EXECUTIVE SUMMARY
of
Technical Review

Environmental and Social Impact Assessment

AHAFO SOUTH PROJECT

Prepared by Stuart M. Levit, M.S. and David Chambers, PhD
Center for Science in Public Participation

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EXECUTIVE SUMMARY

The following are major concerns or inadequacies of the Environmental and Social Impact Assessment (ESIA) of the Ahafo South Project submitted to the International Finance Corporation by Newmont Mining. These comments focus on mining and reclamation issues, and do not focus on social or biological (forestry, wildlife, etc.) issues.

1) Data Inadequacies and Methodology:
a) Data averaging: In many cases, raw data is combined to form composite or averaged results, upon which Newmont bases its decisions. Examples include averaging forest reserve quality to determine impacts and blending rock samples to assess potential impacts to water quality. It is sometimes unclear whether this "averaging" is a product of lack of data or reporting, but it makes it impossible to accept many of the ESIA's conclusions.

b) Incomplete reporting and availability of data: The ESIA acknowledges that some data have not yet been collected, including necessary studies of surface and ground water (and their connectivity) and acid-generation potential. Newmont's failure to complete these fundamental data makes it impossible to evaluate or accept some of the ESIA's conclusions. In response to these and other deficiencies, Newmont should commit, or be required to commit, to reasonable worst-case scenario environmental protection, mitigation, and monitoring until reliable and conclusive data indicates that lesser standards will protect human health and the environment.

2) Environmental Standards and Criteria:
In several places, the ESIA proposes to employ significantly less stringent human health or environmental standards in Ghana compared to, for instance, what Newmont employs at its projects in the United States. There is no reason why Ghanaian people and the Ghanaian environment should be subject to less than the most reasonably stringent protections and practices. This applies to all of Ghana but should be particularly important to a greenfields project such as this, that is, a project taking place in an area with no previous history of mining.

3) Hazardous Waste Disposal:
Because Ghana has neither methods nor law for disposing hazardous wastes, Newmont should be required to commit disposal of all chemicals/wastes to United States' standards (notably TSCA, RCRA, and CAA and CWA). Burning is not a safe disposal option, particularly without commitment to full analysis of methods and detailed monitoring.

4) Cyanide Disposal:
Cyanide should be destructed when it leaves the process circuit. The use of a cyanide-kill process, like the widely applied INCO SO_2 process, to lower the level of cyanide before it enters the tailings pond, is common practice in North America and should be used at this operation. Cyanide may degrade in the tailings pond water above the tailings, but not in the interstitial tailings water. As a result, seepage to groundwater will contain high levels

of residual cyanide. As it stands, the ESIA fails to outline adequate disposal and mitigation measures for cyanide.

5) Tailings Ponds and Waste Rock:
a) Liner construction: As described, liner construction is not adequate to protect human health and the environment. The tailings pond and waste rock piles should be fully underlined and overlined. Liner construction must include testing to assure that proposed permeabilities are achieved, and monitoring must adequately test for leaks during and after construction. There should also be sand and other protective layers installed to protect the liners from damage during construction and mine operations.

Proposed closure/reclamation covers are inadequate on both the waste rock piles and the tailings pond. This includes both cover thicknesses and failure to protect from capillary rise and contamination of cover materials.

b) Tailings pond design and seismic risks: The tailings pond design is inadequate to contain the toxic contents intended to be reposited forever and significantly ignores standard practices and potential liabilities from failure. The Maximum Credible Earthquake, usually assumed to be the 1-in-10,000 year event, should be used to establish the design peak horizontal ground motion. Moreover, to insure that the tailings dam is stable, especially under seismic loading, the tailings ponds should be constructed in the downstream method (the ESIA appears to employ the much less stable upstream construction method. Downstream construction, as is used in the starter dam, should be used to extend the height of the tailings dam. Finally, the tailings pond should be fully underlined with both compacted and synthetic liners, not just the lower portion of the pond.

6) Acid Generation Potential Not Assessed:
The four pits' geologies have not been adequately characterized to determine if they will produce acid, will fill with water, or will contaminate surface or ground water, or both after mine closure. The ESIA averages data, or does not have data, rendering its conclusions all but "preliminary". Testing, particularly kinetic, should have been completed before this point in permitting and construction, and has great ramifications to ground and surface water quality and flow/quantity. The results of these tests could indicate significant environmental (and financial) impacts during or, more likely, following mining. Backfilling the pit will not mitigate these unknowns because the pit could still be hydrologically connected to surface waters, posing a threat to surface water quality and anyone or anything exposed.

7) Water Quality:
a) Wetlands: Wetlands value and performance are not sufficiently considered. The ESIA does not examine or consider existing wetlands performance and function compared to what the ESIA says will be created wetlands' performance and function. A wet area, such as around a pond, does not necessarily create or function as a wetland. The ESIA discussion further ignores the impacts on wetland performance.

b) Acid mine drainage: The ESIA's discussion of acid mine drainage (AMD) formation is not adequate because the actual potential for AMD is neither fully analyzed nor characterized. The ESIA discusses and generalizes AMD production and potentials but does not comprehensively meet IFC's requirement to assess AMD production *before* construction.

The ESIA ignores many geologic and logistical uncertainties, or at a minimum fails to conduct and/or present necessary data or studies to conclude much about AMD production/potentials. The ESIA further distorts, averages, or ignores differences in rock types and how those rocks will be differently handled, treated, and disposed by the mine's operations. The data does not fully support that the potential for acid production is low, and the ESIA does not appear to consider that neutralizing potential may not effectively neutralize acid that is produced.

c) Water quality standards: The ESIA's water quality discussion and standards do not adequately protect water resources. For example, the Ghanaian cyanide standard is essentially a drinking water standard, and should not be used as a discharge standard or a standard intended to protect aquatic life. Similarly, the Ghanaian arsenic standard is high and does not protect aquatic life. Table 4-37 is a homogenized accounting, which is not necessarily representative for any one waterbody or site. From the map of water quality monitoring stations (Figure 45-7) it is not apparent that 24 monitoring stations are sufficient for over 2,500 ha of mine operations and buffer included in the Ahafo South mine.

In the Subri sub basin the presence of mercury, zinc, and arsenic underscore that the mine could encounter these and/or other potential contaminants to surface or ground water quality. This underscores that the mine should determine mineral and water quality data sufficient to more clearly identify water quality threats and problems well before mine operation. If these metals are in the streams before mining, it is highly probable that they will be in the waste rock and ore that is removed, and in the pit walls, and therefore pose a threat to water quality. The mine must monitor for these during mine life and in the long-term monitoring.

d) Water withdrawal and use: Water withdrawal for mine activities is discussed primarily in terms of water needed by the mine for its operations. However, water withdrawal should consider the impact of withdrawal on natural resources and non-mine consumptive uses (such as drinking water, agriculture, etc). To ensure adequate natural flows for environmental and existing (non-mine) human activities requires clear description of the existing water flows (surface and ground), reasonable descriptions of proposed uses and sources, and commitment to minimum flows below which the mine will not extract water (surface and ground). The impact of water withdrawal on natural resources or human uses is not mitigated by the promise to provide alternative sources. The commitment to providing alternate sources ignores water for nonhuman (environmental) uses, such as instream flows for fisheries health.

8) Reclamation:

As a way of demonstrating Newmont's internal and external commitment to, and success of, contemporaneous reclamation, Newmont should commit to completing a report of its existing reclamation of exploration roads, pads, trenches, sumps, etc. This will allow all interested parties to determine the extent of existing reclamation and promote contemporaneous reclamation as the mine develops.

a) Agriculture and reclamation planning: The ESIA discusses post-mining agriculture but the ESIA does not commit to ensuring that agriculture is a significant post-mining land use or that/how this use will be achieved. The ESIA fails to disclose most details about reclamation. Newmont should make reclamation planning analysis reports available so that the reclamation plan can be reasonably evaluated. The ESIA does not consider numerous reclamation procedures; particularly cover material salvage and storage methods.

b) Closure costs: The closure/reclamation costs considered in the ESIA appear to represent Newmont's internal closure costs, and do not represent the costs to perform these activities if they had to be completed by a third party or the government. Therefore these cost estimates do not protect the government or people from a premature closure of the mine. Further, the ESIA suggests that the mine will establish its reclamation fund as gold is produced. Mines, however, incur much/most of their reclamation liability in the first years after opening the mine (pit, tailings pond and dam, and waste rock piles) and if the mine closes or goes bankrupt before mining and reclamation is complete then there probably won't be enough money to close/reclaim the mine. Likewise, as required by IFC's Environmental Health and Safety Guidelines for Precious Metal Mining, if the mine temporarily suspends activities there would need to be funds to maintain operations and activities that protect human health and the environment, such as pumpback operations, water treatment, monitoring, etc.

9) Monitoring and Reporting:

Monitoring and discharge reports, including reporting on contamination of surface and ground water, should be made publicly available in a timely manner. There is no excuse for the mine not immediately notifying the public of leaks, contamination, etc. Shallow and deep groundwater monitoring wells should be installed in several locations downgradient of (1) the tailings dam, (2) each waste rock dump, (3) each pit, and (4) the processing plants and anywhere chemicals are stored or used. These must be of sufficient design to adequately assess water quality before, during, and after mining. Actual monitoring points for all monitoring must be clearly identified in terms of location and times of sampling. Moreover, monitoring points must be representative and be close to the discharge, to prevent long mixing zones that may become essentially sacrifice zones.