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Subject. CAO Marlin Mine Assessment: Technical Responses

Executive Summary.

The CAO Assessment incorrectly concluded that the citizens of Sipacapa would not suffer significant impacts to their water quality nor would they be subject to increased competition for water. Both statements are based on inadequate data and result from incorrect interpretations of the existing data. In addition, the CAO chose to arbitrarily ignore potential impacts to citizens residing outside the region of Sipacapa.

No member of the CAO Assessment team that visited the mine site or the local region had specific expertise in hydrogeology, water quality, geochemistry, or technical aspects of mining.

The majority of the technical information used by the CAO to reach their conclusions was not publicly-available when the project ESIA was submitted for review in 2003, and is still not available to the general public. This lack of transparency suggests a degree of contempt for the average, rural Guatemalan.

In numerous sections, this CAO Assessment describes additional technical information that needs to be collected, which indicates that the CAO is aware of the significant degree of technical uncertainty that exists. This uncertainty would normally require that *conservative* rather than *optimistic* impact assumptions should have been made. Such impact uncertainty is usually handled by instituting strict financial assurance measures, which have not been discussed in either the ESIA or the CAO Assessment.

The Assessment *indirectly* recognizes some of the uncertainty with respect to future impacts. Given these potential risks to water quality and quantity, the project continues a trend whereby the poor are likely to be asked to subsidize development.

This CAO Assessment raises numerous questions and concerns about the actual ability of the CAO to present independent opinions when their sister agency, the IFC, is a project lender. It also suggests similar concerns about the sources of technical information on which the CAO relied in making this evaluation.

Introduction.

The following is a response to technical issues and conclusions raised in the Compliance Advisor Ombudsman office's (CAO) Assessment of the Complaint on the Marlin Project in Guatemala (CAO, 2005).

These opinions were developed after reviewing both the Draft and Final CAO Assessment Reports, and most of the publicly-available project documents relating to water quantity, water quality and environmental issues. Unfortunately, many of the technical documents that the CAO relied upon in making their judgments are still not available for public review. These opinions are also informed by the three visits I have made to Guatemala, the mine site and region between November 2004 and September 2005 as the technical advisor to both the Guatemalan NGO, Madre Selva, and Monsignor Ramazzini, the Bishop of San Marcos. In addition these opinions have benefited from conversations with the CAO and its hydrogeologic consultant, and research involved in preparing a previous report, Moran (2005).

In responding to this CAO report, both Madre Selva and I face an inherent dilemma. How do we respond factually to several very concerning technical inaccuracies and instances of bias on the part of the CAO, and also demonstrate that we are interested in maintaining and promoting the basic dialogue which has recently begun to develop between the various parties? What follows is an attempt to constructively do both.

The CAO Assessment itself contains numerous very useful statements pointing out project inadequacies and reasonable recommendations, but in general, these are **hidden within the Assessment details and smothered by legalistic / bureaucratic language**.

The major shortcoming of the Assessment resides in the serious discrepancies between the conclusions in the two-page CAO Media Advisory (http://www.cao-ombudsman.org/pdfs/Marlin-media%20advisory%20(English).pdf) and the Assessment report itself. The Media Advisory presents statements that are without reasonable technical support and it fails to accurately summarize the detailed opinions presented in the Annexes to the Assessment of the independent hydrogeologist, David Atkins. In addition, these unsubstantiated CAO conclusions present a bias clearly intended to minimize public concern and to justify the recent company activities.

Two issues were of paramount concern to the local citizens and these same issues were the focus of *the most prominent findings* in the Media Advisory, which states:

"…. the people of Sipacapa:

- will not be at any significant risk from water contamination as a result of the mine.
- Are not likely to experience increased competition for water as a result of the mine."

Unfortunately these two Findings are *incorrect,* as will be discussed later. In addition the wording is disingenuous given that the complaint filed by Colectivo

Madre Selva voiced concern for impacts to the entire region surrounding the mine, not simply Sipacapa. Recently the Guatemalan Ministry of Energy and Mines has approved another EIA for a second Montana mine site, the Hamaca deposit, and the Glamis Gold website shows the locations of several additional deposits that are currently being explored.
[http://www.glamis.com/properties/index.html] This clearly indicates that impacts will be much more widespread than simply within the Sipacapa region.

Regarding the two main water-related Findings stated in the CAO Assessment:
--the independent hydrogeologist stated that his review focused on the entire mine region, not simply Sipacapa.
--he agreed that because the CAO had chosen to focus their review on only Sipacapa, that technically, given the available data, *there was no evidence that citizens of Sipacapa* would experience either an increased competition for water, or contamination of their local waters.
-- the independent hydrogeologist specifically stated that he had NOT written anywhere in the CAO Assessment that increased competition for water would **not** occur.

Technical Review.
No member of the CAO Assessment team that visited the mine site or the local region had specific expertise in hydrogeology, water quality, geochemistry, or technical aspects of mining. Based on conversations with the CAO (Nina Robertson, and the independent hydrogeologist, David Atkins, telephone conference, September 15, 2005) IFC personnel involved with this project also lacked such technical expertise. The independent hydrogeologist, a consultant to the CAO, *has never visited the mine site*. His opinions were developed largely through review of documents prepared by and provided to him by Montana / Glamis and their consultants. His review included both documents that had previously been made publicly-available and others which are still unreleased to the general public. Many of the most important documents were only made available to the hydrogeologist immediately before he completed his draft report.

Water Contamination and ARD.
The CAO Assessment bluntly discounts any possibility of significant water contamination *to the people of Sipacapa.* Even if we neglect all of the likely impacts to the citizens of San Miguel and adhere to this exceedingly short-sighted definition of the zone of impact, this statement is likely incorrect. Several lines of technical evidence indicate that there is a reasonable likelihood of significant degradation of water quality, especially in the years following mine closure.

Impacts: Quivichil versus Tzala Drainages.
Firstly, the CAO argues that all water quality impacts will be isolated within the Quivichil Basin, which is largely downstream / downgradient of the tailings facility. This is far too simplistic. Once constructed, both the waste rock piles and the

Marlin Pit will be above the Tzala River, and long-term are likely to release contaminants that will flow towards the river via both surface and ground water flow paths. It is the Tzala River that *directly* impacts Sipacapa. Much of this flow may be controlled while the mine is operational, but following mine closure, facility oversight would cease and the migration of contaminants would progress forever. The fractured rock of the area makes it even more likely that ground water flow paths have the potential to impact large areas in the long-term.

Many other Marlin mine operations presently occur within the Tzala River Basin, such as exploration drilling, blasting, road excavation and road traffic, transport of chemicals on the roads, and air emissions from the numerous process facilities. Many of these processes will also lead to increased erosion, a source of water quality contamination specifically mentioned by the CAO hydrogeologist. All of these processes have the potential to degrade water quality in the Tzala River.

The CAO has also discounted the chances for development of acid rock drainage (ARD) in the 43 million tons of waste rock. This assessment is based on the data and statements provided by Montana and their consultants in several reports on geochemical testing of the potential waste rock. Atkins states (Annex C, pg. 16): “Testing data presented in the project documentation indicates that mine waste materials (waste rock and tailings) are likely to be net neutralizing, so acid rock drainage should be a low-level concern at the site if the rock is properly handled.”

Note the wording and the caveats!

At the simplest level, both Atkins and the consultants to Montana admit that some of the rock is acid generating. This conclusion is supported by data and statements in: SRK (2003b, 2004a, 2004b), MEC (2005a), and RGC (2005). Unfortunately not all of these documents are publicly available, and the presence of any acid-generating wastes was not revealed in the ESIA (2003).

Atkins summarizes the available *static* geochemical test data from all of the consulting sources by stating that between 15 and 40 % of the waste rock samples tested could be acid generating---depending on the data employed. This clearly presents a significant range of uncertainty. Furthermore, I was unable to determine from the publicly-available sources whether these data included waste rock samples from the underground zones (underground workings) to be mined, as no figure clearly showed the cross-sectional relationship of the open pit, the underground workings, and the waste rock sampling locations of the underground workings. One would anticipate that, statistically, the rock from the deeper underground workings might have higher sulfide concentrations than the shallower rock mined in the pits, and would therefore have greater potential for forming ARD. Unfortunately, it was not possible to evaluate these rock sources with the publicly-available data.

The Marlin waste rock geochemical test data I have seen indicate that total sulfur (S) contents of the waste rock are below approximately 2%. The majority of the samples contain minerals that will neutralize much of this acid. Hence, this is one reason that the CAO has concluded that ARD formation will not be a problem in the waste rock. Unfortunately, I have had experience at metal mine sites where waste rock with as little as 0.2 % total S, and below, have lead to massive ARD problems. In addition, simple **average** data on the waste rock neutralizing potential (NP) versus the **average** acid-producing potential (AP) [the NP / AP], often fails to accurately predict real world ARD problems. This is partly because the migrating water must actually come in contact with and chemically-react with these AP and NP-producing mineral grains. Often they do so selectively, in a manner that does not reflect the average geochemical composition. More importantly, there is an inherent time-related bias in this type of geochemical testing, and static tests do not consider the effects of TIME (Morin & Hutt, 1994). The NP-producing minerals react more rapidly than do the AP-producing minerals, so that over the long-term, the NP will be depleted, and, if sufficient AP minerals are present, the waters will become acid.

These general conclusions about static geochemical tests are corroborated by many other researchers, including Kim Lapakko of the Minnesota (U.S.A.) Department of Natural Resources, one of the foremost experts on geochemical testing of mine ores and wastes (see, for example, Lapakko 2003).

Thus, the Marlin *static geochemical test* data indicate that there is a significant chance that ARD will develop in some undefined percentage of the local waste rock.

The CAO hydrogeologist (Annex C, pg. 7) also uses the Marlin *kinetic test data* to argue that ARD problems will probably not develop. These were tests of 20 weeks duration where selected samples of the waste rock were reacted with air and water and leachate samples were collected weekly and analyzed. Such tests are an attempt to simulate accelerated weathering or chemical reactions that would occur in the waste rock samples. Such tests are subject to NUMEROUS sources of significant error, but if conducted scrupulously, they can be useful for predicting whether ARD will develop--- at least qualitatively.

One of the largest sources of kinetic testing error results from running the tests for an inadequate period of time. **Twenty weeks is generally far too short a time period to be useful for predicting whether ARD will develop in the long-term.** It is true, as Atkins states on page 6 (Annex C), that 20 weeks is the time duration mentioned in one described testing method (ASTM 2000). However, essentially all geochemists experienced in such testing agree that *much longer* time periods are required to adequately predict whether ARD will develop. A few examples of quotes from internationally-recognized experts should make this point obvious:

- Lapakko (2003): “One major concern regarding the ASTM D5744-96 method is that it recommends a minimum test duration of 20 weeks. However, the method also states in Note 12 (ASTM 2000, pg. 265) that additional testing may be required to demonstrate the complete weathering characteristics of mine-waste samples (e.g., as much as 60 to 120 weeks were required for some samples). If only a 20-week test duration is used, this is clearly too short to allow for potential drainage acidification from mine-waste samples in general.” *That is a polite way of saying that the official guidance on test duration is ridiculous. In fact, Lapakko’s laboratory has conducted numerous kinetic tests having durations of many years where the chemistry has continued to change.*

- Morin and Hutt (1977): “The duration of humidity cell test(s) is usually at least 40 weeks, or until the rates of sulphate generation and metal leaching have stabilized at relatively constant rates for at least five weeks. Experience has shown that stabilization can take over 60 weeks, and significant changes may take place even after several years.”

- Price (1997) states that stabilization of kinetic / humidity cell tests often requires at least 40 weeks, can sometimes take over 60 weeks, and may even require several years (pg. 100).

- Robertson and Ferguson (1995), on the research staff of Canadian mining company Placer Dome stated the following: “Kinetic testing methodology prescribes that tests should last a minimum of 20 weeks, although Placer believes that this time frame is inadequate for reliable results unless the samples are extremely high in sulphur content, low in buffering capacity, and/or potentially highly reactive. On sites which warrant this type of testing **the company typically runs samples for two to three years**, allowing for a more complete assessment of slower or marginally reactive materials.”

Neither Marlin nor the CAO have demonstrated that the waste rock, the pit wall rock, or any of the other wastes, including the tailings will not generate water quality problems. In fact, the available data indicate exactly the opposite. A simple, review of the environmental history of numerous similar gold mining operations throughout the world would support the view that the majority have degraded local water quality---and this includes both older and modern mines.

It seems technically unreasonable for the CAO to have made predictions about future water quality at this *specific* Marlin Mine site, without also taking into account the actual water quality results at hundreds of mines throughout the world. The latter approach would have allowed a more reliable, statistical overview of a *population* of gold mines, which would yield meaningful conclusions about future water quality. The present approach does not.

Clearly the available data do **not** disprove that ARD will develop in the long-term. Furthermore, it is likely that many of the sources of mine activities and wastes **will generate contaminants that are mobile even without the formation of ARD conditions.** These include, nitrate and ammonia from blasting compounds and cyanide decomposition, increased suspended sediment loads from erosion, increased concentrations and loads of metal and metal-like compounds, many of which are mobile under both low and high pH conditions. These include constituents such as arsenic, aluminum, selenium, mercury, molybdenum, uranium, antimony, etc. In addition, almost all similar mine sites release significant concentrations of organic contaminants into the environment, many resulting from the use of massive quantities of fuels and organic reagents.

Based on data patterns from similar mines throughout the world, many of the contaminants noted above are likely to be released into the environment and will degrade water quality relative to baseline conditions within the Tzala drainage.

Even though the CAO has chosen to focus only on potential impacts to the citizens of Sipacapa, it is reasonable to state that there is an even greater probability that similar water quality degradation will also occur within the Quivichil drainage. This drainage contains the tailings impoundment and, theoretically, will receive most of the drainage / leachates from the waste rock piles. Montana has stated that a tailings water treatment facility may be constructed if the water to be discharged from the tailings exceeds appropriate use standards—which have not been determined! Are we to assume that such impacts to the citizens of San Miguel are of no concern to the CAO /IFC?

Increased Competition for Water.

As with the potential for water contamination impacts, the CAO Assessment simply states that the people of Sipacapa “are not likely to experience increased competition for water as a result of the mine.” They have assumed that all potential increases in water competition will be limited to the Quivichil drainage only. Again, even if the reader were to neglect the importance of impacts to the citizens of San Miguel, this conclusion is not technically defensible.

Montana is extracting water from a deep well (PSA-1), roughly 1000 feet (305 m) in total depth and located approximately 50 meters laterally from, and 100 meters above the Tzala River. The CAO Assessment states that there is no evidence of a hydrogeologic connection between Well PSA-1 and the river, thus there will be no impact from long-term pumping to the flow in the Tzala, or to Sipacapa. The CAO and their independent hydrogeologist state that these conclusions are based on the available Montana-supplied data and reports, some not publicly-available [MEC (2005a), MEC (2005b), and MEC, SRK and Vector (2004)].

Based on information and data in the PSA-1 Water Supply Well Installation Report (MEC, SRK and Vector, 2004), both Step Tests (at variable pumping rates) and a 10-day Constant Rate Test were conducted on Well PSA-1 during

April and May, 2004. These tests were performed by pumping out of PSA-1 and measuring the water-level responses in that well and in one monitoring well, MW-9, located about 10 meters from PSA-1.

These details would normally be of no interest to most lay readers; however they reveal that the CAO has drawn incorrect conclusions from these test results.

Such a test arrangement having a pumping well (PSA-1) and only one monitoring well would normally be used to *roughly estimate* the volumes of water that could be pumped from a well, long-term. The test indicated that well PSA-1 could be pumped for almost 10 days at a rate of about 270 gallons per minute (gpm) without significantly dropping the water level. Analyzing the data, the report authors went on to conclude that "the well will continue to provide 250 to 300 gallons per minute over the life of the mine." Given the fractured nature of the rock, and the limitations on the pump capacity (see Annex C, sections 4.3.3 through 5.2), such tests might still be subject to considerable long-term error, as the authors acknowledge in section 6.2 of the PSA-1 Installation Report. Nevertheless, this was a reasonable approach, under these conditions, *to estimate the well production rate and to select the correct pump.*

However, such a test arrangement is *totally unacceptable* if one wishes to determine whether long-term pumping of PSA-1 will indirectly draw water from the Tzala River, thereby impacting its flow---and the citizens of Sipacapa. In order to correctly test and evaluate this sort of pumping-river interaction question, one would need to conduct a long-term, constant-rate test using numerous additional monitoring wells (probably 3 to 6 additional wells), completed at varying depths, including some at shallow depths (based on numerous standard texts, including Kruseman & De Ridder, 1983). Karasaki and others (2000) describe aquifer tests in fractured rock using nine boreholes in a physical situation quite analogous to the Marlin example.

The well tests performed were not designed to indicate the presence of any sort of hydrogeologic "boundaries", such as the Rio Tzala. Again, the Installation Report authors state these test shortcomings in section 6.2. They even discuss the need to routinely sample water quality from PSA-1 in order "….to "fingerprint" the ground water to see if it changes its composition over time as a result of a stronger or weaker connection to the surface water."

The CAO hydrogeologist, citing information from MEC (2005b), states that the temperature and chemistry data from PSA-1 suggest that the well is geothermal and that it pumps water from a hydrogeologic unit that is distinct from that of the Rio Tzala.

As stated previously, the PSA-1 well tests were designed and constructed in a manner inadequate to either demonstrate or disprove a hydrogeologic connection between the well and the river. In addition, there is nothing in the

PSA-1 temperature or chemistry data provided in the CAO Assessment or any of the publicly-available reports that clearly indicate that PSA-1 is in fact pumping water that is isolated from the flow in the Rio Tzala. In fact, the proximity of the well to the river, and the fractured nature of the bedrock indicate that the appropriate *conservative* assumption is that a hydrogeologic connection does exist between well and river---especially given such inadequate data.

Tellingly, immediately after concluding that PSA-1 and the Rio Tzala are not hydrogeologically connected, the CAO hydrogeologist then states the following (Annex C, pg 3, last para.): "Production from fractured aquifers depends on the interconnectedness of the fracture network, and production from wells in these types of aquifers can decrease with time as the fractures are dewatered. It will be important to continually monitor the water level, temperature and chemistry in the production well to ensure that the characteristics of groundwater produced remain distinct from those of the Rio Tzala (MEC, SRK and Vector 2004; MEC 2005a)."

These comments clearly indicate that he knows the present data are inadequate and that he is less-than-sure that the long-term pumping from PSA-1 will not impact flows in the Rio Tzala.

The Marlin Project and the other proposed mining projects will directly increase the demands for water. In addition, these projects will cause an influx of new citizens to this region which will further increase the demand for water.
As a result, it seems obvious that the Marlin Project, combined with the requirements of the additional proposed mining projects in the region, will both directly and indirectly result in an increase in the competition for available water.

Cumulative Impacts.
The Assessment mentions that Montana is currently conducting exploration at numerous areas around the Marlin Project and the Guatemalan MEM has already accepted an EIA for a second Montana project at the Hamaca deposit. Also, the Glamis Gold website includes a map showing several other deposits presently being explored by Montana within the general region of the Marlin Project. **In such a setting, it is especially unreasonable for the CAO to focus their Assessment report only on potential impacts to Sipacapa.**

Future environmental evaluations should be required to evaluate the *cumulative impacts* to all populations and resources within the region. For example, does the Hamaca EIA include an evaluation of water resources and potential impacts from *both* the Marlin and Hamaca Projects? Has the new EIA been required to evaluate and discuss "what if" scenarios which consider the possible impacts to regional water resources if several of the additional metal deposits are also permitted and operated? It is imperative that such combined, *proactive* analyses be required.

Disclosure in the EIA

Throughout the Assessment, the CAO makes mention of documents and data that Montana has provided which improve the public's understanding of water, water quality, dam design and other issues. It is interesting to note that the dates on essentially all of these documents are in 2004 and 2005, well after the Marlin ESIA was accepted by the Guatemalan government. Thus, none of this information was available to the public during the public discussion period. Hence, the public and Guatemalan government were required to make their decisions to approve, reject or modify this project without the benefit of some of the most relevant data. Hence the public review *process* was severely biased.

Most of the missing data and information has been summarized in Moran (2005). An important example is a statistically-valid summary of all baseline water quality data. We are aware that Montana has collected some baseline data, and that they have defined a specific calendar time period as their baseline. However, we have never seen a statistically-valid summary that would be suitable for comparison to future data if disputes about potential contamination were to arise. Comparable information would have been required prior to approval of any similar mine EIA / permit in Canada or the U.S.A.

"Independence" of the CAO Review.

The IFC is a lender to Montana for the Marlin Project. The CAO is physically located in the same building as portions of the IFC and the CAO staff even have "IFC" in their email addresses. To what extent do these ties and CAO presence within the WBG hierarchy compromise their ability to speak freely?

Clearly the CAO has staff dedicated to performing independently and competently. However, the CAO Assessment and the comments above make clear that the CAO was reluctant to discuss many of the pivotal issues simply and directly. The Assessment contains many sections where the CAO staff or consultants noted that existing data were inadequate, yet they made definite conclusions and predictions, normally *optimistic* ones. Would it not have been more reasonable in such situations to require that the data be collected prior to rendering these conclusions?

Essentially all of the technical information used by the independent hydrogeologist and the CAO team was prepared by and supplied by Montana and its consultants. Would this approach be acceptable for a regulatory oversight agency auditing an accounting or investment dispute? Clearly not.

The business interconnections between the various consultants to Montana raise serious conflict-of-interest issues. The details of these interconnections are presented, albeit indirectly, within the Assessment and its Annexes. Are we to assume that the CAO understood these relationships and felt they were acceptable?

Examples of some of these connections are:

- **ESIA**. Much of the technical and environmental work presented in the original Environmental and Social Impact Assessment (ESIA) document (MEG, 2003) was performed by members of SRK Consulting of Colorado, U.S.A. The most prominent SRK staff names presented on the ESIA team are Patty Acker and Robert Dorey (MEG, 2003, Equipo Consultor Del EIA).
- **Environmental Audit and Review**, (Dorey and Associates, 2005). This audit of the Marlin Project was performed by Mr Dorey's firm after he left SRK. This Audit was reviewed by Patricia Acker, formerly with SRK, under the name Patricia Acker Consulting, L.L.C.
- **Tailings Storage Facility Construction Project, Phase 1** (MEC, 2004).
  Installation Report: Water Supply Well PSA-1, (MEC, SRK Consulting, and Vector, June 2004).
  Marlin Project Tailings Disposal Facility Design Report (MEC), 2005a.
  Marlin Project Production Well. Memorandum, (MEC, 2005b). The documents above were prepared, all or in part, by MEC, Marlin Engineering & Consulting, L.L.C., which is operated by Robert Dorey--the auditor (see above) of the Marlin Project and former senior advisor and preparer for the Marlin ESIA.
- **Tailings Dam Review Board Report No. 2**, (RGC, 2005). WBG / IFC guidelines require that such a Review Board normally be composed of three parties. This and the previous Tailings Dam Review Board Report were authored solely by Dr. Andrew Robertson, a well-known mining geoscientist. Dr. Robertson was one of the original Principals in the consulting firm, Steffen, Robertson & Kirsten, SRK.

By presenting these connections, I do not intend to imply any wrong-doing on the part of these companies or individuals. Nevertheless, these business connections do little to convince the general public that an atmosphere of *independence* pervaded the Marlin Project.

<u>Financial Assurance.</u>

As a minimum, there is a great deal of uncertainty about what long-term water impacts will actually occur at the Marlin Mine. Thus, there should be, as a minimum, a strong financial assurance policy enacted and enforced at this and all similar mining sites.

In order to deal with this uncertainty and to improve the possibility that future project-related liabilities (environmental, etc.) will not become the responsibility of the Guatemalan public, the national government needs to develop enforceable

laws and policies concerning financial assurance for long-term environmental and resource-related liabilities. These are essentially the same sorts of approaches that insurance companies use to deal with risk and uncertainty in other commercial arenas.

Such procedures would require mining companies to contract for independent audits—with strict government oversight--- to evaluate and estimate costs to mitigate reasonably-foreseeable environmental and resource-related impacts and other closure-related costs. The impacts to be evaluated should include both acute (catastrophic, single-events) and chronic, long-term impacts, such as long-term water quality degradation. Such procedures would also require MEG and other mining companies to provide some form of financial assurance (insurance, bond, etc.) to be held by an independent trustee for the Guatemalan government. Estimates for these liability costs should not be estimated by consultants chosen by and directed by the mining companies.

In countries such as Canada and the U.S.A., bonds at similar mining sites that have significant potential for water quality degradation are often in the range of at least tens of millions of dollars (U.S. and Canadian).

At present, the publicly-available Marlin Project documents, including those authored by the IFC and the CAO, contain no specific discussion of such financial assurance measures. [Annex A of the Assessment, Table 2, column 3 does mention that the Min. of Environment & Natural Resources (MARN) has raised the generic need for a bond to cover planned and unexpected closure.] This is one arena in which the IFC / WBG should be especially prepared to assist the Guatemalan government and public.

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