 2 and 3 rock in the 2004 Rock Management Plan revision which was addressed by a requirement from the inspector.*

G – Water Retention Dikes; standards for operation and maintenance of dikes including inspection and reporting.

H – Waste Disposal and Waste Facilities; management plans for water treatment facilities: North Inlet, PKC, sewage; standards for operation of: PKC, drainage control, settling pond, North Inlet; water discharge standards; ammonia management and ammonia studies. *The ammonia limits were changed for two years starting in August 2004 to allow DDMI to find ways to bring the ammonia levels down to original levels. The process for doing this is built into the existing water licence.*

I – Modifications; which changes to water intake and waste treatment require approval or don't require approval; requirement for engineered as-built drawings.

J – Contingency Planning; contingency plan requirement (managing ground water and pit flows, removal of water from pit, other items) and updating requirements; procedure when unauthorized waste discharge occurs.

K – Aquatic Effects Monitoring; requirement for reports and addressing deficiencies: compilation of baseline, limnology and aquatic ecology; requirement for AEMP with detailed description of components (some of these are not addressed by agreement of MVLWB) including special effects studies, dust deposition; annual reporting.

L – Abandonment and Restoration; requirement for Interim Abandonment and Restoration Plan components and updates; requirement for Restoration Research Plan; requirement for Restoration Monitoring Plan

3.4.2. EMAB issues with the licence itself concern 3 parts

Part H on waste disposal as it relates to ammonia limits. Phosphorous was an issue but was dealt with. Ammonia control mechanisms are part of an ongoing process that DDMI must complete by Sept. 2006. This is built into the existing water licence and would not be changed by the renewal application. EMAB would like this process to continue as determined by the mediated agreement.

Part K, and the associated Schedule 4, on the Aquatic Effects Monitoring Program including the dust deposition component. The AEMP is our main concern with the water licence. Concerns include:

- problems with the baseline statistics (DIAND's statistical consultant has reviewed the baseline data for certain parameters and concluded that it should not be used to generate trigger values – no alternative proposed)
- concerns about number of samples taken per year,
- concerns about the four-step process used to assess change,
- concern about seasonal trends not being taken into account
- concern that there is no reference lake

Relationship of report results to DDMI's adaptive management – this is the only reference to adaptive management in the licence.

Part L on Abandonment and Restoration – EMAB has not identified specific issues here but has commissioned a technical review

3.4.3. EMAB issues with conformance of management and monitoring programs in the water licence with requirements of the Environmental Agreement

The EA requires that DDMI's monitoring programs:

- consider traditional knowledge,
- establish or confirm thresholds or early warning signs,
- trigger action by adaptive mitigation measures where appropriate,
- provide opportunities for involvement or active participation of each of the Aboriginal Peoples in implementation and
- provide training opportunities for each of the Aboriginal Peoples (clause 7.1).
- Clause 7.6 also requires the participation of Aboriginal Peoples in the design and implementation of Environmental Monitoring Programs.

The water licence does not include any of these in the AEMP.

The EA provides for EMAB or a Party to request that the Minister determine whether or not a monitoring program is inadequate or incomplete and to provide a Minister's Report to DDMI for response (7.5(a)).

The Minister can direct investigations to confirm compliance with the EA and all Environmental Plans and Programs submitted and reviewed in accordance with the agreement, including the water licence (5.4).

3.4.4. EMAB issues with administration of licence

EMAB also has some general issues with the water licence itself and MVLWB's interpretation of its role and authority. The MVRMA establishes the MVLWB and gives it the powers and duties of Boards under the NTWA

- **Approval of reports** – MVLWB does not believe it has a duty (or authority) to determine whether a report meets the licence requirements unless the licence says the report is "for approval." This also means they will not take responsibility to make sure there is a thorough technical review or require/request changes if the report is inaccurate or incomplete. EMAB has recommended that that AEMP report require MVLWB approval in the renewed licence. EMAB does not agree that the MVLWB does not have a duty, or authority, to determine compliance of any report required by a water licence.

- **Assessment of AEMP report results** – the water licence does not require an adaptive response to the AEMP results, or even an assessment (other than by DDMI) of whether there needs to be a response. The AEMP does include an option for DDMI to recommend changes to the AEMP and to do additional studies. It also notes that DDMI will continuously assess the need for more mitigation but does not commit to any adaptive response to the AEMP results. In contrast the draft BHP water licence requires an adaptive management plan that would include responses to AEMP results. EMAB would like some assurance that the MVLWB will examine the report carefully to see if the lake is changing and that action will be required if there is change.

- **Changes to Plans / Programs in the WL** – using the AEMP as an example, several experts have said they are concerned that it may not be able to meet its objectives. DTC members and MVLWB's independent consultant confirmed this. The MVLWB decided not to adopt any of the consultant's recommendations for change because no new information had been provided and these matters had already been discussed prior to the original decision. EMAB would like the renewed licence to allow for consideration of recommendations for change from stakeholders if they have good technical reasons.

- **Technical capacity and decision process where issues are raised** – there seem to be a number of instances where the MVLWB has had an independent review done of a report under the water licence. Where the review comes back negative, DDMI sometimes disputes the results. The MVLWB is in the awkward position of not having sufficient technical expertise to assess whether DDMI or the independent expert is right.

- **Determination of compliance** – this is done by the Inspector (MVRMA section 84-89 and NTWA section 35-39), who is not an MVLWB employee. The Inspector has a broad range of sanctions available but is largely focused on activities at the mine, not reports. The Inspector is unlikely to determine a report is non-compliant and give direction to the company or impose sanctions. MVRMA section 60(2) gives authority to the MVLWB to "suspend a licence for a specified period or until terms and conditions specified by the board are complied with, where the licensee contravenes a provision of the *Northwest Territories Waters Act* or of this Part or a term or condition of the licence." The MVLWB does not have the power to use many of the smaller scale sanctions that the Inspector can use.

- **Intervener funding** – there is no funding under the MVRMA to provide for effective participation of Aboriginal Parties or the public in public hearings. Effective participation in such hearings requires significant resources for technical analysis and legal advice. EMAB has been making recommendations about this to the Minister of DIAND for over two years but there has not been any progress.