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D'APPOLONIA
ECMG

REPORT OF THE

**EXTERNAL COMPLIANCE
MONITORING GROUP (ECMG)**

**FOURTH SITE VISIT
OCTOBER 2008**

Ahafo South Project, Ghana

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SUBJECT: FOURTH SITE VISIT OF THE D'APPOLONIA ECMG TO THE AHAFO SOUTH MINING PROJECT, GHANA, OCTOBER 2008

Introduction and Executive Summary

1. This report summarizes observations made during the fourth site visit (September 29 – October 3, 2008) by D'Appolonia S.p.A., Italy (D'Appolonia), serving as the External/Independent Environmental, Health and Safety (EHS) Compliance Monitoring Consultant (referred to as the External Compliance Monitoring Group – ECMG) for the Ahafo South Mining Project, Ghana (“the Project”).
2. This External Compliance Report is broken down into three key subject areas, as follows:
 - Compliance with International Finance Corporation (IFC) Policies and Guidelines;
 - Compliance with the Environmental and Social Impact Assessment (ESIA) documentation; and,
 - Recommendations for Improvement based on D'Appolonia's experience.

ECMG observations that require action and will be reviewed in subsequent assessments have been collated in Table 1 – Follow-up Issues. Table 1 will be updated by the ECMG following each site assessment. The ECMG has also provided recommendations for improvement based on the collective experience and expertise of the team members. These recommendations are not considered compliance requirements and there is no onus on the operation for implementation. ECMG, however, encourages the Project to consider the usefulness of the recommendations and incorporate them, as appropriate, into management activities.

3. Newmont Ghana Gold Limited (NGGL), a wholly owned Ghanaian subsidiary of Newmont Mining Corporation (Newmont), is developing gold reserves with mining and milling operations located along a mineralized zone that extends approximately 70 kilometers (km) in the Brong Ahafo Region of Ghana, West Africa. The Project is an open cast gold mine and associated facilities. Construction initiated in April 2004 and mining started in January 2006 with the pouring of first gold in July 2006. The Ahafo South Mining Project is expected to add an additional 6.8 million ounces to

Ghana's overall export of gold during the life of the mine. Current operations have an expected mine-life of more than 20 years.

Mining is currently conducted in three areas, the Subika, Apensu and Awonsu pits. The current NGGL workforce totals about 1378 permanent Ghanaian workers and approximately 75 expatriates. Contractors augment this workforce by an additional 1,453 workers to provide security, laboratory, vehicle and equipment maintenance, construction, catering, and transport services.

4. In January 2006, the IFC approved financial assistance in the form of a loan to NGGL to continue development of the Project, approximately the southern half of the overall Ahafo mineralized zone. NGGL committed to apply the IFC Social and Environmental Safeguard Policies and Guidelines (as applicable in 2006) to the design, construction, operation, and closure of the Project.

IFC involvement and financing require both pre-finance project due diligence and post-finance project assurance related to the various social, environmental, and health and safety IFC Safeguard Policies relevant to the Project, as presented in the ESIA, which was disclosed on August 29, 2005. NGGL has committed to external/independent social, environmental, and health and safety compliance monitoring to provide an additional level of transparency to the implementation of social, environmental and health & safety management programs. Social compliance is independently evaluated and reported by other external assessors¹ outside of the D'Appolonia ECMG organization.

5. D'Appolonia's scope of work is to conduct semiannual visits to the Project in order to:
 - Identify areas and degrees of compliance with IFC/World Bank (WB) Policies and Guidelines:
 - IFC Operational Policy (OP) 4.01 - Environmental Assessment (October 1998),
 - IFC OP 4.04 - Natural Habitats (November 1998),
 - IFC OP 4.37 - Safety of Dams (September 1999 Draft),
 - IFC Hazardous Materials Management Guidelines (December 2001),
 - IFC Occupational Health and Safety (OHS) Guidelines (June 2003),
 - WB Operational Policy Note (OPN) 11.03 - Management of Cultural Property in Bank-financed Projects (1986, reprinted August 1999),
 - WB Pollution Prevention and Abatement Handbook (PPAH) General Environmental Guidelines (July 1998),
 - the WB EHS Guidelines for Mining and Milling - Open Pit (August 1995);
 - Provide practical guidance and advice to Project's field teams; and
 - Identify specific EHS issues and conduct follow-up and closure of issues.

The Focus Areas of the EHS reviews are the following:

- EHS Management performance;
- EHS compliance (versus Ghanaian and International standards as presented in ESIA);
- Compliance with IFC EHS Safeguard Policies;

¹ The Independent External Social Compliance Monitoring Reports are publicly available at <http://www.newmontghana.com/> in their section entitled Ahafo: Public Disclosure Documents.

- Facility review;
- Biodiversity Management Plan performance (as appropriate);
- Implementation of the Environmental and OHS Action Plans (as presented in ESIA); and
- Hazardous Material and Transportation Management.

During this visit, D'Appolonia also received information from NGGL for an associated facility, the Volta River Authority's (VRA) Kumasi-Sunyani Transmission Line. A review of this component based on this documentation is included as part of this report.

6. Specific activities conducted during this site visit included the following:
 - Evaluation of implementation of the commitments contained within the Environmental and Social Action Plan (ESAP) of the ESIA. Items addressed in the ESAP include: air quality, surface and ground water resources, soil resources, natural resources (flora and fauna, including aquatic organisms) and wetlands, noise and vibrations at off-site receptors, waste management, and cultural resources.
 - Evaluation of implementation of the commitments contained within the OHS Action Plan. Items addressed in the OHS Action Plan include:
 - Hazardous materials and transportation management, including cyanide,
 - OHS monitoring, including noise and vibrations,
 - OHS statistics, and
 - Bilharzias, malaria and HIV/AIDS programs.
 - Evaluation of compliance with IFC Policies and Guidelines, as above.
 - Visit to the sites of the Project facilities (including the operating Apensu, Subika and Awonsu Pits; Water Storage Facility (WSF); Tailings Storage Facility (TSF); the Processing Plant; CCD Plant, and associated infrastructure).
 - Meeting with the Project teams responsible for EHS compliance monitoring and review relevant plans, procedures and monitoring records.
 - Limited review of documentation provided by NGGL specifically related to with respect to the VRA's Kumasi-Sunyani Transmission Line.
 - Conducting a closeout meeting with NGGL EHS and management personnel focusing on key findings, correction of any factual inaccuracies and possible corrective/upgrade actions.
7. The closeout meeting was conducted at the Ahafo South Mining Project on October 3, 2008, and the information presented in this meeting has formed the basis for this report. The information, observations, and opinions presented in this report are those of D'Appolonia and are independent of those of NGGL and the IFC.
8. The Ahafo South Mining Project is in operation and its facilities continue to appear to be designed, operated and maintained according to good industry practice. Although evaluation of design, construction and operations aspects is not part of the ECMG scope of work, the organization was found to competently operate the site, which is well maintained and equipped with good facilities, campsites, workshops, equipment and machinery.

The most fundamental observation made from the fourth visit is that NGGL can demonstrate that plans are in place or corrective actions are ongoing to address the

gaps previously identified where their operations are not fully compliant with IFC environmental policies and guidelines. The most significant progress includes:

- Development of EMS Management system as part of ongoing efforts towards ISO 14001 and OSHAS 18001 certifications;
- Construction of Counter-Current Decantation (CCD) plant that allows for NGGL to have compliant cyanide discharges into the TSF, as well as full certification with the Cyanide Code;
- Demonstration that firm plans are in place to improve waste management and wastewater treatment;
- Improvements to both occupational health and environmental monitoring procedures;
- Development of a new Biodiversity Management Plan;
- Occupational Health and Safety monitoring and enforcement shows substantial improvement;
- The Emergency Response Plan is now an effective document reflecting realistic scenarios and procedures;
- Completion of a dam failure risk assessment with an associated flood routing analysis, expected to form the basis for NGGL to prepare an Emergency Preparedness Plan; and
- Baseline archaeological survey reports and site excavation reports are now complete for the Ahafo South area.

The following discussion amplifies these main points and provides additional observations.

One of the most significant developments since February 2008 has been the development of most of the plans and procedures needed to constitute a complete EMS system as part of NGGL's efforts to achieve ISO 14001 and OHSAS 18001 certifications by the end of 2009. The environmental and health, safety and loss prevention (HSLP) management structure was effectively complete in February 2008, but staff members now appear to have a better sense of their individual roles and responsibilities. Management turnover continues to be an issue, but the EHS organizations are now sufficiently mature that it is not expected that this situation is a major impediment to maintaining effective operations.

From an environmental standpoint, NGGL has made substantial progress towards achieving acceptable environmental and natural resource management programs. In particular, NGGL has completed construction of a Counter-Current Decantation (CCD) plant that reduces the concentration of Weak Acid Dissociable (WAD) cyanide by washing the tailings such that the concentration of the influent to the TSF is consistently below 50 milligrams per liter (mg/l) WAD cyanide. This effectively eliminates concern to wildlife caused by the presence of cyanide in the decant pond. Another milestone achieved by NGGL is full certification of their cyanide management procedures according to the International Cyanide Management Code (ICMC).

NGGL has continued the same waste management practices that were identified as not being consistent with good practice during the previous ECMG visits, in particular the use of the Kumasi landfill for certain waste streams and the burying of putrescible kitchen waste in unlined pits. Nevertheless, NGGL was able to demonstrate substantial progress in the development of a composting facility that would provide

for a final solution to the disposal of organic kitchen waste and also manage sewage sludge from wastewater treatment. In parallel with the development of a composting facility, NGGL was able to demonstrate progress in the design and construction of wastewater treatment plant upgrades that will allow for all sewage to be treated internally, with no need to send sewage wastewater and sludge to the Kumasi municipal facility. Currently, most effluent is treated on-site and the final treated wastewater is sent to the TSF, but some sewage waste streams from Kenyase and Rank Camps is still sent to the municipal Kumasi facility.

Ongoing environmental programs to monitor ambient air, surface water and groundwater continue to be well operated and results used to make improvements to operations. A fundamental observation is that environmental monitoring has become much more of a routine aspect of environmental management than has been the case in the past. One potential area of concern is with respect to groundwater. As noted in February 2008, initial groundwater modeling studies indicated that pit dewatering may potentially impact community wells, as well as some surface water flow regimes and wetlands. Ongoing measurements of groundwater conditions indicate that groundwater extraction has not yet affected areas significantly away from the pits, but that the drawdown does not fit the current model and NGGL is planning on recalibrating the model in the near future. Any need to develop contingency plans for potential adverse impacts will be defined after the groundwater model is calibrated to observed drawdown and actual impacts can be better predicted.

Regarding ambient noise monitoring, there is uncertainty regarding NGGL's interpretation that assigning an industrial/commercial standard of 70 dB (A) for both day and night is appropriate for the residential areas in the immediate vicinity of the mining. Nevertheless, daytime ambient noise levels are within the World Bank – IFC standard of 55 dB (A). The issue still remains for anomalous nighttime values, although it is not clear if NGGL activities actually contribute to the relatively high nighttime noise. Monitoring continues to be conducted with respect to the effects of pit blasting (vibrations) on local communities and the conservative NGGL standard of 115 dBL for air overpressure is no longer being exceeded, likely because of the deepening of the Subika and Apensu pits. It should be noted that the new Awonsu pit has not yet been excavated to the point where blasting is required.

This ECMG team briefly reviewed the ecological aspects of the Ahafo South Project as the ECMG team member specialized in biodiversity and natural resource management did not attend the visit. Nevertheless, NGGL was observed to have plans in place to work with the Mining Department to conduct some initial tests to determine the most effective means to reclaim the waste rock piles and plans were underway to re-establish a contract with the University of Ghana to optimize procedures for topsoil management. A Plan for the control of invasive species was completed by Africa Conservation Advocates, Accra. NGGL has also continued to progress with biodiversity monitoring. AMEC – Geomatrix has completed at a Biodiversity Management and Monitoring Plan (final draft) with Conservation International (CI) serving as a peer review for this document. NGGL anticipates that biodiversity monitoring will start Q1 2009, but the ECMG review of this document is that it is not yet sufficiently developed such that it can be effectively implemented.

The Health and Safety program continues to improve. From the standpoint of occupational health, monitoring and enforcement shows substantial improvement. NGGL also continues to improve their capability to react to emergency situations.

The inadequacy of the Emergency Response Plan was one of the main issues identified from previous visits, but a significantly revised ERP is now available that addresses realistic situations that could require response and this document is expected to receive approval by Management in the near future. The Emergency Response Team (ERT) can now be considered to be trained to react to the most significant accidents, fires, or medical situations, recognizing that training will always be an ongoing process.

The TSF appears to be competently designed and is being constructed within the established design criteria. The one deficiency with respect to this facility identified in previous ECMG reports has been the lack of a detailed Emergency Preparedness Plan (EPP) with maps of potentially inundated zones. This situation is well on the way to being rectified, as NGGL has identified very low probability failure modes for both the TSF and the WSF and a flood routing analysis has been undertaken that defines potentially inundated zones. It is anticipated that this work will then form the basis for the preparation of the EPP.

Archaeological surveying continues to be undertaken by Geomatrix Consultants with the support of Prof. Yaw Bredwa-Mensah of the University of Ghana. Baseline archaeological survey reports and site excavation reports are now complete for the Ahafo South area. NGGL will now need to focus on training and management of chance finds.

Table 1
Follow-up Issues

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
<i>EHS Management</i>						
M1.1	IFC (IFC OP 4.01 Annex C (January 1999) – requirements of content of EMP	Dec 06		NGGL should finalize all EHS related plans and procedures as soon as practical.	Pending	This process is nearly complete as part of NGGLs effort to achieve ISO 14001 and OSHAS 18001 certifications.
M1.2	IFC (IFC OP 4.01 - Environmental Assessment [October 1998], paragraph 18)	Dec 06		Incorporate the contents of the applicable IFC Guidelines into the plans and procedures under finalization. The applicable and relevant IFC Guidelines are presented in Section 1 of the ESIA.	Pending	This process is nearly complete as part of NGGLs effort to achieve ISO 14001 and OSHAS 18001 certifications.
M1.3	ESIA Chapter 2 – Environmental Management (p 2-43)	Dec 06		Monitoring and assessment of compliance with ESIA commitments is an important part of the Project. A specific procedure should be developed and implemented as soon as practical, including the monitoring of Contractors and subcontractors involved during Project development. It is recommended that levels of non-compliance be clearly defined based on potential or actual threat, damage or irreversible impact to a sensitive or important resource. An EHS non-compliance register should be maintained by the Environmental and HSLP Departments.	Pending	This process is nearly complete as part of NGGLs effort to achieve ISO 14001 and OSHAS 18001 certifications.

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
Surface Water and Groundwater						
M3.1	ESIA Chapter 4, page 4-133, para. 3, Chapter 5 – EMP p. 5-33, ESAP – basic commitment to eliminate or offset impacts from mining	Dec 06		Calibrate the groundwater model prepared to evaluate the effects of pit dewatering on the basis of additional measurements of drawdown and studies to determine the connectivity between shallow and deep groundwater regimes. Consider increasing the monitoring program applicable to mine dewatering activities and then develop mitigation measures for community wells and wetlands as appropriate.	Pending	Drawdown from pit dewatering is being monitored on the basis of piezometers and the initial results confirm the presence of unexpected anisotropy that NGGL recognizes will require a calibration of the preliminary drawdown model. Before any potential adverse impacts can be quantified or mitigations defined it will be necessary to conduct the model calibration analysis. This effort is ongoing.
Reclamation, Revegetation, and Topsoil Management						
M1.8	ESIA (Chapter 5 [ESAP]; Table 5-3)	Dec 06	Oct 08	Develop Noxious Weed Management Plan in close cooperation with CI, who should also act as one of the final reviewers. As part of this effort and in coordination with CI and the University of Ghana, conduct further research and review of all non-native (and potentially invasive) species, particularly, <i>Leucaena</i> spp. and vetiver (<i>Chrysopogon zizanioides</i>). Although naturalized in Ghana, the encroachment and domination of elephant grass (<i>Pennisetum purpureum</i>) should also be further explored. Ensure that these species will not present long-term impacts to natural vegetation, and especially to local agriculture. ²	Closed	A Noxious Weed Management Plan has been prepared by Africa Conservation Advocates, Accra.

² Note that in the ECMG report for the July 2007 site visit, this item was included as part of Natural Resource Management/Biodiversity Section.

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
<i>Biodiversity and Ecological Management</i>						
M2.1	ESIA (Chapter 5 [ESAP]; Table 5-3 -in DRAFT Biodiversity Management Plan)	July 07	Oct 08	The multi-taxa biodiversity monitoring program should be developed and made available.	Pending	The ECMG does not consider the ABMPP finalized until it is actually developed as a stand alone implementable plan that respect standard industry practice in biodiversity action planning. The formats for doing this are numerous, and the ECMG recommends that the project select one internationally recognized biodiversity action/management planning template. Specific recommendation on this are provided below and have been included in ECMG reports in considerable detail since December 2005.
M3.2	ESIA (Chapter 5 [ESAP]; Table 5-3)	Feb 08	Oct 08	The Biodiversity Management Plan (BMP) should be finalized.	Pending	The outline of the ABMPP presented to the ECMG will be considered final when it is actually developed as a stand alone implementable plan that respect standard industry practice in biodiversity action planning. The formats for doing this are numerous, and the ECMG recommends that the project select one internationally recognized biodiversity action/management planning template. Specific recommendation on this are provided below and have been included in ECMG reports in considerable detail since December 2006.

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
Waste Management						
M1.10	ESAP – Table 5-5, p 22	Dec 06		Finalize the general Waste Management Plan.	Pending	NGGL has contracted AMEC – Geomatrix to conduct a thorough review of all of their waste management practices and finalize the Waste Management Plan.
Hazardous Materials Management						
M1.12	IFC (IFC Hazardous Materials Management Guidelines [December 2001]; Requirement #2 – <i>Hazardous Materials Management Program</i>) ³	Dec 06		Expedite the finalization of all plans and procedures related to the management of hazardous materials.	Closed	This process is nearly complete as part of NGGLs effort to achieve ISO 14001 and OSHAS 18001 certifications. Good practice with respect to the handling of hazardous materials was observed in the field.
Emergency Preparedness and Response						
M1.15	IFC (IFC Hazardous Materials Management Guidelines [December 2001]; Requirement #2 – <i>Hazardous Materials Management Program</i>)	Dec 06	Oct 08	Prepare a site-specific ERP that can serve as a complete guide to emergency management, from a risk assessment to identify vulnerabilities to detailed procedures to respond to a full range of situations, ranging from small spills to natural disasters. Include maps to identify access and escape routes, muster points, as well as the risk “hot spots” and sensitive receptors where particular care is required to manage emergency situations.	Closed	The Emergency Response Plan is effectively a final document and the Emergency Response Team (ERT) has developed to the point that that are capable of implementing this Plan.

³ Also see Guidance Note A: *Outline of a Hazardous Materials Risk Management Plan* in this Guideline, and, specifically the bullet on ‘Operating Procedures’.

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
<i>Noise and Vibrations</i>						
M1.17	ESIA (Chapter 4 [ESAP]; Page 4-58) (Chapter 5 [ESAP]; Page 5-5)	Dec 06	Oct 08	Verify that Project activities do not adversely impact the local communities from the standpoint of noise and vibrations that could originate from blasting and other than those associated with blasting, such as from Project-related vehicular traffic. Ensure that compliance with applicable and relevant standards is monitored.	Closed	Blast monitoring/vibration is a subject that is essentially an ongoing situation as long as mining activities continue, but there are currently no non-compliances being recorded, probably because the deepening of the Apensu and Subika pits mitigates the wave propagation. Blasting could again be an issue when the Awonsu pit starts to require blasting.
M3.3	IFC	Feb 08		Assess background noise in residential areas and ensure that Project activities do not produce noise levels that exceed limits provided in the WB's General Environmental Guidelines (July 1998).	Pending	The description is slightly modified from previous descriptions to reflect that NGGL should be concerned with their contribution to residential noise, as nighttime exceedances might not be Project related. Although NGGL considers that industrial limits (70 dB(A) day and night) are applicable to communities in the general mining area, this is not consistent with IFC requirements. In actuality, IFC daytime limits are generally not exceeded, but nighttime noise often is greater than daytime noise. The reason for this discrepancy is likely unrelated to NGGL activities, but this has not been documented by NGGL. It is recommended that NGGL better document sources of community noise and verify that anomalous noise levels are not associated with project activities.

Mission/ Issue No.	IFC Policy / ESIA Compliance	Opening Date	Closing Date	Description	Status	Comments
Occupational Health						
M1.4	IFC (WB EHS Guidelines Mining and Milling - Open Pit [August 1995], section 'Workplace Air Quality')	Dec 06	Oct 08	Ensure that periodic workplace air quality monitoring is undertaken and meet relevant IFC requirements.	Closed	The H&S group has enacted an effective program of monitoring workplace air quality.
Emergency Preparedness Planning						
M1.19	IFC OP 4.37 and Annex to OP 4.37, where the contents of an EPP are defined	Dec 06		Prepare Emergency Preparedness Plan (EPP) for the potential failure of the Tailings Storage Facility (TSF) that clearly defines potentially affected areas based on potential release scenarios as determined on the basis of an Impact Analysis and contains notifications and chain-of-command procedures. Environmentally sensitive areas and receptors should also be identified on the maps of areas with potential impact.	Pending	Substantial progress was made with respect to the development of an EPP with the completion of a risk assessment and a flood routing analysis by Golder Associates. It is expected that this study will result in the preparation of an EPP. The risk-based failure scenarios will be associated with conditions when the facility is close to or at its maximum height.

1 EHS Management

1.1 Plans and Procedures

Project Strategy:

NGGL EHS and social commitments are contained in the disclosed documents: ESIA, the Resettlement Action Plan and the Public Consultation and Disclosure Plan.

The ESAP, presented in Section 5 of the ESIA (available at www.newmontghana.com), is an integral component of Ahafo South Mining Project's overall planning, design, budget, and implementation. It identifies the Project management programs and specific mitigation measures expected to reduce potentially adverse impacts to acceptable levels. The ESAP includes a requirement for environmental monitoring to verify the effectiveness of mitigation during all phases of the Project. The ESAP also specifies institutional responsibilities, an implementation schedule, and cost estimates. The Plan provides for modifications over time if information shows that changes should be implemented. An ESAP update was published in April 2006.

NGGL has committed to achieving the highest standard of performance in areas of Community and External Relations, Environmental Stewardship, and HSLP through responsible management of activities throughout various stages of the Project. At the time the ESIA was written, the Newmont Mining's Five Star Management System, a global management system developed in-house by Newmont, was the applicable System. Over the past year this system has been phased out in anticipation of certification under ISO 14001/OHSAS 18001, scheduled for the end of 2009.

Newmont is implementing the International Cyanide Management Code (ICMC), a voluntary industry program for companies involved in the manufacture and transport of cyanide and the production of gold. The ICMC covers the lifecycle of cyanide management and defines a series of principles and objectives that cover production of cyanide, transportation, handling and storage, operations, decommissioning of facilities, worker safety, emergency response, training and communications with the public.

Observations:

The Integrated Management Systems Procedures are currently up-to-date or in the process of finalization as a part of the ISO/OHSAS certification effort. All of the 10 Environmental Management System Procedures (i.e., Hydrocarbon, Chemical, Cyanide, Mercury, Tailings, Waste Rock, Waste, Water, Air Quality, Closure and Reclamation Planning) are finalized and completed within the ISO 14001 framework.

Detailed work plans that flow from these procedures have also been completed or in the process of completion for identified high risk areas such as water and waste. Of the 15 HSLP procedures (i.e., Occupational Health and Hygiene, Hazardous Materials, Surface Ground Control, Surface Fire Prevention, Energy Isolation, Mobile Equipment, Electrical Safety, Work Permit Systems, Machine Guarding and Conveyors, Explosives, Light Vehicles and Road Safety, Working at Heights, Pressurized Systems, Cranes and Lifting Equipment, and Medical Programs), 7 have been revised. Others are still in draft form, but are scheduled for completion within the OHSAS 18001 framework during 2008. An SOP Register has been developed to track the development, management and control of SOPs for both ESR and HSLP.

General aspects to the effective implementation of an EHS management system that were flagged as requiring improvement during the February 2008 site visit were discussed in detail with the individuals responsible for upgrading the EHS management system as part of the ISO 14001 and OHSAS 18001 certification process. It is understood that the final management system, shortly to be implemented, will incorporate these previous recommendations. This is a subject that will be reviewed during future ECMG site visits.

An environmental incident register was available that included the list of all spills reported on site relevant to different substances and the relevant amounts of contaminated soil cleaned. Since the February 2008 ECMG visit, 19 spills have been recorded and classified according to a scale of severity levels from 1 (least significant), to 5 (most significant): the largest was a single Level 2 incident associated with the spill of pregnant solution pumped into the gold room where the concern was cyanide, but was managed with the application of hypochlorite. The register was found to be improved from the version reviewed in February 2008 with clearer instructions for use and a column to show closure status. These improvements appear to have started at the end of March 2008 with improved documentation of responsible individuals, but some aspects of the register (Actual Consequence Level; Estimated Cost - \$; Risk Level; and Corrective Action) are not being utilized and the documentation of closure is not always provided.

Monthly environmental reports continue to be submitted to the EPA in accordance with the EPA Act 490. An environmental permit register is in place.

A major accomplishment also discussed in Section 2.7 is certification of NGGL as fully compliant with ICMC Cyanide Code.

IFC Policy Action Items

- M1.1 NGGL should finalize all EHS related plans and procedures as soon as practical.
- M1.2 Incorporate the contents of the applicable IFC Guidelines into the plans and procedures under finalization. The applicable and relevant IFC Guidelines are presented in Section 1 of the ESIA.

ESIA Action Items

- M1.3 Monitoring and assessment of compliance with ESIA commitments is an important part of the Project. A specific procedure should be developed and implemented as soon as practical, including the monitoring of Contractors and subcontractors involved during Project development. It is recommended that levels of non-compliance be clearly defined based on potential or actual threat, damage or irreversible impact to a sensitive or important resource. An EHS non-compliance register should be maintained by the Environmental and HSLP Departments.

i) *Recommendations for Improvement*

The basic recommendations for improvement to the EHS management procedures have been previously provided. It is understood that these recommendations are being followed in association with the efforts to achieve ISO 14001 and OSHAS 18001 certifications and the results will be reviewed during the next ECMG site visit.

2 Environment

2.1 Environmental Organization and Staffing

Project Strategy:

The Ahafo Environmental Department has essentially maintained the same organization as observed during the February trip structured into three main divisions: Compliance, Monitoring, and Reclamation. At the head of the department is the Environmental Manager, who reports to the General Manager for Environmental and Social Responsibility (ESR), responsible for compliance with IFC, Ghanaian, and corporate environmental requirements. The General Manager - ESR is supported by one administrative assistant, and an Environmental Manager based on the project site. The Director of Environmental Affairs, based in Accra, provides support to the Ahafo Environmental Department and, the General Manager- ESR, and both report to the Regional ESR Director, who in turn reports to the Regional Vice President. The site Environmental Manager, supported by one administrative assistant recently appointed and by three Superintendents, respectively for Compliance, Monitoring, and Reclamation, reports directly to the ESR General Manager.

Observations:

The current environmental management structure is consistent with ESIA commitments and now all the key managerial positions have been filled including the reclamation superintendent who will be appointed from October 1st. The considerable turnover that was considered a concern in the previous visits has now been reduced and the current staff which accounts for a total of 70 people appears to be appropriate.

The monitoring division accounts for sixteen national staff members organized into two teams, the field monitoring and the environmental laboratory. The division is responsible for the implementation of the environmental monitoring program, including the operation of the environmental laboratory at Ahafo South. It is responsible for the management of the environmental data acquired within the monitoring programs for water, air and noise. The compliance division is staffed with ten people responsible to ensure the fulfillment of all legal requirements and environmental policies along the mine operations. They also provide support and technical assistance to all Ahafo Departments to ensure compliance with environmental requirements as well as to prevent, control or mitigate any potential impacts associated to the mine operations. The reclamation division is still the most complex and numerous based on the number of the staff which accounts for forty two nationals. The division is responsible for the development of reclamation plans in coordination with mining programs as well as for the planning and development of all measures to be implemented for erosion control.

The environmental training is ongoing through a different department within NGGL, although the ESR Department supports it. Approximately 80 percent of the environmental staff has reportedly completed their training. It was reported that an environmental training module has been developed for the workforce, including the

contractors. For example, competency training on Air/Noise Quality Management has been started for NGGL employees by the environmental department.

As observed during the February trip, the environmental training continues to be ongoing and tracked through NGGL's Learning and Development Department, although the ESR Department supports it. Environmental content is included within inductions, refreshers, safety meetings and as individual environmental modules and includes oil spill management, noise/air monitoring, hazardous and non-hazardous waste management etc. Some specific training is requested by individual departments for individual topics. Some additional specific training is provided by Orica for cyanide handling etc and also for Shell personnel. Annual refresher training is required for every employee for safety, environment and community relations topics. A limitation to current SOP training that many SOPs are still being developed and the environmental content often needs to be strengthened for activities with significant potential environmental impact (also finding of ISO 14001 audit).

<i>IFC Action Items</i>

Nil

<i>ESIA Action Items</i>

Nil

Recommendations for Improvement:

- i) Make sure that appropriate environmental procedures are included with SOPs being developed that are associated with activities with potential significant environmental impact.

2.2. Air Quality

Project Strategy:

The environmental control measures indicated in the ESIA refer to the management and mitigation of both fugitive dust emissions and gaseous emissions. Fugitive dust is associated with mine operations including blasting, ore and waste rock hauling, dumping, grading, backfilling actions, as well as from increased vehicular traffic in the area. Gaseous emissions are generated from operation of mine equipment, combustion sources, and vehicular exhausts.

The control measures to mitigate fugitive dusts include watering or use of other surface binding and/or wetting agents, reclamation and revegetation, vehicular speed control, road maintenance, and use of dust suppression sprays or dry dust collection systems on ore crushing circuits and transfer points at the processing plant. Gaseous emissions are mitigated through proper operation and equipment maintenance, as well as specific end-of-pipe treatments, including scrubbing of emissions from the carbon regeneration kiln at the processing plant.

The Project has committed to implement dedicated air monitoring programs for both dust and gaseous emissions control.

Observations:

According to the data made available during the fourth site visit, the monitoring of air emissions from operations to the ambient air continues to be implemented

consistently. The SOP for air monitoring, planned to be finalized in the first quarter 2008, is still in draft form.

As observed during the last visit, monthly monitoring for the Ahafo South mine continues to be conducted at five (5) dust monitoring gauges located within or nearby the Ahafo mine operations area (Ntotoroso Township, Rank Camp, Kenyase Town, Plant Site, and Senior Staff Village [SSV]). Five (5) additional gauges are positioned in the nearby villages (Yamfo Core Shed, Yamfo Town, Rubi Village, Adrobaa Township, and Terchere Nursery) to collect baseline data for the Ahafo North mine.

Monthly average results for thirty (30) days sampling were provided to the ECMG for the period January - August 2008. Ambient dust samples are tested at an off-site accredited laboratory (SGS) for the following parameters: total solids, insoluble and soluble solids, ash, combustible matter, and dust deposition. Given the rainy season, according to the data provided, dust concentrations in the period were within the reference limits and no exceedances were observed in any of the monitoring station.

The dust monitoring with the two mobile units located at Kantinka and Morokrom local communities to monitor air quality with respect to project activities was discontinued during the rainy season. The Kantinka station has been maintained although no monitoring are currently ongoing while the station at Morokrom has been decommissioned and the mobile unit is now available to be located should any other complaint be raised.

NGGL is also responsible for the day-to-day operation of the ambient air monitoring program, specifically designed to monitor PM₁₀ particles at Ahafo South. Monitoring is conducted over a 24hr period on a weekly basis and samplers are located at Kookoase and Ahafo South Rank Camp. The results of the weekly monitoring for the period January - August 2008 were always below the guidance limit of 70 µg/m³, assumed by WB/IFC General Environmental Guidelines as reference concentrations immediately outside the project property.

According to the documentation provided during the visit, since 2006 AMEC Geomatrix, Inc. installed 10-meter meteorological towers and ambient air monitoring samplers in three locations at the Ahafo South lease area. Two air quality monitoring stations are located nearby the Senior staff village and one south of the Subika pit. However, the only meteorological station currently in use by the Project is located on the east side of the tailing storage facility (TSF). In July 2008 Geomatrix contracted ENVIRON International Corporation to perform quality assurance (QA) audits of these data collection systems. According to the audit outcomes, all meteorological monitoring systems were found to be operating within USEPA Prevention of Significant Deterioration (PSD) acceptance criteria limits. The only adjustments included some maintenance at the evaporation pan and sensor at Ahafo South due to the accumulation of algae in the pan and in the associated tubing that inhibited the accuracy of the sensor. Overall, the status and operations of the equipments used for monitoring was assessed and found properly operating. As part of the QA audit, NGGL staff was observed by ENVIRON during filter installation, removal, and shipment preparation and found to properly following the sampling practices.

The dust suppression program continues to be properly implemented in all areas of active mining and along some public roads through road watering, road maintenance and the use of sprinklers and dust collectors at the crushers, conveyors and drill rigs.

In order to meet legal requirements and commitments stated in the Environmental and Social Impact Assessment (ESIA) and in the Environmental Management Plan (EMP) approved by the Ghanaian Environmental Protection Agency (EPA), an inventory and characterization program of all point sources gas emissions at Ahafo site operation facilities is expected to start within the first quarter 2009. The scope of work of the program was provided to the ECMG. The inventory should allow identifying all point sources gas emissions, registering the location in coordinates, elevation, associated facility, and assessing the existing physical condition to determine the requirements for proper accessibility (Ports) to conduct the regular monitoring measurements according the adopted methods. As part of the program, an assessment of the Ahafo monitoring equipment Testo 350 XL currently used by the Ahafo Environmental Monitoring Team as well as a training on the calibration and use of the instrument for its consistent usage in the regular future monitoring program will be also included.

<i>ESIA Action Items</i>

Nil

Recommendations for Improvement:

- i) Ensure that monitoring locations are consistent with results and equipment is calibrated to improve data quality and consistency (*repeat recommendation*).
- ii) Develop a dust deposition / ambient air quality / emissions monitoring data register, consistently presenting all results obtained from direct measurements and laboratory testing (*repeat recommendation*).
- iii) Conduct an ambient air monitoring before the detailed point source gas emissions characterization to acquire a baseline of the air quality and assess the effective pressure, if any, of the mining activity in the area.

2.3 Surface and Groundwater

Project Strategy:

The ESIA defines the need for the Project to construct a WSF, several environmental control dams (ECDs) designed for sediment control as well as Best Management Practices for erosion control, waste rock facilities, and a TSF. Aquifer characterization in the mine pits, pit-lake studies, and geochemical analyses of potential acid generating rocks have also been identified as necessary studies to be conducted. No releases of effluents containing cyanide or other chemicals to the environment will be allowed, except possibly under accidental/emergency conditions. A water/chemical solution recycle strategy is adopted by the Project.

Surface water control ditches are constructed as necessary to intercept and divert potential run-on water from flowing into mine pits, the TSF, or onto waste rock disposal facilities and ore stockpiles. These channels divert uncontaminated run-on water back into natural drainage downgradient from disturbed areas or into ECDs. Target release criteria for the sediment control system (ECDs) are 50 mg/l total suspended solids (TSS) for a maximum storm event of 25-year, 24-hours precipitation.

As Project policy, no discharge to the environment will occur if applicable standards are not met. In particular, target release criterion for TSS at the ECDs is set at 50 mg/l (WB EHS Guidelines Mining and Milling - Open Pit [August 1995]). No water discharge is allowed from the TSF.

Water quality monitoring program includes the sampling of the surface water streams in the surroundings of the mining operations, at the ECDs and any other Project water management structures. Twenty three surface water monitoring points have been selected, including locations at the ECDs and WSF. Water quality monitoring also includes the installation and periodic sampling and testing of nineteen groundwater monitoring points located upstream and downstream of the Project area, and eight wells located in the surroundings of the TSF. The groundwater monitoring points are nested wells at two different depths: shallow (around 30 to 35 meters deep) and deep wells (around 85 to 90 meters deep). Testing includes water table elevation data and a large set of physical and chemical parameters to fully characterize water quality. Pump-back wells are planned around the TSF as an additional measure to control potential unexpected impacts to groundwater.

The following table summarizes the ongoing surface and groundwater monitoring.

Table 2: Ongoing Surface and Groundwater Monitoring

Type of Monitoring	Number of Locations/Points	Frequency
Surface Water -Ahafo South	23	Quarterly
Groundwater Monitoring - Ahafo South	19	Quarterly
Dewatering Wells	7	Monthly
NGGL Potable	8	Monthly
Community Potable Wells	22 (2 additional planned)	Quarterly
TSF Piezometers	10	Weekly
TSF Wells	8	Monthly

Water from mine pit dewatering will be not discharged from the site, unless it meets water quality standards and conditional to Ghana EPA approval. Mining in Subika and Apensu pits is presently around 100 m below the pre-mine groundwater surface and combined dewatering rates average around 140 l/s with this water pumped to the WSF. The Awonsu pit will also be mined below the water table and will require dewatering. Potable water testing is planned for both raw water and treated water. Twenty community wells are included in the sampling plan.

Observations:

Surface Water

NGGL has not abstracted water from the Tano River since before the February 2008 site visit and does not expect to need this water as long as the pits are actively being dewatered. Nevertheless, NGGL has renewed their abstraction permit up to November 2008 and it is expected that they will again apply for a new permit for any unexpected event that would require them to need water from the Tano River.

An ongoing issue with respect to surface water is currently sediment loading from runoff associated primarily with the ongoing excavation of the Awonsu pit, as reflected in some high total suspended solid (TSS) readings, especially at ECD 2. This situation has provoked community complaints and NGGL has committed to

construct two new drinking water wells for the affected communities. Although substantial effort has been placed in surface water control systems (rock dams; gabions; silt fences; etc.), sediment loading has remained a problem over the past rainy season. NGGL is now experimenting with large-scale experiments to introduce flocculants into the ECDs such that their decantation systems can be more effective in preventing the release of turbid water downstream.

As mine dewatering has increased some other geochemistry parameters are demonstrating changes which are being monitored by NGGL. The present pit dewatering system is not capable of lowering the groundwater elevation sufficiently below active pit floors to prevent the introduction of dissolved and suspended solids that could possibly be associated with sulfide oxidation products, production of sulfate, or with nitrogenous blasting residues. This water is currently above NGGL and Ghana EPA standards for nitrate and sulfate values. At a current pumping rate of about 140 l/day from both Subika and Apensu pits, there is a current raw water surplus of around 53 l/s that is sent to the WSF and this surplus is expected to increase significantly as current pits become deeper, dewatering starts at Awonsu, and once mining commences at Amoma. Some of the parameters are being detected at some surface water monitoring points, such as at KSW5 (surface water/dump runoff located between Apensu pit and ECD 4), where sulfate concentrations are showing a rising trend towards the NGGL adopted guideline of 250 mg/l however are still below water quality standard limits. Cyanides are mostly below their detection limit of 0.01 mg/l WAD Cyanide and always below the World Health Organization (WHO) guideline value for short-term exposure of 0.6 mg/l.

Solutions being planned for the reduction of the nitrate and sulfate values potentially affecting surface water include:

- Increasing the current rate of pit dewatering, which in any case is desirable to improve drilling and blasting performance, pit wall stability and general pit working conditions;
- Rerouting individual water streams from operating pits (Subika, Apensu and Awonsu) such that the dewatering stream with the highest percentage of contaminants is routed directly to the plant, rather than the WSF. The plant currently abstracts water from the WSF, rather than directly use a dewatering stream.

Water treatment options are also being evaluated as possible solutions. It is noted that the impact on pit dewatering water quality due to sulfates and nitrates has not reached the point where it represents a major environmental problem, but if control systems are not implemented, the situation could worsen.

Groundwater

Five piezometers have been placed in the WSF dam (PZ_6 through PZ 10) and eight monitoring wells (MB1 through MB8 and Pz1-TSF through Pz5-TSF) have been located in the TSF dam. These piezometers are aimed at monitoring water level and seepage in the embankments and along the banks of the two storage facilities and confirm the normal performance of these structures. The monitoring wells are sampled on a monthly basis and groundwater tested for physical parameters, nutrients, anions and cations, cyanides total and WAD, total metals and dissolved metals. Cyanides are reported below their detection limit of 0.01 mg/l and metals are generally below detection limits or at very low concentrations.

A comprehensive analytical program is also conducted for the pit dewatering water at Apensu and Subika pits. The results allow the characterization of the groundwater and control of discharges. As noted above, pit dewatering water has levels of sulfate and nitrate that are higher than NGGL levels for these parameters and solutions are being sought to reduce the concentration of these parameters. The effect of this dewatering on groundwater quality is not yet defined, but one monitoring well located in the shallow aquifer in the vicinity of ECD6 (Monitoring Well GWC3S) does have persistently high levels of sulfate exceeding the NGGL standards, as well as high manganese, although it is not clear that these high values have any relationship to mining. The monitoring wells in the area of the TSF area continue to be regularly sampled, and the results obtained do not suggest any adverse impact to local groundwater conditions resulting from Project activities.

Water supplies for the camps are reported within WHO standards for 2008. The occasional high values for iron, calcium and magnesium and fluoride previously reported from 2007 results are within WHO standards in 2008. Results from samples collected at some community wells throughout 2008 generally show values within WHO guidelines for potable water, although microbiological contamination including high total and fecal coliforms was detected at some wells including Well OLA-RE (Kenyas II resettlement village) in March 2008 and wells ECD2-BH1 (near Rank Camp) and Well DKDBH (village of Dokylkrom) that exhibited both total and fecal coliforms during the September sampling. One well at Ntotoroso (KDBH-1) continues to exhibit relatively high nitrate values. The contamination of domestic wells is possibly related to local activities such as animal husbandry, agriculture, and/or human contamination. Relatively high values of magnesium are reported from several wells.

The dewatering of the Apensu and Subika Pits started prior to the July 2007 ECMG visit and has continued. As reported for the February 2008 ECMG trip, groundwater modeling studies conducted by Geomatrix indicate that the groundwater drawdown may possibly affect local community wells and could also impact some local wetlands. The results indicate that the first impacts could be felt within about five years, although the strongest effects are predicted to occur in the 10 to 20 year range. Current dewatering is beginning to show drawdown anisotropy not anticipated with the preliminary Geomatrix model and it is apparent that calibration is required. It is expected that this model calibration exercise will take place in the near future. Until this is done, it will not be practical to predict potential community and environmental effects.

IFC Policy Action Items

Nil

ESIA Actions Items

M3.1 Calibrate the groundwater model prepared to evaluate the effects of pit dewatering on the basis of additional measurements of drawdown and studies to determine the connectivity between shallow and deep groundwater regimes. Consider increasing the monitoring program applicable to mine dewatering activities and then develop mitigation measures for community wells and wetlands as appropriate.

Recommendations for Improvement:

- i) Finalize a Water Management Plan that includes all of the components that will be required for surface and groundwater monitoring, especially taking into account the probability that the pit dewatering may have an impact to community wells and surface water (*repeat recommendation*).
- ii) Provide the local authorities and communities with the water quality results when samples from community wells and surface water bodies are collected, particularly should WHO guideline exceedances be found.

2.4 Reclamation, Revegetation, and Topsoil Management*Project Strategy:*

The ESAP defines measures to prevent and mitigate the impacts on soil resources. Potential impacts of concern include reduction of topsoil fertility and increased erosion due to surface disturbance, vegetation removal, and lack of adequate reclamation. NGGL is committed to implementing actions to protect and preserve the topsoil in the mining area, and to reuse it during reclamation. Other important actions are related to erosion minimization through temporary and permanent erosion control measures in disturbed areas. These will include sediment traps, fences and barriers, and stormwater management through drainage collection structures, including berms and other drainage, the most important of which are the four ECDs (ECDs 2, 3, 4, and 6). The ECDs have been designed and constructed to contain at least a 10-year, 24-hour precipitation event assuming a drained condition and minimize potential erosion and sedimentation downstream of the mining area by collecting, settling, infiltrating, and evaporating run-on/run-off water from areas disturbed by mining operations.

NGGL is committed to reclaiming all surface disturbances in accordance with applicable Ghanaian regulations and Newmont's Standards for closure and reclamation of mining facilities. A responsibility of the Reclamation team is to conduct and monitor all soil resource protection activities. As part of its commitments, this team conducts inspection of reclaimed and revegetated areas to monitor the success of the reclamation activities and ensure the minimization of erosion and sedimentation impacts. Vegetation monitoring, including visual inspection, noxious weed identification and annual sampling for plant community characteristics, is expected to continue for five years after final reclamation. A Noxious Weed Management Plan is to be developed to manage the risk of invasive species infestation of reclaimed project sites. Access roads, drill pads, sumps, and trenches and other temporary facility areas or disturbed land will be reclaimed as soon as they are no longer needed by the Project.

Observations:

During the February 2008 field visit, the ECMG reviewed the updated and revised Reclamation and Closure Plan (December 2007). The finalizing of this Plan requires the definition of the procedures that will be required to achieve suitable reclamation of the various situations left by mining, the most difficult of which is possibly the reclamation of the waste rock piles. NGGL is currently planning field experiments to determine the best means to stabilize and reclaim the waste rock piles and trial reclamation sites have been selected in association with the NGGL Mining Department. The definition of the best means for reclamation is expected to require a multidisciplinary approach including both soil/reclamation specialists and geotechnical engineering.

The development of procedures for long-term topsoil management has been identified as a priority of NGGL's reclamation team. As previously reported, NGGL has worked with the University of Ghana to identify potential problems and develop solutions. The main problem has been determined to be the development of anaerobic conditions within the thick stockpiles of topsoil. Different alternatives to promote aeration have been reviewed and best option is yet to be determined. In addition to defining a suitable aeration method to enhance the topsoil fertility, complementary practices involving the usage of additives, such as compost, manure, or fertilizers are also being reviewed. NGGL's investment of time and resources continues to be evident and demonstrates its long-term commitment to this topic.

Erosion control is being carried out on an as-need basis primarily using revegetation techniques in combination with jute-matting, gabions, rock dams and silt fencing. As noted in Section 2.3, the earthmoving activities associated with the Awonsu pit during the rainy season have overwhelmed some of these systems, which has contributed to community complaints, especially downstream of ECD2. Nevertheless, in many areas the planting of vegetation can be observed to be providing successful erosion and sediment control.

The project avoids the use of commercial seed mixes and continues to experiment with various locally collected seeds. Local communities continue to assist in this effort to a large degree.

With respect to invasive species, NGGL continues to work to minimize their adverse impact. The ECMG report for February 2008 recommended the finalization of the project's Noxious Weed Management plan. This has been achieved with the preparation of the Strategic Plan for the Management of Invasive Species at the Ahafo Project prepared by Africa Conservation Advocates, Accra. This Plan notes that in the Brong Ahafo region where the project is located about 55 percent of the entire land area has been affected by invasive species and notes that efforts to reverse the trend at the Ahafo project area alone will not deal with the problem. The Plan therefore also has a strong component of community support to make the program effective at the Ahafo site and also on a larger landscape through sharing of lessons with the communities.

The relocation of the Ahafo South nursery is required by pit expansion is not complete and the project still relies on the well-established Ahafo North nursery. The Ahafo North nursery was visited during this ECMG trip and at this location the program to provide the jute matting for NGGL's slope stabilization was also observed. This program involves the local community in the stripping of bark from an invasive tree and the pounding of the bark to produce the matting. The process creates a useful product purchased by NGGL and at the same time controls the spread of the invasive tree.

IFC Policy Action Items

Nil

ESIA Action Item

Nil

Recommendations for Improvement:

- i) Begin early planning of fire management by establishing potential management approaches that will eventually involve local communities (repeat recommendation).
- ii) Consider publicizing the University of Ghana's research findings in an academic peer-reviewed journal (repeat recommendation).
- iii) Consider conducting a review of lessons learned on state-of-the art reclamation and revegetation/reforestation techniques employed by other major companies, such as Alcoa and Lafarge who have had success in rehabilitation mine and quarry sites in African ecosystems. In this connection, the project may want to consider knowledge-sharing on a larger scale by organizing a workshop to share best practices amongst these and other companies. This recommendation is made in alignment with the project's Biodiversity Management Plan (BMP) (repeat recommendation).

2.5 Biodiversity and Ecological Management*Project Strategy:*

The ESIA presents a discussion of the potential impacts on flora, fauna, wetlands, aquatic organisms, and forest reserves associated with project activities in the Ahafo South project area. Potential indirect and cumulative impacts are also discussed. The Project's ESAP outlines a series of commitments, environmental control measures and additional actions for these natural resources. These control measures (e.g., noxious weed monitoring and control plan, fencing around mine pit rims, policies for employees and contractors, reclamation of certain facilities, and sediment and surface water control and management) are primarily designed to address direct impacts. Some additional control measures are also presented in Chapter 2 of the ESIA (e.g., conservation education programs for local communities, education programs for the work force).

NGGL has strived to build alliances with local communities and with NGOs. As part of this effort, the Project has entered into a biodiversity partnership with CI, an internationally recognized NGO and leader in global conservation (referenced in this report as the NGGL-CI Partnership). As a result of this partnership, the Project is developing a Biodiversity Management Plan (BMP), which outlines both direct and indirect mitigation measures for impacts incurred on floral and fauna resources and their habitat. Conservation International officially entered into partnership with NGGL in 2006 and their current partnership memorandum of understanding is due to expire in 2009.

As described in Section 2.4 of this report, the project's approach to reclamation and revegetation also takes into account principles of biodiversity conservation and the sustainable management of natural resources. In this connection, and as previously described, the University of Ghana, in addition to CI, is also providing input to the management and ecological restoration of the project site.

Observations

The ECMG's biodiversity and natural resource management specialist was not present to undertake a thorough review of conditions in the field. Nevertheless, NGGL was able to demonstrate some progress in biodiversity management. Specifically, a Ahafo Biodiversity Management and Monitoring Plan (ABMMP) (final draft) was prepared by AMEC – Geomatrix in August 2008. ECMG was informed that CI contributed to this Plan in a peer review function. This document is considered to be in a "final draft" stage. Currently, the Plan calls for the various monitoring and sampling protocols to be coordinated with input from CI and the Ghana Wildlife Society. Each resource being monitored will have a team leader reporting to the General Manager for Environmental and Social Responsibility. NGGL expects that the biodiversity monitoring portion of the overall Biodiversity Management Plan will start Q1 2009.

As currently developed, the ABMMP is a conceptual document and requires considerable development before qualifying as a plan. It is not clear if the document is covering Ahafo North or South project areas or both. One of the overarching goals of the ABMMP is to develop an early warning monitoring system. The Ahafo South mining concession has been developed since early 2006, therefore an early warning system is somewhat out of context. The current document makes no distinction between the Ahafo North or Ahafo South project areas nor are any maps provided.

There is no indication of conservation targets, including priority habitat types nor are any specific threatened or other target species identified. Indicators are of little use if it has not yet been defined in which habitat they will be used. While some of the biodiversity indicators appear reasonable, there is no indication where monitoring is actually going to take place, which division will be responsible for its implementation, and what are the financial resources estimated to carry out such a plan. For example, the WSF is a specific lake and wetland habitat where it would be useful to understand what programs are being planned specifically for this area. There is also no logical framework provided nor a timeline for establishing this 'baseline' data.

In sum, the document is very generic and best serves as a reasonable outline for the eventual development of a stand alone ABMPP document, which is now two years delayed. The ECMG understand that this document is to be finalized by the first quarter 2009, but as it now stands, it still has a very long way to go.

Another pending issue not resolved by the ABMPP is with respect to possible compensation for lost wetlands. In all previous ECMG reports, the ECMG has expressed some concern regarding the ability of the WSF to compensate for the lost wetlands/swampy drainage areas that were previously located in the vicinity of the project area now occupied by the TSF (see 'Subri drainage area', page 4-80 of the ESIA; no ecological description provided). In essence, the ESIA assumed that wetlands lost during the construction would be compensated by the addition of new wetlands created by the WSF, but this is an assumption that has not been verified. This would require the evaluation of what wetlands were lost and if the WSF has actually added to the amount of wetlands that were lost when that facility was flooded.

IFC Policy Action Items

Nil

ESIA Action Items

M2.1 The multi-taxa biodiversity monitoring program should be developed and made available.

M3.2 The ECMG does not consider the ABMPP finalized until it is actually developed as a stand alone implementable plan that respect standard industry practice in biodiversity action planning. The formats for doing this are numerous, and the ECMG recommends that the project select one internationally recognized biodiversity action/management planning template. Specific recommendation on this are provided below and have been included in ECMG reports in considerable detail since December 2005.

Recommendations for Improvement:

- i) Verify if surplus wetlands created by the WSF exceed the loss of wetlands in the area of the TSF. If not, consider mitigation measures. This effort could be part of long-term planning for the WSF area, where ECMG has previously recommended conducting a feasibility study on the potential of this area to support viable wetland habitat in the future.
- ii) Design a basic, qualitative, biology-based aquatic monitoring program (e.g., macro invertebrates, benthic organisms, fish, waterfowl) in the WSF as part of long-term planning and monitoring efforts. The current Biodiversity Management and Monitoring Plan does not provide site-specific details regarding the work that is going to be performed.
- iii) Maintain (NGGL and/or CI) a simple register of the official documents and information/advice transferred between the two parties so that the various outputs generated from this important partnership are readily retrievable for monitoring purposes.
- iv) Dedicate the time and resources necessary to generate a more comprehensive, implementable version of the BMP (recommendations from the ECMG report for the July 2007 site visit are still effectively valid and are repeated below).
- v) The June 2007 version of the BMP is in draft format. Although it is understood that the BMP is not finalized until sufficient additional baseline data are gathered and evaluated, it is recommended that NGGL develop a final version that contains the following: an overall objective or goal; further details on the implementation of each task; roles and responsibilities; a timeline for implementation; a logistical framework containing targets, outcomes, and monitoring indicators; and monitoring and evaluation mechanism (*repeat recommendation*).
- vi) It is recommended that the BMP contain a section that summarizes all biodiversity related baseline studies and rapid assessments (i.e., provide a list of all the baseline studies/rapid assessments performed). The Project has dedicated a significant amount of time on these efforts, and it would be useful to have a

comprehensive and accurate list of these assessments, where they took place, and their overall objective referenced in the BMP document (*repeat recommendation*).

vii) Section 1.4, Biodiversity Action Plan, in the BMP should be fully developed and finalized (*repeat recommendation*).

viii) The planning and implementation of the long-term multi-taxa biodiversity monitoring program (one that lends itself to inferential statistics) should be expedited (*repeat recommendation*).

2.6 VRA Transmission Line – Associated Facility

Project Strategy:

A new VRA 161kV overhead power transmission line between Kumasi and Sunyani substations has been planned for some years. The NGGL project provided the impetus to start construction since NGGL requested that VRA realign the originally planned route of the transmission line so that it could provide a stable source of electricity to the mine site. VRA and NGGL entered into a Memorandum of Understanding whereby NGGL would finance the realignment. The line was thus identified as an associated facility in the project's ESIA. The powerline is being constructed in a 30-meter wide right-of-way (ROW), extending 154-km and totaling an approximate 470-hectares, including access tracks⁴.

In addition to supplying electricity to the mine site, the transmission line will provide an alternative power supply route to the load centers located in Brong Ahafo, Northern, Upper East, and Upper West Regions of Ghana. Final deliverables at completion of the VRA transmission line project include a 154-km transmission line from Kumasi through Ahafo to Sunyani; 154-km of fiber optic groundwire; a new 161 kV/11.5kV substation at Kenyase; and, upgraded substations at Kumasi and Sunyani. As the IFC considers the VRA transmission line an associated facility to the Ahafo South Project, gross compliance with applicable Operational Policies is required.

The realigned ROW crosses four forest reserves (i.e., Gyemera, Offin, Tano Offin, and Amama). In the Tano Offin Forest Reserve, the Forest Service Division identified Compartment 98 (72-km from the Kumasi Substation) as a 'Globally Significant Biodiversity Area' due to the occurrence of endemic and rare species (i.e., Ghana 'Black Star' rated species), and the IFC also considers this area Critical Habitat as defined by OP 4.04 - Natural Habitats (November 1998). A legal logging road crosses through Compartment 98, and the area is threatened by illegal logging off this route as well as by the clearing of land for agricultural purposes. In response to these findings, the ROW was routed to the south of this sensitive area.

A Gap Analysis was conducted by an independent consultant in August 2006 to determine if there were any gross policy violations of the IFC's Operational Policies, including OP 4.04 - Natural Habitats, among others. In the Final Report produced from this exercise, it was determined that there were no gross policy violations at the time of writing; however, a series of recommendations were made to ensure future compliance. Those relevant to OP 4.04 include further measures to reduce impact on critical habitat identified within the Tano Offin Forest Reserve. NGGL committed to

⁴ 472-hectares is the figure provided on page 4-155 of the Ahafo South Mine Project ESIA; the first inspection report for monitoring of the VRA ROW, produced by NGGL in August 2007, estimates 380-hectares.

conduct biannual inspections of the ROW to monitor any potential encroachment in the vicinity of Compartment 98.

Observations:

NGGL, accompanied by VRA staff, conducted the second biannual inspection of the transmission line ROW in March 2008. The NGGL Inspection Report was conducted on the basis of interviews held with resettled property owners within the ROW and physical observations pertaining to bush clearing/farming, compliance/non-compliance to tree felling, access roads construction, excavation and tower erection, etc. Consistent with the ECMG recommendation from the February 2008 report, the team also watched out for the presence of illegal logging, as well as for snares/traps and empty cartridges. The main findings are listed below.

- The project is near completion, but the lines were not energized.
- Thickets of fast growing species were spotted within the ROW, including Wawa (*Triplochiton scleroxylon*); Nyamedua (*Alstonia booneii*); Bamboo (*Oxytherantera abyssinica*) and Teak (*Tectona grandis*).
- The team met two farmers at towers 114 and 193. They were interviewed and they claimed that they had been duly paid their compensation and were satisfied.
- There was fairly serious erosion around tower 156.
- Bushes had regenerated to a height contrary to the accepted height of 1.25m after the dozer had cleared them.
- No farming had taken place in the ROW during the visit.
- No logging had taken place the Compartment 98(GSBA).

The above information is all that was provided for the TRA transmission line, as previously noted in the February 2008 report, it is still not clear if all of recommendations produced from the Gap Analysis conducted by the independent consultant in August 2006 are being executed. Also, although it is understood that NGGL does not have control over VRA's environmental management, it is still not clear if NGGL and VRA have discussed these recommendations or if VRA plans to implement them in the future.

<i>IFC Policy Action Items</i>

Nil

<i>ESIA Action Items</i>

Nil

2.7 Waste Management

Project Strategy:

According to the ESIA, “Non-hazardous waste disposal will be conducted in accordance with Ghanaian requirements and NGGL’s waste disposal protocols. NGGL will monitor waste generation and disposal conditions during construction, operation, and closure. Should conditions warrant, NGGL will implement additional waste minimization, treatment, and disposal measures beyond those currently identified”.

The general Waste Management Plan, which should outline the minimum requirements for the management of hazardous, non-hazardous wastes, and

wastewater generated at NGGL Ahafo Operations, is still in draft form. However, a number of SOPs for various waste streams have been updated to reflect ongoing waste management practices in the field (e.g., “Medical Waste Procedure”, “Landfill Disposal Management”, “Procedure for Decontamination & Disposal of Waste Screen Panels in the Inert Waste Dump”, “Removal and disposal of old Tires at Ahafo”, and “DIBK Disposal at the CCD Tails Tank”). A Hazardous Waste Procedure, which identifies waste items to be classified as hazardous, their management within the operations area, and the final disposal receptor, is now updated and finalized. The Hazardous Waste Tracking Register and the Inert Waste Register are being constantly updated.

The project continues to dispose of inert and putrescible waste in an on-site trench, and the use of the Kumasi Metropolitan Landfill for the disposal of this waste category continues to be fully discontinued. The option of composting which was under evaluation at the time of the last visit is now under implementation as part of the ongoing upgrades to the existing STPs. Food and putrescible waste will than be treated together with the waste activated sludge from the different STPs.

Contaminated soil continues to be collected and temporarily stored at the on-site hazardous waste storage shed before being transported for final disposal to the Kumasi Metropolitan landfill by an authorized contractor. The waste dump volatilization pad for the treatment of hydrocarbon contaminated soil is under construction with completion projected for the first quarter 2009.

Contaminants such as oil/grease, fuel, and chemicals are temporarily stored at the hazardous waste storage shed before final disposal to the Kumasi Metropolitan landfill by a contractor. Waste oil and lubricants are temporarily stored at the Shell/Storage Yards and disposed off site for reuse by a contractor.

Two permanent packaged Sewage Treatment Plants (STPs) are installed at the plant site and at the SSV. Treated effluent from both facilities is sent to the TSF where it is mixed with tailings decant water and recycled for processing. Excess sludge from the plants as well as the raw sewage from the Rank and the Kenyasi septic tanks is hauled by truck to the Kumasi Metropolitan landfill by a contractor. The option of sludge dewatering and reuse as compost is under design and will be part of the ongoing upgrades of the two STPs.

Observations:

Although the ECMG recognizes that plans and projects are under development to improve overall waste management on site, the general waste disposal practice has not significantly changed since the last ECMG site visit.

Nevertheless, a contractor (AMEC Geomatrix, Inc.) has been hired to support NGGL in finalizing the Solid and Hazardous Waste Management Plan for the Ahafo South Mine. The activity includes the review of the different waste management procedures in place against Ghanaian and USEPA legal requirements and standards as well as the pertinent IFC policies and procedures.

The scope of work also includes the identification of all waste streams produced within the facilities, the current waste handling, treatment, and disposal practice, the characterization and identification of types and estimated volumes of various wastes, the review of the methods, protocols and analyses currently used by NGGL to

characterize waste as hazardous or non-hazardous. Based on the outcomes of the analysis, viable waste minimization alternatives will be identified and proper waste treatment alternatives proposed. Once the Solid and Hazardous Wastes Management Plan is finalized, an on-site classroom training and field training of key NGGL personnel will be conducted to ensure the plan is implemented and NGGL staff properly trained. At the time of the ECMG visit, an expert from Geomatrix was in the field to interview key NGGL personnel to ascertain current practices and procedures used by NGGL and to verify the types, the current locations of solid and hazardous wastes generated at the mine and mill sites, and the quantities of waste produced, which was understood to be one of the main challenges of the survey.

Solid and Liquid Waste Management

The practice of disposing on-site inert/putrescible waste in a trench is still in place. A second trench was covered and restored few days before the visit and a third one was reported to be ready for use. Leachate management is still not in place. From the data provided to ECMG, from the beginning of 2008, up to 70 tons of inert/putrescible has been produced and disposed of in the trenches at the Ahafo South site. The piezometers located downstream from the trench, which at the time of the last visit were expected to be used to detect potential groundwater contamination, are still not used and no new piezometers have been provided in the area surrounding the trenches. Nevertheless, the composting option to treat putrescible waste, which has been encouraged by ECMG since the first visit, is now being designed and should be in operation by June 2009. NGGL has decided to implement a composting operation to dispose of the waste activated sludge from the various STPs together with other dry wastes such as paper products, and kitchen waste produced at the Ahafo Mine Site. At the end of the overall treatment process, which according to the preliminary design is estimated to take about 30 days for composting followed by an additional 30-day curing, the composted solids will be used to support reclamation/reinstatement activities.

Used tires from both light and heavy vehicles continue to be stored in a dedicated area pending a final disposal solution. However, a new SOP for their management has been just finalized such that the tires will be buried in the waste rock dumps. The option to recycle them through a specialized contractor which was under evaluation at the time of the last visit has now been discarded, because no suitable contractors could be identified. During the site visit, the storage yard for new/used tires was observed to be well maintained with stockpiles properly covered to prevent the accumulation of rainwater.

No change in the management and disposal of hazardous material was observed. As specified in the Hazardous Waste Management Procedure, all items classified as hazardous continue to be temporarily stored at the hazardous waste storage shed or at the Shell depot (waste oil) before final disposal to the Kumasi landfill by a contractor. Waste oil and grease continue to be sold to manufacturing companies in Tema and Aura for use in firing steam boilers while spent batteries are recycled and reused by a contractor (Presank). All other items contaminated with oil/grease, fuel or chemicals are still sent to the Kumasi landfill for disposal by open burning although this practice is not consistent with the IFC "General Environmental Guidelines" from the standpoint of emissions.

Both the Hazardous Waste Tracking and the Inert Waste Registers have been updated and the data recording was improved since the last ECMG visit and now they

correctly reflect the final disposal site for the majority of the hazardous waste streams (e.g., Presank depot for spent oil and grease, Kumasi landfill for contaminated items). Furthermore, the estimation of the final amounts of waste produced which was observed to be a weak aspect in the previous visits has been included in the Geomatrix scope of work and options to improve the recording of the amounts of waste are under evaluation.

The bioremediation/volatilization pad for treatment of oily contaminated soil, whose preliminary design was under development during the ECMG's February 2008 site visit, has now been fully designed, the budget allocated, the location identified, and the construction ready to start with operation foreseen for March 09. According to the information provided, the project includes the construction of a volatilization pad consisting of two 25m x 25m square HDPE lined cells provided with proper rainfall drainage system as well as a drainage collection system including an oil-water separator sump. The pad will be part of the Integrated Waste management Facility and will be located south of the plant site.

As mentioned during the previous site visit, ECMG considers this a significant step forward to reduce the amount of waste being sent to the Kumasi Metropolitan landfill and further contribute to overall goal of permanently discontinuing the use of this facility.

The Mantract, Liebherr, and Shell workshops were visited during the site visit. The high standards of hazardous waste management, good housekeeping, segregation, and organization that were observed in the previous visits are still maintained at all three sites. Environmental and H&S policies were properly posted in the offices and in the different working areas and evidence of environmental awareness and training were provided to the ECMG during the visit. As previously noted by the ECMG, the lubricants storage area and the fueling area at the Shell workshop are not roofed. During the visit it was understood that plans are ongoing to provide a roof at the light vehicle refueling area while no roofing is foreseen for the heavy vehicle refueling area due the significant structure will be required. A new light vehicle, ancillary equipments, and light tires workshop is currently under construction and expected to enter into operation in November 2008. The construction area was visited by the ECMG.

According to the last medical waste procedure provided to the ECMG, medical waste should be "*segregated at the Ahafo Site Clinic before transporting for incineration*". As already reported during the previous visits, the processing of medical waste by the on-site incinerator has been discontinued and there are no plans for reusing this facility. Medical waste, reported to be produced in limited amounts, is currently stored at the Ahafo site clinic in yellow sealed/tied biohazard polyethylene bags in labeled yellow wheelie bins waiting for the final disposal through incineration at the Sunyani Regional Hospital.

Wastewater Management

The ECMG visited the STP at the plant site, which was found to be well maintained and operational, consistent with observations made in the previous ECMG visits.

Effluent monitoring for both STPs is ongoing, and results indicated compliance with the Ghanaian regulatory effluent discharge criteria. No changes in the final disposal

of treated effluent and excess activated sludge from the STPs and the raw sewage from Rank and Kenyasi septic tanks have been observed since July 2007.

Activated sludge generated from the sewage treatment processes and the non-activated sludge and sewage from the septic systems from at the Rank and Kenyasi camps are still hauled by truck to the Kumasi Metropolitan landfill by a contractor. In addition to the high costs associated with this practice, NGGL has taken the initiative to experiment with a more environmentally (and socially) effective solution for sludge disposal. As mentioned above, NGGL plans to implement the practice of dewatering the sludge and mixing the dewatered biosolids with dry waste, such as paper products, or vegetable wastes for further enrichment of the end product to be reused as compost for land reclamation and topsoil management activities.

Montgomery Watson Harza (MWH) has been contracted to assist NGGL in establishing appropriate effluent criteria and design modifications to improve the operation of the two STPs to take into account the increasing number of users foreseen for the near future. It is projected that treatment could be expanded from the current capacity of approximately 1,000 users to a total of approximately 1,500 users foreseen for the near future. A technical memorandum was provided that outlines the recommendations for the design criteria and design modifications for NGGL's STPs at its Ahafo Mine site area.

The proposed plant improvements will enable the project to adopt even stricter discharge limits than those required by both Ghanaian and IFC guidelines as shown in the following table⁵.

Parameter	National Environmental Quality Standards – IFC Guidelines (EPA Act 1994)	NGGL Proposed Wastewater Treatment Plant Design Criteria⁶
COD (mg/l)	250	100
BOD (mg/l)	50	20 (CBOD)
TSS (mg/l)	50	20
NO ₃ -N (mg/l)	75 (NO ₃)	15
Total Phosphorus (mg/l)	2	5
Fecal Coliforms (MPN/100ml)	400	200

With these new effluent criteria in place, discharge effluent would no longer be routed to the TSF, and treated water could be used instead for watering lawns at Camp A and the SSV, as a dust suppressant, and to meet water requirements for the process plant.

At the time of the ECMG visit, the plant design modifications were identified to convert the existing Camp A plant to a permanent facility and a risk assessment had been performed. The main modifications include:

- Provide raw wastewater screens to protect downstream equipment from damage and clogging of pipes;

⁵ IFC EHS Guidelines for Precious Metal Mining.

⁶ Values to be achieved on a 30-day monthly average basis.

- Modify the existing tankage and provide additional process tankages to implement a more conventional activated sludge process capable of removing BOD and TSS as well as nitrogen and phosphorus to meet the proposed effluent criteria;
- Provide a new anaerobic basin;
- Provide a new anoxic basin;
- Provide three new aeration basins;
- Provide a new aerated sludge holding basin to allow mixing of the sludge from the Ahafo Site and SSV STPs and the Rank and Kenyasi septic systems into an aerated sludge holding tank to be located at the Ahafo Plant STP prior to dewatering and composting with other degradable solids wastes, mainly vegetable wastes generated in the canteen;
- Provide a new aeration system.

IFC Policy Action Items

Nil

ESIA Action Items

M1.10 Finalize the general Waste Management Plan.

Recommendations for Improvement:

- Ensure that the Sunyani Regional Hospital incineration used for the disposal of medical waste is well operated and sufficient safeguards are implemented, according to applicable and relevant regulations (*repeat recommendation*).
- Consider roofing the lubricants storage area and the light vehicle fueling area at the Shell workshop to minimize the amount of potentially contaminated runoff generated at these two sites (*repeat recommendation*).

2.8 Hazardous Materials Management

Hazardous Material Transport, Storage, Use and Disposal

Project Strategy:

The basic procedures developed by NGGL for the management of hazardous materials are outlined in the ESIA under the title of “Material Handling” specific to chemicals and other materials located on NGGL properties and cover the following materials and activities:

- Cyanide transportation, storage, handling and mixing;
- Caustic soda transportation, storage, handling and mixing;
- Sodium hypochlorite transportation, storage, handling and mixing; and
- Explosives and accessories handling, storage and use.

Specific procedures developed with regard to material handling, include the following:

- Spill response actions;
- Disposal of shipment containers;
- Emergency evacuations;
- Mixing and usage precautions;
- Personnel protective equipment (PPE) requirements;

- First-aid procedures; and
- Labeling of materials and posting of Material Safety Data Sheets.

The NGGL training programs cover the management of hazardous materials.

The ESAP defines an additional goal of hazardous materials management associated with community safety to be “reduction in conflicts during transportation of hazardous materials on roads; increase in safety of public and workers during transport of materials.”

The applicable and relevant IFC guidelines are the following: WB EHS Guidelines Mining and Milling - Open Pit (August 1995); IFC Hazardous Materials Management Guidelines (December 2001); and IFC Environmental and Social Guidelines for OHS, (June 2003).

Observations:

The finalization of the HSLP plans and procedures, issue raised since the first D'Appolonia visit, is now completed or underway for completion under the framework of the ISO14001/OSHAS 18001 certification, planned for 2009.

A specific NGGL Hazardous Materials Management procedure has been issued and is waiting for approval. This Procedure details the responsibilities of the various departments and functions with respect to Hazardous Materials transportation and management.

Audits are performed by the NGGL HSLP Department on contractors handling hazardous materials. ECMG was provided documentation of audits conducted on Orica and Shell operations in August 2008. The only major non-conformity found was related to the need to update Shell Operations and Procedures Manuals.

Training, both for NGGL and Contractors' personnel, is continuing under NGGL's Maintenance Department responsibility, as noted during the third ECMG visit. The Contractors' procedures for handling hazardous substances and segregation and management of hazardous substances are fully in place.

No specific visit and assessment on the explosive materials handling and storage was made during the ECMG visit.

In general, the observation of satisfactory handling and storage of hazardous materials in the area of the processing plant was observed and it is expected that the OSHAS 18001 certification will close the remaining issues related to the finalization of plans and procedures. As a general recommendation, the current attention to safety and good practices in handling of hazardous materials, noted in all the previous ECMG visits, should not be relaxed.

<i>IFC Compliance Action Items</i>

Nil

<i>ESIA Action Items</i>

Nil

Cyanide Management

Project Strategy:

Cyanide is the means for extracting gold from the mined ore. The ore is first subject to crushing, grinding and milling and then processed with carbon-in-leach cyanidation, which is then followed by elution and refining for gold recovery. There is a secondary gravity flotation circuit for collecting gold concentrates for intense cyanidation and electrowinning prior to refining and gold recovery. Cyanide is delivered to the site as solid sodium cyanide in a truck-mounted isotank for solid-to-liquid sparging, which allows the cyanide supplier to mix the solid sodium cyanide with water at the site to achieve the required 30-percent strength for offloading in a designated mixing tank. The cyanide solution is conveyed from the mixing tank in use to storage tanks for delivery to the processing circuit. The cyanide solution conveyances are within double containment and pumped within instrumented and monitored pipelines.

After completion of the processing, the cyanide within the tailings is recycled within the recently installed Counter-Current Decantation (CCD) plant to achieve acceptable wildlife and livestock contact concentrations (WAD – cyanide concentration <50 mg/l) in the TSF, where the tailings are piped. The Project has committed not to discharge cyanide contaminated water into any stream within any receiving water body. The tailings water is decanted and conveyed back to the process facilities for re-use. As defined by the relevant WB guidelines (EHS Guidelines Mining and Milling - Open Pit [August 1995]), measures to prevent access by wildlife and livestock are required for all open waters (including tailings impoundments) where WAD cyanide is in excess of 50 mg/l. A hydrogen peroxide (H₂O₂) cyanide destruction unit is available on site for emergency use.

NGGL has an operational Ahafo Cyanide Management Plan (February 2008) that describes the measures that the Project will implement to minimize the risks to employees, communities and the environment from its use of cyanide, as well as NGGL's commitment to programs for employee safety and training and its plans and procedures for responses to cyanide exposures and releases. The Plan also includes NGGL's commitments to the public disclosure of cyanide-related information.

On October 4, 2006, the pre-operations phase of the Ahafo Project was certified under the ICMC based on an external third-party audit conducted on August 23, 2006. In June 2008 a final Audit under the Code was done. The ICMC, also known as the Cyanide Code, is a voluntary industry program for the gold mining industry to promote:

- Responsible management of cyanide used in gold mining;
- Enhance the protection of human health; and
- Reduce the potential for environmental impacts.

Companies that become signatories to the Code must have their operations audited by an independent third party to demonstrate their compliance with the Code.

Observations:

During the February 2008 visit, the ECMG was supplied with the results of an audit conducted by Golder Associates in June 2007 to evaluate compliance with the ICMC.

The results of the audit indicated that all aspects of cyanide management items have been classified as having 'Full' compliance, with the exception of the cyanide transfer facility at Tarkwa, Ghana operated by the cyanide supplier Orica that has been found to be in "Substantial Compliance". This audit also confirmed that the cyanide transporter (Barbex Technical Services Ltd) is fully compliant.

In June 2008, the same third party company (Golder) performed a verification audit that has certified NGGL operations to be in Full Compliance with the ICMC Code.

TSF decant water is also monitored and the results indicate that WAD cyanide entering the TSF has been reduced by approximately a third since the startup of the CCD on March 19, 2008 with values consistently below 50 mg/l, except for one slight excursion to 0.53 mg/l that occurred at a time when there was a power outage. WAD cyanide concentration in the decant pond has not reached as high as 4 mg/l since the startup of the CCD plant.

During the fourth site visit, no cyanide unloading operations were observed.

IFC Policy Actions

Nil

ESIA Action Items

Nil

Recommendation for Improvement:

Nil

Flammable Materials Management

Project Strategy:

Flammable Materials (fuels and lubricants) are used at the site for vehicle supply. These materials are transported to the site from the Tema refinery (distance approximately 400 km). Fuel is stored in two tanks in a dedicated area managed by Shell. In the same area a storage area for storing of drums of lubricants is present. The operations of transporting, unloading and distributing the fuel to the users are under the responsibility of Shell.

Observations:

The fuel and lubricant storage area was visited by the ECMG and found to be at the same high standards as described in the previous visit reports.

The Shell HSE procedure "*Road Transport of Goods, Equipment and Products*" (November 2003) and the Site-Specific Operating Manual detailing the Emergency Plan (December 2007), provided to the ECMG during the July 2007 site visit, are still in place.

The Shell flammable substances depot has been subject to an audit by Shell Ghana and to an inspection by the NGGL HSLP Department since February 2008, with substantially positive results. The ECMG also confirms the continuing of the general positive observations made with respect to the procedures in place and the general handling and management observed during the third ECMG site visit. The

modifications to flammable transportation procedures introduced following a truck accident are now in place and no transportation accidents have occurred since February 08. Shell reports that the general conditions of the route connecting the Refinery in Tema and the Ahafo site have now improved, reducing transportation risk.

The ECMG had made the recommendation in the past to roof the area containing the low hazard substances, which would also reduce the need for the oil water separator to treat potentially contaminated rainwater; this roofing has not been installed yet and the ECMG consider this recommendation still to be a point to be considered.

<i>IFC Policy Action Item</i>

Nil

<i>ESIA Action Item</i>

Nil

Recommendation for Improvement:

- i) Consider roofing of the Shell low hazard storage area (*repeat recommendation*).

3 Occupational Health and Safety

3.1 Occupational Health & Safety Management

Project Strategy:

The Project policy was described in the ECMG's report for the first site visit (December 2006), as follows:

“NGGL currently maintains and actively manages an extensive occupational health and safety program (“Loss Control”) at the Ahafo South Project site. The program, including appropriate training and monitoring procedures, will continue once operations commence to ensure high standards of health and safety are maintained.”

The policy and principles as evidenced in the first visit have not been modified and are still valid. The HSLP organization in place at the first visit time is still operational. As noted in Section 1.1 of this report, NGGL is planning to obtain certification under the OHSAS and ISO14001 standards, which will replace the current Newmont Five Star system.

Observations:

Staffing of the HSLP Department is now 56 people, although certain positions, including the HSLP Department Manager and the Malaria Control Supervisor, are vacant. The HSLP Department organization was revised in June 2008. An HSLP Assistant Superintendent is now in charge of Industrial Hygiene and there are 7 HSLP coordinators, one or more for each function/site: Mining, Contractors, Process, Services, and Accra (including malaria control in Accra). With this organization, each NGGL function has a specifically dedicated HSLP coordinator and this should improve the follow-up to any specific related issue. The HSLP department organization also includes the Emergency Response Coordinator in charge of the

ERTs, a Malaria Supervisor and prevention staff (including entomologist) and clerical and system services.

The accident register and investigation procedures in place since July 2007 and expected to be revised during the third ECMG visit, still have not been revised, but a new version is expected to be approved within 2008.

Accidents are recorded, a procedure for accident investigation is in place and corrective actions are identified. An important improvement since the last ECMG visit is assigning specific personnel within the HSLP departments with the responsibility for follow-up of accident investigation findings related to the various NGGL Operations departments.

According to the data provided to the ECMG during this visit, approximately 20 percent of accidents are not followed-up properly under the present accident investigation procedure. This is better than the value found during the last ECMG visit (30%), but indicates the ongoing need for improving accident follow-up.

The updated accident statistics made available to ECMG (updated to August 2008) show a total recordable accident frequency ratio (TRAFR) of 0.34 and a lost time accident frequency ratio (LTAFR) of 0.06. These values are below the NGGL targets and are significantly reduced from the reported 2007 values. This is interpreted to indicate the positive effect of the safety training, Job Hazard Analyses, SOPs etc. in place. As an example, light vehicle accidents (that were the major cause of incidents) are now decreasing following improved procedures and controls. It is emphasized that safety is a long-term issue that will require constant reinforcement, regardless that the current system is well conceived and applied.

Workplace inspections are routinely performed and inspection reports detailing the required corrective actions, responsibilities for implementation and expected completion dates are issued.

An example Inspection Report Form for an inspection held on January 3rd 2008 was handed over to the ECMG. This Form was revised in May 2008 to assess the status of the follow-up of actions. As a result of the follow-up, it appears that in May 2008 only two actions out of 33 identified in January 2008 were completed. The two actions completed were relevant to the most critical identified risks (one classified as "extreme" and one case classified as "high"), showing that in the implementation of measures a correct priority criteria is applied. However, the remaining 31 observations (mostly classified as "low" to "moderate" risk and one classified as "high") appear to be not implemented yet.

This random observation suggests that the system for monitoring the overall OH&S situation identifying gaps and critical points is in place, although the managing of the follow-up still needs improvement. Departments/functions management responsible for the follow-up of actions needs to be further trained in the importance of ensures a prompt solution to the issues identified in surveys.

The Training Management System, observed during the previous ECMG site visit, is still in place.

Job Hazard Analyses (JHAs) are being performed for new operations. An example JHA performed for a specific tree felling activity was reviewed by the ECMG and found to properly assess the risks of the various steps of operation and indicate appropriate control measures to be taken. The JHA was signed by the responsible personnel.

HSLP technical procedures and standards are being finalized, and in this respect the activities for the OSHAS 18001 certification will help to finalize all necessary procedures and plans.

The generally positive attitude of the management and staff towards HSLP issues and the level of safety performance in practice noted during the last ECMG visit continue to be observed.

NGGL supervision of Contractor occupational safety with periodic safety training to Contractors' staff is still provided.

The Contractor workshops maintain HSE practices and documented procedures of a high quality as observed in the last ECMG visit. Also the new Light Vehicle workshop presently under construction appears to have been conceived with attention to Environmental and Safety issues.

IFC Policy Action Items

Nil

ESIA Action Items

Nil

3.2 Emergency Preparedness and Response

Observations:

During the previous site visits, the ECMG raised several concerns on the Emergency Preparedness and Response (ERP) Plan, especially the need to systematically identify potential emergency scenarios, followed by a risk assessment of these scenarios to identify the most critical hazards and develop the appropriate prevention, mitigation and emergency plans commensurate with the risk. During this site visit, a significantly revised Emergency Response Plan was provided to the ECMG. This revised plan is expected to be approved within 2008 and will substantially resolve the issues raised by the ECMG and allow the personnel and ERT to have clear indications on how to operate during the possible emergencies occurring on site.

The ECMG reviewed the ERT staffing and equipment and the condition of the ERT logistics area that were found to be inadequate during the previous visits. Training of the ERT staff and provision of equipment has been improved and is now adequate to handle a general emergency situation. In particular, the ERT logistics area has been significantly improved since the last visit with separation now provided among equipment storage, workshops, and the ERT staff rest area. A further improvement in the ERT logistics area with the provision of a new building in an area near the present area is planned.

The ERT response SOPs were not assessed in this visit, as it is understood that they will be updated following approval of the revised ERP. ERT emergency response drills are performed, but no periodic drill schedule or plan was observed. ERT deployment during helicopter operation was observed and found to be well conducted.

The issue related to the insufficient on site visitor safety induction process raised during the last ECMG visit has been addressed and resolved with the preparation of a good quality visitor induction movie, as well as a leaflet detailing the main information such as emergency numbers, emergency procedures, including for medical emergencies., which are given by ATS staff at the location where room keys are provided. This substantially addresses concerns raised by ECMG in the last visit, although some improvements could still be made. For example, no dedicated room/office for the induction area is available and the induction is provided in a general passage area inside the HSLP building with some difficulties in understanding the induction video. Furthermore, some discrepancy between the contents of the ERP and the information leaflet (i.e. emergency telephone number different in the two sources) was observed during the visit. Also, posting a summary of the main information (emergency numbers, general good practices against fire and malaria prevention, etc.) in form of a plasticized sheet posted in each Camp room would be advisable.

The provision of induction to visitors is left to the initiative of the visitor's host who should be responsible for escorting the visitor through the induction area. This has been found to not always be practiced. A higher attention of the hosts to this procedure and developing a means to ensure that all visitors do receive induction is recommended.

<i>IFC Policy Action Items</i>

Nil

<i>ESIA Action Items</i>

Nil

Recommendations for Improvement:

- i) Continue to focus on practical training of the ERT (*repeat recommendation*).
- ii) Develop and implement a drill schedule, specifying relevant drill activities, for various emergency situations as part of the ERP.
- iii) Ensure that all visitors receive safety induction, by making the visitor's host aware of their duty to ensure that induction is received, or by providing a procedure to ensure that induction is given directly at gate (requiring a proper induction area at gate) as a requisite for the signing of the entry permit and providing the visitor's identification badge.

3.3. Noise and Vibrations

Project Strategy:

Sources of noise and vibrations include machinery, generators, the overall processing plant, vehicular traffic and blasting. Given that noise and vibrations can adversely affect both community and workplace environments, there are requirements for

monitoring within the Project social staff, as well as with the HSLP department. The ESAP and ESIA indicate a requirement for noise and vibrations monitoring only within the context of the potential impact to the local community. Noise and vibrations are, of course, a normal part of industrial hygiene in the workplace and the HSLP department has SOPs related to noise management and exposure guidelines. The applicable and relevant guidelines are the following: WB EHS Guidelines Mining and Milling - Open Pit (August 1995), and IFC Environmental and Social Guidelines for OHS (June 2003).

For the ambient noise in community areas, reference is made to the WB's General Environmental Guidelines (July 1998) that require for Ambient Noise in residential areas outside project property boundaries a limit of 55 dB(A) at daytime and 45 dB(A) at nighttime. The ESAP refers only to compliance with Ghana residential standards that are the same as the WB standards, but it is understood that an industrial/commercial standard of 70 dB (A) for both day and night is what has been approved by the Ghana EPA for the area surrounding the mine.

Observations:

Community Monitoring

Noise and vibrations from blasting are being monitored under the requirements of the Social Action Plan. The Project has established limits for vibration compliance to be compliant limits of 5mm/s peak particle velocity (ppv) and 115 dB(L) for the blast overpressure. As described in greater detail in the December 2006 ECMG report, these standards are very conservative in terms of what constitutes best practice and effectively represent a comfort level, rather than what could cause actual damage or represent public harm.

Blast monitoring data through September 30, 2008 were reviewed and found to be within Project standards from the Subika pit for all of 2008 and the Apensu pit blasting was also found to be generally within limits, except for a few excursions of the measured air blast, which exceeded the internal NGGL Project standard, but were still within IFC guidelines. The overall degree of compliance of the Apensu pit blasting has been greater than 93% since the last ECMG visit in February 2008 at the nearest recording location and 100% compliant at the more distant monitoring station. The reason for the decrease in blast effects is interpreted to be the increase in depth of these two pits. It is expected that the blast effects, in particular the air overpressure, will continue to slowly reduce, and this issue has been closed in the action table. Nevertheless, it should be noted that the Awonsu pit excavation has not yet involved blasting and when that takes place blasting may again be an issue.

A set of noise monitoring data from January to September 2008 conducted at locations in the surroundings of the Ahafo site was provided to the ECMG. Sound levels (Leq, in dBA) are not as variable as recorded in 2007 and are all within what is considered acceptable for an industrial setting (70 dB(A) day and night). Although NGGL considers that industrial limits are applicable to communities in the general mining area, this is not consistent with IFC guidelines. Nevertheless, the average of the monthly daytime noise values at all locations complies or is extremely close to complying with Ghana EPA and IFC guidelines for residential areas (55 dBA). The anomaly is that in many cases the nighttime values are higher than the daytime values and, except for Camp A, exceed the Ghana EPA standard for residential areas of 48 dBA, which is higher than the IFC residential nighttime standard of 45 dBA. No data

are available to distinguish the contribution to noise from NGGL operations from background noise sources or other activities. The reason for this discrepancy is likely unrelated to NGGL activities, but this has not been documented by NGGL.

Workplace Monitoring

Noise surveys are still being performed, adopting individual means of measurements to assess the noise dose received by individual workers. Occupational noise monitoring is the subject of a SOP issued in April 2008.

As previously observed and reported, occupational noise is being addressed and appropriate actions are in place to control the working environment.

IFC Policy Action Items

M3.3 Assess background noise in residential areas and ensure that Project activities do not produce noise levels that exceed limits provided in the WB's General Environmental Guidelines (July 1998).

ESIA Action Item

Nil

Recommendations for Improvement:

- i) It is recommended that NGGL better document sources of community noise and verify that anomalous noise levels are not associated with project activities.

3.4 Occupational Health

Project Strategy:

NGGL has principles for occupational health and hygiene that are well established at the Corporate level within their Five Star Program, specifically the HSLP Standard 30 titled "Occupational Health and Hygiene," which has the stated intent "to anticipate, recognize, evaluate, and control occupational exposures to levels which potentially eliminate occupational disease by minimizing occupational health risk." This intent is reflected in the procedures defined in the ESIA, in particular for malaria and HIV/AIDS.

The applicable and relevant IFC guidelines are the following: WB EHS Guidelines Mining and Milling - Open Pit (August 1995); and IFC Environmental and Social Guidelines for OHS (June 2003).

Observations:

An Occupational Health and Hygiene Management System Procedure is in place, approved in April 2008. The procedure describes responsibilities, exposure limits, type of characterizations, exposure assessments whose frequency is based on the risk rating attributed to each SEG (Similar Exposure Group). Workers' exposure is controlled through a program of monitoring. Based on the sampling plan for 2008 indicating the hazardous agents monitored, all the monitoring foreseen up to the time of the ECMG visit was recorded as completed and examples of completed exposure monitoring for dust and noise were provided.

Based on this monitoring, lead exposure is of concern in certain areas, and specific protection measures have been defined. SOPs are available for monitoring and specific protection measures are defined for certain workplaces (e.g. respiratory protection and hearing conservation).

The Industrial Hygiene team staffing level has been maintained and training has been provided, including participation in occupational health courses abroad.

Detailed analysis of the results of the monitoring programs was not undertaken during this visit, but the general information collected indicates that in general occupational health issues are given the necessary attention and monitoring programs are in place.

During the visit, the ISOS Clinic was visited. It is understood that plans are in progress for enhancing the clinic structures and increasing the available beds. It is also understood that the beds are for ambulatory services only, patients requiring long term treatment are sent to nearby hospitals according to their needs. A monthly report is issued by ISOS to HSLP, detailing the number of cases treated divided by type of medical treatment for individual Contractors /NGGL personnel.

Malaria Prevention and Control

The malaria control program, initiated at the time of the first ECMG site visit and led by an entomologist, is on-going. The malaria control program observed by ECMG in the previous visits is still in place and continues to improve. For example, the "control zone", originally defined as 500 meters from the Ahafo Camp A site, is now extended to 1500 m and screening of outdoor gathering areas has now been completed in Camp A. The type of insecticide used is also changed periodically to avoid inducing resistance in vectors.

Updated statistics are available divided by locals/expatriates and by locations. The results of the malaria control program show a decrease in malaria rate from 4.2% (year 2007) to 3.4% (Year to Date September 2008). This confirms the adequacy of the measures developed on site to reduce the risk of contracting malaria, and it is noted that most of the cases are due to employees contracting malaria outside the "control zone", in Accra or in the villages.

The project is also working with local communities to raise awareness on malaria prevention and bed nets are being distributed, as well as information on malaria prevention. NGGL also works in cooperation with the Government of Ghana program to increase the distribution and use of mosquito nets. Bed nets, however, are found to be used by only a small minority of the personnel that receives bed nets as a part of the malaria program. This suggests that in addition to distributing these nets, additional efforts are needed to convince people to use the nets.

HIV and Other Disease Control

The HIV/AIDS program, mainly addressed to community education and distribution of condoms to prevent the spread of HIV/AIDS, continues to be developed as part of NGGL's community health program.

No other exotic diseases have been reported in 2008.

IFC Policy Action Item

Nil.

<i>ESIA Action Item</i>

Nil

Recommendations for Improvement:

- i) The Project should collect data and provide scientific evidence that the ongoing operations and associated facilities do not create breeding grounds for mosquitoes and other disease vectors (*repeat recommendation*).

4 Cultural Resource Management

4.1 Cultural Resource Management Surveying and Planning

Project Strategy:

The ESIA defines NGGL's commitment for cultural resource management to be WB OP 4.11, Safeguarding Cultural Property in an IFC-Financed Project. Actually, the title of OP 4.11 is "Physical Cultural Resources" and the appropriate reference is OPN 11.03 Management of Cultural Property in Bank-Financed Projects, which is an international good management practice that requires developers to identify and preserve archaeological (prehistoric), paleontological, historical, religious resources, and unique natural features. The IFC currently supplements OPN 11.03 with Performance Standard 8, Cultural Heritage (April 2006). As part of the ESIA preparation process, a survey entitled "*Newmont Ghana Gold Limited, Cultural Heritage Survey at Ahafo, Ahafo Gold Project, Reference – B333, Version 1.0 dated March 2005*" was prepared by SGS Environment. The survey identified 18 sites including cemeteries, shrines, water bodies, a tree, and a hill. Subsequent to this survey, a Cultural Resource Management Plan dated August 2006 was prepared. This document references IFC Performance Standard 8.

Observations:

Archaeological studies have been completed for the Ahafo South project under the management Geomatrix working with of Prof. Yaw B. Mensah of the University of Ghana with 10 sites identified in Ahafo South area. The overall survey is presented in a report issued February 2008. The excavations undertaken at two sites in the Awonsu pit area discussed in the February 2008 ECMG trip report are now fully studied, both in the field and in the laboratory with the results presented in a report issued in July 2008. This report confirms the significance of these sites in terms of their association of peoples of Kintampo culture (3,000 – 4,000 years ago).

The ECMG was provided a copy of a revised Cultural Resources Management Plan (CRMP) dated February 2008 that covers the procedures for protecting archaeological sites, including a chance find protocol. One of the provisions of this plan is that NGGL assign an individual to serve as the Cultural Resource Manager (CRM) to coordinate and implement this Plan. ECMG was not provided with an organization chart to indicate that this is a position that has been filled, however. It was understood at the time of the trip that archaeologists were working in the Ahafo North area, but it was not practical to have discussions with this team to understand how the CRMP is actually followed in the field.

IFC Policy Action Items

Nil

ESIA Action Item

Nil

Recommendations for Improvement:

- i) Make sure that the CRMP is followed and that there is an individual dedicated to the implementation of this Plan. As noted in the February 2008 ECMG report, it is D'Appolonia's experience that the number of archaeological sites identified by means of a regional reconnaissance is typically 20 percent of the number of sites that will be encountered if a good chance finds protocol is implemented at the time vegetation is stripped. Training of field monitors, managers, equipment operators, etc. should be undertaken to make sure that sites are identified and protected. During this visit, the ECMG was not provided information that would show that the CRMP is being followed when field activities are taking place.

5 Tailings Storage Facility (TSF)

5.1 *Design and Construction Update*

Project Strategy:

The TSF was designed by Knight Piésold Pty Ltd (KP) in 2004. The design of the tailings pumps, pipework and return water system were carried out by Lycopodium Engineering Pty Ltd (Lycopodium). Construction management is currently being self-performed by NGGL, supported by design and QA/QC services provided by Knight Piésold for the current phase of the facility expansion. The current phase of construction will provide tailings capacity until approximately 2Q 2010.

The TSF has been started as a single main embankment at the south end of the Subri River (South Embankment). The upstream limit to tailings deposition is the WSF dam (North Embankment). The facility is planned to ultimately comprise a four-sided main embankment constructed in annual stages over 11 years utilizing mine waste rock and, if necessary, fill from designated borrow areas. The plans for final completion of the TSF are not yet finalized, pending decisions yet to be made for mining associated with the Ahafo North area. The TSF is operated as a "zero discharge" facility, with all water returned for use in the ore processing circuit, and no water discharged to the environment.

The basic design characteristics of the TSF are tabulated in the December 2006 report and are not repeated here. The applicable and relevant IFC guideline is OP 4.37 - Safety of Dams (September 1999 Draft).

Observations:

The TSF appears to be designed and constructed within the established design parameters. Monitoring data do not indicate instability or leakage and the latest inspection conducted by Knight Piésold Pty Ltd in July 2008 confirms the generally good condition of this facility.

As noted in the previous ECMG reports, the design criteria are based on the hazard classification of the TSF, which is classified as "significant" according to ICOLD

(International Committee on Large Dams) Guidelines, where there are three classifications: low, significant and high. Dams assigned the significant or medium hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. The basis for the “significant” classification for the Ahafo TSF is not provided in either the ESIA or the Operating Guidelines for the TSF. As discussed in greater detail in Section 5.3 of this report, the areas of potential inundation have now been defined and this information could be used to evaluate the appropriateness of the dam’s classification.

<i>IFC Policy Action Items</i>

Nil

<i>ESIA Action Items</i>

Nil

Recommendation for Improvement:

- i) It is strongly recommended that NGGL comprehensively justify the hazard classification of the TSF. A best practice approach should involve an evaluation to determine the potential human and environmental impacts of a dambreak event. See also recommendations for emergency action planning (*repeat recommendation*).

5.2 Operations and Maintenance Planning

Project Strategy:

At the time of the December 2006 ECMG visit, a document entitled “*Ahafo Project, Tailings Storage Facility, Operations Manual*” had been prepared for the TSF, as required by the IFC OP 4.37 - Safety of Dams. This manual described the design in detail and presents operational and emergency procedures for the management of the facility. This document has been supplemented by a revised document entitled “*Ahafo Tailings Management Plan*” dated November 2007, which overlaps with the “*Operations Manual*.”

Observations:

As previously noted in past ECMG reports, the designer and construction manager, Knight Piésold also has the responsibility for conducting annual inspections of the TSF. A requirement of OP 4.37 is that dam inspections be conducted by independent dam specialists, although the IFC may accept assessments of dam safety if full-level inspections and dam safety assessments that are acceptable to the IFC have already been conducted and documented. The initial design of the TSF was independently reviewed by Chlumsky, Armbrust and Meyer (CAM) in 2005, but this firm was not retained to conduct any follow-up inspections. Again as previously noted, the current situation is not a clear non-compliance with OP 4.37, but is something that NGGL may need to revisit with the IFC. As the time of this visit, the ECMG was not provided information to indicate whether there has been any resolution of this issue.

<i>IFC Policy Action Items</i>

Nil

ESIA Action Items

Nil

Recommendation for Improvement

- i) Evaluate the need for contracting for independent TSF inspections in consultation with the IFC.

5.3 Emergency Preparedness Planning*Project Strategy:*

The Project description for the TSF states the following commitment: “*The tailing storage facility will be state-of-the-art using rotational, subareal tailing deposition and designed, constructed, and operated in accordance with Newmont’s Standards for Tailing Management and relevant sections of the Ghana Minerals and Mining Law, 1986, Ghana Mining Environmental Guidelines, Final Draft, 1994; State of Nevada (U.S.) Administrative Code Chapter 445A, which governs design, construction, operation and closure of mining facilities; and IFC Operational Policy 4.37.*”

Observations:

In terms of emergency preparedness, OP 4.37 requires that if the dam is large (15 meters or more in height) it requires the preparation of an EPP. The contents of this Plan are provided in an Annex to OP 4.37, as follows:

“Emergency Preparedness Plan. This plan specifies the roles of responsible parties when dam failure is considered imminent, or when expected operational flow release threatens downstream life, property, or economic operations that depend on river flow levels. It includes the following items: clear statements on the responsibility for dam operations decision making and for the related emergency communications; maps outlining inundation levels for various emergency conditions; flood warning system characteristics; and procedures for evacuating threatened areas and mobilizing emergency forces and equipment.”

A significant accomplishment since the last ECMG visit in February 2008 is the completion by Golder Associates in September 2008 of a flood routing analysis that identifies failure modes for both the WSF and TSF. Potential significant failure modes of the TSF are associated only with the final stages of construction, but show that significant flooding could occur in the unlikely event of the failure of either of these facilities. This information is expected to form the basis for preparing an Emergency Preparedness Plan.

IFC Policy Action Items

M1.19 Prepare an EPP for the potential failure of the TSF that clearly defines potentially affected areas based on potential release scenarios as determined on the basis of an Impact Analysis and contains notifications and chain-of-command procedures. Environmentally sensitive areas and receptors should also be identified on the maps of areas with potential impact.

ESIA Action Items

Nil

Recommendation for Improvement:

- i) Involve the HSLP group with the emergency planning for the TSF facility (*repeat recommendation*).

List of Acronyms and Abbreviations

ARD:	Acid Rock Drainage
BMP:	Biodiversity Management Plan
BOD:	Biological Oxygen Demand
CBOD:	Carbonaceous Biochemical Oxygen Demand
CCD:	Counter-Current Decantation
CI:	Conservation International
COD:	Chemical Oxygen Demand
CRM:	Cultural Resource Management
ECD:	Environmental Control Dams
ECMG:	External Compliance Monitoring Group
EHS:	Environmental Health and Safety
EMP:	Environmental Management Plan
ESIA:	Environmental and Social Impact Assessment
EPA:	Environmental Protection Agency
EPP:	Emergency Preparedness Plan
ERP:	Emergency Response Plan
ERT:	Emergency Response Team
ESAP:	Environmental and Social Action Plan
ESR:	Environmental and Social Responsibility
H&S:	Health and Safety
HSE:	Health, Safety and Environment
HSLP:	Health, Safety and Loss Prevention
ICMC:	International Cyanide Management Code
IFC:	International Finance Corporation
IMS:	Integrated Management System
KPI:	Key Performance Indicator
LI:	Legislative Instrument
LTA:	Lost Time Accident
LTAFR:	Lost Time Accident Frequency Ratio
MSDS:	Material Safety Data Sheet
MoC:	Management of Change
NGGL:	Newmont Ghana Gold Limited
NGO:	Non-Governmental Organization
OHS:	Occupational Health and Safety
OP:	Operational Policy
OPN:	Operational Policy Note
PPAH:	Pollution Prevention and Abatement Handbook
PPE:	Personal Protective Equipment
ROW:	Right-of-Way
SEG:	Similar Exposure Group
SOP:	Standard Operating Procedure
SSV:	Senior Staff Village
STP:	Sewage Treatment Plant
TRAFR:	Total recordable Accident Frequency Ratio
TSF:	Tailings Storage Facility
TSS:	Total Suspended Solids
VRA:	Volta River Authority
WAD:	Weak Acid Dissociable
WSF:	Water Storage Facility
WB:	World Bank
WHO:	World Health Organization