

# **Newmont Mining Corporation**

**March 27, 2002**

## **Comments on MMSD Draft Report 4 March 2002**

The comments contained herein contain some general comments, but focus primarily on correcting or clarifying issues of fact. To decrease the volume of data and information, no supporting documentation has been provided at this time. We can readily supply that information, on short notice, to support our comments, per upon request. Editorial comments regarding grammar and spelling have not been included.

### **Introduction**

Additional instruction should be provided for the reader to assist in understanding the layout and content of the MMSD Report. In observing the early review of the draft MMSD reports, it is clear that many of these people either have forgotten or never understood the substantaive basis and reason for this report. As such, the introduction should include an “instruction manual” that clearly and unambiguously describes what the report is, what the report is not, and how the report should be used. In reviewing the Draft 3 of the MMSD document, it is not clear to a reader that this report is primarily intended to objectively report what the various stakeholders are saying. It is this mirroring of diverse comment that will provide the foundation and framework for further multi-stakeholder dialogue and, ultimately, change. Without this framework and instruction, there is a high probability that the historic rhetoric that embodies the legacy of many of the stakeholders will dilute the true value of the MMSD Report.

### **Executive Summary**

Page 2, fourth paragraph – The following terminology confuses the reader: “There is a significant disconnect in the supply chain of minerals, which caused the involvement of actors along the chain to be difficult to achieve.”

### **Chapter 5-Mineral Case Studies**

Page 50-24: the report states that gold “...is also the source of a variety of serious environmental problems.” It then goes on to discuss the land area of impact, water use and energy use for gold recovery relative to the small amount of gold recovered. The same argument could be made for every metal that is mined, especially by open pit methods, as the tonnages moved and land disturbed are quite large relative to the weight or volume of the metal produced. This is part of

the overall theme of this section, which is a value judgment as to society's need for gold. Whereas it is appropriate to point out that some hold the opinion that gold should not be mined, this theme appears to be the authors' opinions.

## Chapter 10: Mining, Minerals and the Environment

### General Comments:

- The need for a “Good Samaritan” law to allow for re-mining should be added to the chapter.
- Large Volume Waste - Consider replacing the moniker “mine waste” to describe overburden, waste rock and tailings with “residual mine material” or some other appropriate wording. In the context of this document, the use of “mine waste”, or in some instances just “waste”, connotes that all overburden, waste rock and tailings are inherently hazardous and pose a threat to human health and the environment when in fact this is not the case. Overburden is often comprised of topsoil and subsoil, and even waste rock and tailings can represent a resource used for reclamation and other beneficial uses. The ubiquitous use of “mine waste” or “waste” in this chapter colors the reader's impression of mining impacts in the absence of fact. In cases where residual mine material does create impacts (e.g. – AD, tailings impoundment failures, etc.), the chapter adequately discusses these specific issues in their own right.
- Large Volume Waste; Marine Disposal – The classification of marine disposal of tailings as “deep” or “shallow” infers a fundamental difference in the behaviour of tailings, the effects on the environment, and the engineering of systems between the two that does not necessarily exist. “Deep” or “shallow” is not as important as depositing the material below the maximum depth of the surface mix layer, the euphotic zone and the upwelling zone. These depths may vary from quite shallow, as in the case of the Minahasa STP system, to quite deep, as in the case of the Batu Hijau STP system. Nevertheless, both systems function according to the same principles. Consider replacing “deep” and “shallow” with “subsea” or simply “marine”.

### Specific Comments:

Page 10-5, Large Volume Waste, first paragraph - it is stated that “...operations are rarely designed for a beneficial end-use.” U.S. federal and state regulations require that reclamation plans be developed with stated post mining land use.

Page 10-6, first paragraph– The correct annual precipitation for Batu Hijau is in the range of 3 to 4 meters.

Page 10-6, Overburden and Waste Rock, first paragraph – the statement that “Overburden and waste rock are... usually dumped ... forming slopes at the natural angle of repose.”, implies a brazen disregard for what is correctly stated as the main considerations in dump construction – erosion, stability and infiltration. In fact, Batu Hijau, as well as other mine operations, use

engineered construction techniques to recontour and flatten their slopes to control erosion, promote stability and prevent infiltration, and do so following best management practices.

Page 10-6, *Overburden and Waste Rock*, second paragraph – the statement that “...a permanent method of rehabilitation needs to be established.” is misleading in that it suggests that there is currently no permanent rehabilitation taking place at mines, when in fact this is not the case. For example, at Gold Quarry, some waste rock dumps have been revegetated and are now permanently closed. In addition, at some mines (e.g. – Batu Hijau) it is now common practice to concurrently reclaim waste dumps during mine operations as this reduces long-term liabilities and promotes stability, erosion control and infiltration reduction.

Page 10-8, *Heap Leach Spent Ore*, first paragraph – the sentence “A third type of waste deposited on land is the residue of heap leaching.” misrepresents the facts about heap leach facilities. First, see *General Comments* above for discussion on labeling all residual mine material as “waste”. Second, heap leaches are not “deposited on land”, but are placed on engineered HDPE liner systems designed to contain and promote the horizontal flow of process fluids. In addition, heap leach liners are often underlain by compacted clay, as well as leak detection and collection systems.

In the second and last sentences, the use of the word “solvent”, although technically correct, in this context (i.e. - environmental), suggests a compound from the chlorinated family of solvents. A more appropriate descriptor, and the common one used in the industry, is “reagent”.

Page 10-8, *Heap Leach Spent Ore*, second paragraph – The statement, “... all liners leak...” implies that leaks emanate from holes or tears, when in fact, liners are permeable at rates within engineered specifications. In the case of Nevada, for example, minimum design criteria dictates that heap leach liners have a coefficient of permeability of no greater than  $10^{-6}$  cm/s, unless combined with a system for leak detection, in which case the coefficient can be no greater than  $10^{-5}$  cm/s. In some instances, mine operations go beyond the “minimum design criteria” specified by the regulations and install additional liners, or leak detection systems not required by regulations.

Page 10-8, *Heap Leach Spent Ore*, third paragraph – heaps are not always rinsed with water. Some heaps are rinsed with hydrogen peroxide, others with a solution containing bioactive substances to promote the immobilization of soluble metals, and others are capped to eliminate or reduce infiltration and long-term water problems.

Page 10-8, *Figure 10-2 A Heap Leach Facility* – Compacted clay is typically placed on prepared ground before the synthetic liner is installed. This needs to be added to the figure and the figure should be labeled gold and not uranium given that gold heap leaching is much more prevalent than uranium heap leaching.

Page 10-9, fourth paragraph – the last sentence stating, “Some critics argue that the companies reject backfilling without sufficiently serious analysis, and this may at times be true.” is unsubstantiated, subjective and opinionated. This sentence could just as easily be stated as

follows: “Some critics argue that the companies reject backfilling without sufficiently serious analysis, **however this is not always true.**”

Page 10-10, *Acid Drainage*, first paragraph – the word “problem” in the first sentence should be changed to “challenge”. If AD is properly anticipated and managed it is not a “problem”.

Page 10-12, *Waste Storage Failures*, first paragraph– Recommend changing the word “toxic” in the first sentence to “hazardous”.

Page 10-12, *Waste Storage Failures*, third paragraph– can the statement, “...but even the threat of failure can cause sever anxiety to the local population.” be substantiated by a study or survey, or is this opinion. If this is a restatement of a study’s conclusion, the study should be cited.

Page 10-13, first paragraph, first sentence – the statement, “... the location of a large tailings storage facilities (sic) is a land use decision with what are effectively permanent consequences.” is not always true and is too general of a statement.

Page 10-14, *Best Practice for Tailings Storage Facilities*, second paragraph– Certified designers already exist in the U.S. They are professional engineers.

Page 10-14, *Marine Disposal*, third paragraph– the statement “In Canada... deposited tailings... **appear** to have remained mostly at the intended deposition area.” is a biased and opinionated representation of the performance of these STP systems. There is very good data on where the tailings are deposited, which is fact, not appearance.

Page 10-15, first paragraph– in regards to the statement that “This involves depositing wastes... on the **assumption** that the waste will not be re-mobilized in the surface water.”, it is not an “assumption”. With proper engineering and construction, upwards mobilization from subsea tailings deposition is eliminated.

Page 10-15, second paragraph – Underwater pipelines may have similar risks of accidents as land-based pipelines, but they are not the same. In fact, a pipeline break near the outfall of the Batu Hijau subsea tailings line had no material affect whatsoever on the behaviour of the tailings deposition. The tailings continued to flow into the subsea canyon under a density current without any noticeable, or measurable, difference in water quality, turbidity, or final deposition location. In addition, the solubility of metals are limited in marine environments and therefore do not pose as great a risk of mobilization or bioavailability as perhaps a land-based system.

With regard to the tailings pipeline break at Minahasa, tailings were not released “to the surface”, but more accurately were discharged into an unanticipated area. Further, monitoring indicated that there were no deleterious water quality, biotic or habitat effects from the release. In fact, monitoring has indicated that the total fish catch for the area has increased, however, due to an increase in the population of fisherman, fish catches on a per capita basis have dropped. It may have been **said** that there was a “serious loss of fishing resources and (the tailings release) destroyed some of the surrounding coral reefs”, but there has never been any credible data

produced to support this allegation. Utilizing “data” from an anti-mining NGO’s, JATAM, website as unsubstantiated fact is incorrect.

Page 10-15, third paragraph – In regard to the sentence, “Some industry studies suggest that the risks are minimal and that within several years of closure the sea floor can be recolonized by benthic fauna.”, the following comments apply: First, Ellis’ studies were peer-reviewed and as such would not be considered as “industry” studies. Second, the studies do not “suggest” that tailings are recolonized, they prove it based on data. Further, benthic organisms have been found to rapidly recolonize the tailings at the Minahasa project.

Page 10-16, first paragraph – the last sentence in this paragraph states, “... the problem of how to get the tailings into deeper water without undue risks to shallower near-shore environments would have to be addressed.” Current marine tailings systems demonstrate that this has been addressed through proper design and diligent monitoring.

Page 10-21, *Mining Legacies*, second paragraph – As stated in the first sentence, it is impossible to estimate how many former mining sites exist around the world, so why then does the report continue on to try and estimate them? The estimate provided of 500,000 former mine sites and 5000 to 6000 of them presenting “serious environmental problems” is based on what appears to be an inappropriate extrapolation of Colorado’s estimate. Colorado likely has a high density of abandoned mines considering its past, whereas other states will not, such as Kansas and other Eastern seaboard states.

Page 10-22, first paragraph – the statement, “suggests that it will cost US\$50-60 billion to clean up abandoned mine sites in the US alone.” should not be quoted unless there is a sound basis for this number.

Page 10-24, *Environmental Impact Assessment*, second paragraph – Statements such as “However, their implementation is often abysmal.”, and, “drift down to the lowest common denominator.” debate the efforts made by legitimate mining companies and the agencies that work with them. This section should be restated.

Page 10-27, *Recommendations on Managing the Mining Environment-Land Disposal* – where waste minimization is recommended, this should be stricken because minimization of waste would require mining less material and incomplete development of the deposit. Also, there is already a good deal of recycling and reuse taking place in the industry. Consider restating the last sentence to read, “Continue to enhance the integrated approach taken to water management...”.