



REPORT OF THE:

EXTERNAL COMPLIANCE MONITORING GROUP (ECMG)



SEVENTH SITE VISIT DECEMBER 2010



AHAFO SOUTH PROJECT, GHANA

Prepared for

International Finance Corporation - IFC
Newmont Ghana Gold Limited - NGGL

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FREQUENTLY USED ACRONYMS

AFMP	Ahafo Fluid Management Plan
BMP	Biodiversity Management Plan
BOD	Biological Oxygen Demand
CA	Conservation Alliance
CAPA	Corrective and Preventative Action
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
EIR	Environmental Incident Register
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
EPA	Environmental Protection Agency
ESAP	Environmental and Social Action Plan
ESR	Environmental and Social Responsibility
GWC	Ground Water Compliance (well)
HSLP	Health, Safety and Loss Prevention
ICMC	International Cyanide Management Code
IFC	International Finance Corporation
IMS	Integrated Management System
IWMF	Integrated Waste Management Facility
NGGL	Newmont Ghana Gold Limited
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
OP	Operational Policy
ROW	Right-of-Way
SCS	Sediment Control Structure
SOP	Standard Operating Procedure
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
WHO	World Health Organization

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INTRODUCTION AND EXECUTIVE SUMMARY

This report summarizes observations made during the seventh site visit (December 5 – 10, 2010) 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”).

This Seventh External Compliance Report represents the first audit following the “Compliance Completion” conducted as the sixth audit to verify that the following requisites had been met:

- operation of the Project is within compliance standards for key treatment facilities such as the tailings storage facility, water storage facility, sewage treatment plant;
- environmental and safety management systems have been fully implemented and are fully operational; and
- all sites, equipment and facilities comprising the Ahafo South Project have been acquired, developed, constructed and become fully operational in compliance with the Environmental and Social Requirements.

The basic result of the sixth audit was that the above requisites have been met. In particular, the Plans, Procedures and Standard Operating Procedures (SOPs) for the Environmental and Health, Safety and Loss Prevention (HSLP) departments within NGGL had been finalized as a result of the ongoing efforts towards ISO 14001 and OSHAS 18001 certifications. As part of the process of developing this Environmental and HSLP Management System, the ECMG was able to verify that International Finance Corporation (IFC) requirements were incorporated in the Plans, Procedures and SOPs.

Based on the above development, it is no longer necessary to review the Ahafo Project on the sole basis of IFC requirements. Rather, this audit and subsequent audits will focus on compliance with this overall Environmental and HSLP Management System, referred to as an Integrated Management System (IMS). Reference is made with respect to IFC requirements only for cases where the IMS does not cover specific IFC commitments, such as disclosure, or where NGGL is starting a new Project within the Ahafo South footprint and an Environmental and HSLP Management System for that effort is still under development, specifically referring to the Subika Underground Project.

ECMG observations that require actions and will be reviewed in subsequent assessments have been collated in Table 1 – Follow-up Issues. Table 1 is 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.

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. NGGL expects 2010 gold production at Ahafo to be between 520,000 and 540,000 ounces, about 8% more than what was projected in 2009. This increased production reflects the mining of higher grade ore and also the opening of the Amoma pit, where production included 16,000 incremental start-up ounces during the third quarter 2010. Commercial production at the Amoma pit started on October 1, 2010. The Ahafo South Mining Project is expected to add about an additional 5.1 million ounces to Ghana's overall export of gold during the life of the mine based on the current mining plan.

Mining is currently conducted in four areas, the Subika, Apensu, Awonsu, and Amoma pits. Underground exploration has started from the base of the Subika pit as a separate project from the open pit mining (Subika Underground Project). The blasting/drilling of an underground portal started in January 2010 and at the time of this visit had advanced approximately three kilometers. This work has been undertaken on

the basis of an exploration license received from the Ghana Environmental Protection Agency (EPA) and the results of this exploration effort are expected to be announced in August 2011. The ore recovered from this effort is not being milled as NGGL does not have a permit to mine underground, pending completion of an environmental impact study and receiving a permit to mine. The current total workforce including both NGGL and contractors is approximately 4,500, of which about 1,500 are from NGGL. Only 71 of the NGGL employees are expatriates and approximately a third of the national content of the workforce is recruited locally.

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. Public disclosure documents, including the independent ECMG reports are available on the Newmont Ahafo web site at <http://www.newmont.com/africa/ahafo-ghana/public-disclosure-documents>.

Specific activities conducted during this site visit included the following:

- evaluation of the full contents of the current NGGL Environmental and HSLP Management System documents with a focus on understanding the commitments made by NGGL to address environmental and health and safety issues. Specific environmental issues 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. Specific HSLP issues include: hazardous materials and transportation management, including cyanide; Occupational Health and Safety (OHS) monitoring, including noise and vibrations, OHS statistics, and bilharzias, malaria and HIV/AIDS programs;
- visit to the sites of the Project facilities (including the operating Amoma, Apensu, and Awonsu Pits);
- 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 the Volta River Authority's (VRA) Kumasi-Sunyani Transmission Line; and
- conducting a closeout meeting with NGGL EHS and management personnel focusing on key findings, correction of any factual inaccuracies and possible corrective/upgrade actions.

The closeout meeting was conducted at the Ahafo South Mining Project on December 9, 2010 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. The most significant findings and observations made during this site visit are summarized below and in Table 1-1. The full description of findings and observations is provided in the text of this report.

Environmental and HSLP Management System

International Organization for Standardization (ISO) 14001:2004 and Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 certifications were completed in June 2010 and are represented by the "Integrated Management System (IMS) Manual Newmont Ahafo Operations." This is a major accomplishment and represents the formal acknowledgement that an environmental, social and health and safety management system is now in place. Aspects of the IMS, however, need to be revisited. The IMS contains commitments to follow IFC requirements, but some of the details are missing, specifically with respect to some environmental standards. A second issue is that NGGL will need to incorporate current IFC standards for the Subika Underground Project when it becomes operational, which implies a need to

¹ The Independent External Social Compliance Monitoring Reports are publicly available at <http://www.newmontghana.com/>

upgrade the IMS for the whole project. NGGL may wish to consider upgrading the IMS for the entire project to reflect these newer standards.

Pollution Prevention

Pollution prevention encompasses compliance with standards for air emissions, noise and vibrations, surface water contamination, groundwater contamination and the associated systems and processes in place to prevent pollution, in particular for cyanide management. Monitoring is thorough and NGGL demonstrates a continuing commitment to minimize environmental impacts. Surface water contamination has been the main environmental issue, in particular discharges from the Environmental Control Dams (ECDs) and the discharge of pit dewatering effluent into the Water Storage Facility (WSF), the latter being of particular concern. Chemical releases from the dewatering of the pits (nitrate, sulfate, ammonia, cadmium) into the WSF has reached the point where the actual water quality of this large body of water is beginning to be impacted (ammonia). NGGL is currently planning for additional water treatment that will hopefully stop this problem.

A second evolving environmental issue is that the Tailings Storage Facility (TSF) is showing signs of minor chemical leakage (cyanide and cobalt). Cobalt is being detected from monitoring points beneath the liner and at an external monitoring well located at the northern edge of the TSF near the spillway to the Water Supply Facility (WSF). Cyanide has been detected only beneath the liner. This may indicate environmental leakage, recognizing that cobalt is sometimes naturally occurring. This possible leakage as currently encountered is not serious, but could develop into a serious situation if it worsens. At this stage NGGL should consider whether there is anything that can be done (e.g., improved management of supernatant fluid; pump-back wells) and if it is necessary to increase the number of monitoring wells and the frequency of monitoring to better characterize the nature of leakage from the TSF.

Biodiversity and Ecological Management

NGGL continues to progress in its biodiversity management activities, but the partnership with Conservation International (CI) has significantly changed with CI's modifying their organization such that the CI office in Accra has closed and their activities are currently administered from Liberia. Key CI staff members in Accra now work with a different organization, Conservation Alliance (CA), a Non-Governmental Organization (NGO) with their main offices in Accra and NGGL plans to continue biodiversity management with CA. Biodiversity management working with CA will not have the same degree of external acceptance as working with CI. NGGL will need to be very transparent in their work with CA and may want to consider seeking additional support from an international conservation organization.

The inspection of the VRA transmission line corridor was undertaken in June 2010 by a joint NGGL/VRA team. Their observations reveal that there has been a gradual encroachment into the forest reserve consisting of illegal small scale mining (Galamsey), presence of new logging routes, and the development of several new farms since the last inspection. It is recommended that NGGL work with other stakeholders to develop an Action Plan to mitigate against the observed situation.

NGGL was able to demonstrate successful reinstatement at the toe of the Apensu stockpile west of the Apensu pit covering approximately 3.5 Ha, but this area is only about 10% of the area projected to be reclaimed by this time from the Reclamation Security Agreement between NGGL and the Ghana EPA made two years ago. It is emphasized that NGGL is working to achieve reclamation and that the lack of progress does not constitute any environmental emergency. NGGL has prepared a Reclamation and Closure Plan Revision that was submitted to the Ghana EPA in October 2010 to address what is currently considered to be realistic for a reclamation schedule.

Waste and Wastewater Management

NGGL achieved a major milestone in terms of the goals of the Waste Management Plan with the inauguration immediately before the ECMG site visit of a high temperature incinerator designed for the combustion of oily materials that has eliminated the need to send this waste to Kumasi. Substantial improvements have also been made at the wastewater treatment plants and good operation can be reported.

Health and Safety

Outside-the-fence safety has previously been identified as a significant issue by the ECMG. The main safety issue with Ahafo South, as is also the case with most major development projects, is traffic safety. Ahafo South has also been associated with drowning incidents, which occurred (two in 2005; one in 2009; and one in 2010). It is recognized that only one fatal traffic accident was actually associated with a Newmont vehicle and that Newmont vehicles now have GPS controls to identify speeding and discipline drivers. The drowning incidents took place in spite of warnings, relevant safety signs, and community awareness-raising programs. This is a situation that NGGL is taking very seriously and evaluating to see if the Company is doing all that is necessary to prevent similar accidents. NGGL has a comprehensive community safety awareness program with a strong focus on road safety.

From the standpoint of health, special recognition has been given to NGGL by the Global Business Coalition on HIV/AIDs, Tuberculosis and Malaria for their workplace program for HIV/AIDs and malaria, which was awarded best in category for initiatives in disease prevention and control. NGGL deserves commendation for this special award.

WSF/TSF Management

The last remaining issue for IFC compliance still pending at the time of the 6th ECMG site visit in December 2009 was an independent review of the investigation, design, and construction of the WSF/TSF. This issue was addressed with by means of a third-party independent audit in October 2010 by Golder Associates and NGGL now complies with the requirements of IFC OP4.37. The draft report for this inspection dated November 2010 was reviewed by ECMG and found to be competently undertaken, with the note that a review of the design basis for the dams was expected, rather than just a review of how the construction and operation of these impoundments complies with design. ECMG's main concern with design basis is with respect to allowable freeboard, which is a function of assumed requirements for flooding. The observation that in October 2010 the freeboard at the WSF was only 30 cm, requiring the notification of regulators, ongoing community engagement and involvement of the NGGL Engineering department suggests that the design basis should be part of an independent review. It is understood that plans are in place for a freeboard review in 2011.

The independent audit conducted by Golder Associates did encounter some aspects of WSF/TSF management that do require significant improvement. The most significant observation made by Golder Associates is that the TSF has a quantity of supernatant liquid that surpasses design and extends beyond the area underlain by a synthetic liner. The independent audit also identified a concern that the consolidating tailings accumulating against the liner could result in high tensile stresses against the liner, which may result in tearing of the liner. Both issues are of particular concern as there is evidence of leakage of chemicals from the TSF. It is emphasized that the overall review by Golder Associates was that the design and construction of the WSF/TSF is in accordance with generally accepted practice and there is no "fatal flaw" for the current operation of the facilities.

The following table summarizes issues raised in this report. To facilitate an understanding of the seriousness of these issues, levels of severity were assigned to some of them where a break in a Project commitment has been observed. For all issues raised, a priority level (high, medium, low) is assigned, as well as a reference to the document that contains the Project commitment (e.g., Management Plans, Procedures, etc.). The nomenclature of the color-coded priority level categorizations is assigned based on levels of severity similar to the high, medium, and low priority items identified in NGGL's Management System Procedure for Corrective and Preventative Action and/or on the significance of environmental, health and safety, and/or reputational risk in terms of its magnitude and/or on time frame in which an impending risk might occur (short-term, medium-term, long-term).

The following descriptions are provided:

- **Critical action required** - Level III critical situation, typically including observed damage to or a reasonable expectation of impending damage or irreversible impact to an identified resource or community and/or a major breach to a commitment as defined in Project documents or an applicable IFC requirement. A Level III situation can also be based on repeated Level II findings or intentional disregard of specific prohibitions or Project standards;

- **Immediate Action Required** - Level II – representing a situation that has not yet resulted in clearly identified damage or irreversible impact to a sensitive or important resource or community, but requires expeditious corrective action and site-specific attention to prevent such effects. A Level II situation can also represent a significant breach of a commitment, or a risk of a significant breach if not expeditiously addressed, requiring corrective action as defined in Project documents or applicable IFC requirement. A Level II situation can also be based on repeated Level I findings;
- **Action Required** - Level I situation not consistent with stated commitments as defined in Project documents, but not believed to represent an immediate threat or impact to an identified important resource or community. A Level I situation can also represent a minor breach of a commitment requiring corrective action as defined in Applicable Lender Environmental and Social Standards; and
- **Observation:** A finding not considered serious, but where improvement is recommended or a caution is warranted. An observation may also be associated with a recommendation.

Issues will be tracked in terms of their future status in subsequent ECMG audits. Observations do not constitute requirements for action, but can simply be recommendations that NGGL may or may not wish to follow. They are not assigned a mission number or an opening date/closing date and will not be repeated in subsequent reports, unless changed circumstances still allow for making the same observation.

Table 1.1: Follow-up Issues

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
<i>EHS Management</i>						
	Integrated Management System (IMS) Manual			NGGL does not assign different levels of either non-compliance or non-conformance to breaches in Project commitments as defined in other Plans, Procedures and SOPs.	Observation	ECMG's experience with most other large development projects is that levels of non-conformance or non-compliance are assigned when Project rules are found to be broken by internal audits and inspections. The rationale for this type of classification is that it serves as a flag to senior management such that the seriousness of a particular situation is readily apparent and goes beyond a simple designation of priority as identified in the Management System Procedure for Corrective and Preventative Action (CAPA).
M7.1	Integrated Management System (IMS) – compliance with IFC General Environmental Guidelines	Dec-10		The IMS contains commitments to follow IFC requirements, but some of the details are missing, specifically with respect to some environmental standards. The standards for blast vibrations, air overpressure, or noise are not stated in any of the environmental Plans, Procedures, or SOPs, but are referenced only from the old Environmental Management Plan, the contents of which are not reflected in the IMS. Water emissions standards are provided in a document entitled Ahafo Fluid Management Plan (AFMP), but this is a draft, not a final, document. In particular, the AFMP indicates that “Bacterial analysis and BOD & COD will not apply to NGGL discharges due to background levels”, which is contrary to IFC requirements. The AFMP standards differ from the NGGL standards reported by Knight-Piésold in their TSF inspection reports (e.g., total cyanide; cobalt).	I	Project environmental standards need to be defined in the form of final documents incorporated within the IMS. In the single case where a standard is identified in a final IMS document (air emissions) the standards are stated to be those of the USEPA without actually saying what they are, which would not be a simple matter to determine from a review of USEPA regulations.
	Integrated Management System (IMS) – compliance with new IFC requirements (Performance Standards and Associated Guidelines)			NGGL will need to incorporate current IFC standards (2007 Performance Standards and associated Guidelines) for the Subika Underground Project when it becomes operational. NGGL may wish to consider upgrading the IMS for the entire project to reflect these newer standards.	Observation	The Ahafo Mine except for the upcoming Subika project is designed to meet pre-Performance Standard IFC Safeguard Policies. IFC and NGGL are negotiating how future audits can address this issue as it is understood that NGGL in principle would like to be able to assert that their operations meet the Performance Standards. The recommended starting point is to undertake a gap analysis to identify where changes in the IMS need to be made.

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
	Integrated Management System (IMS) – compliance with IFC OP 4.04 - Natural Habitats	Dec-10		Biodiversity issues are not addressed in the NGGL IMS, except in terms of the Environmental Standard - Closure and Reclamation Planning. Similarly, the Implementation Plan for Noxious Weeds is not part of the IMS and the Vegetation Monitoring for Newmont Ghana SOP does not even mention monitoring the presence of invasive species should they be encountered.	Observation	It is unclear why biodiversity issues are not considered within the NGGL IMS, as this is an important part of NGGL's commitments to protect natural resources well defined in the ESIA. It is not considered a major issue as this topic is covered by other NGGL documents, but it is recommended that this topic be folded into NGGL's IMS to make sure that it receives the same degree of attention as are the other topics.
	Integrated Management System (IMS)			Organization and staffing are currently sufficient to implement the current management system, but an issue that has frequently been flagged as significant to the implementation of the IMS is staff turnover. The presence of a developed IMS should help smooth over staff transitions in that performance expectations are written down.	Observation	Within the environmental group, at least, senior management is demobilizing and some staff is being transferred to NGGL's upcoming Akyem project in eastern Ghana. NGGL will need to take special care that this self-induced turnover does not affect operations, in particular that staff is starting to increase responsibilities in working with the Subika Underground project.
	Integrated Management System (IMS)			Incorporating the Subika Underground Project into the IMS will require some substantial revisions.	Observation	Assuming the Subika Underground Projects changes its status from exploration to operations, care should be taken such that the IMS revisions are in a final form prior to operations startup and that there is no gap in the IMS. This is a different issue from the observation regarding the IMS for the entire Ahafo project, because it is not sufficient to upgrade the current IMS to new IFC requirements to cover the management requirements for an underground mine. It is necessary to incorporate a wide variety of new activities associated with underground operations.
Pollution Prevention						
	Noise Monitoring SOP; Blast Monitoring SOP			Although blasting parameters have been compliant at the Awonsu pit, the local community of Akorekrom on the north side of the pit has been the source of complaints associated with mining activities and noise. Nighttime ambient noise levels at this community have been higher than the 45 dBA IFC standard.	Observation	NGGL is actively working to resolve community complaints by increasing the frequency of monitoring and stopping mining or rock dumping on the north side of the pit at night. A rock waste sound barrier is also being constructed to minimize noise at Akorekrom village. Should this situation not be resolved it could evolve to be more of a significant issue.

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
M7.4	Water Management	Dec-10		An ongoing issue with respect to surface water has been sediment loading from runoff associated as reflected in some high total suspended solid (TSS) readings, especially at ECD 2. NGGL is currently using a device to flocculate the suspended particles in the ECDs, but measured values are still high, especially in ECD 2. ECD 2 was the main source of community complaints from an overflow that took place during heavy rains at the beginning of July 2010.	I	This is not a severe issue in that release of high TSS during flood events is a situation experienced whether the ECDs are there or not. The issue is more with respect to providing additional controls to keep down TSS values under normal operating conditions – consider increasing addition of flocculates with more Neutra-Mill Technology systems. The Neutra Mill Technology equipment was being deployed at the Sediment Control Structure (SCS 8) serving the Amoma pit at the time of the ECMG visit. NGGL may wish to consider acquiring additional equipment.
M7.5	Water Management	Dec-10		Chemical releases from the ECDs are now beginning to appear for both sulfate and nitrate. Sulfate is an issue from the Subika pit and high sulfate was measured in 2010 from the discharges from ECD4 and ECD6. Although the pit water from the Apensu pit does not have high sulfate, surface water sampling next to Apensu South waste rock dumps (upstream from Subika) does show high sulfate and sometimes high nitrate. High nitrate assumed to have originated from blasting is occasionally found in discharges from ECD3 and from ECD4.	I	The adding of flocculate to the ECDs is not likely to resolve the issue of chemical discharges and NGGL needs to conduct a study that determines how these chemical enter the ECDs and what mitigation measures are required. It is understood that NGGL is constructing a collection system to prevent seepage from the Apensu South rock dump from entering the surface water regime.
M7.5	Water Management	Dec-10		Chemical releases from the dewatering of the pits (nitrate, sulfate, ammonia, cadmium) into the WSF has reached the point where the actual water quality of this large body of water is beginning to be impacted (ammonia).	II	This issue is considered serious, because discharges from the pits into the WSF have progressively deteriorated over a period of years. That the situation would have developed to the point that it could impact a body of water as large as the WSF is not acceptable. Of particular concern is if cadmium starts to be routinely detected, as this is a very toxic metal (to date it has been found in only one sample at the discharge point to the WSF and not in the WSF itself). Hopefully, the treatment plant currently being planned will resolve this situation.

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
M7.6	Water Management	Dec-10		The TSF is showing signs of minor chemical leakage (cyanide and cobalt). Both cyanide and cobalt have been detected in the underdrain beneath the liner. Cobalt is also being detected from one monitoring well at the northern end of the TSF near the spillway to the WSF and this might indicate environmental leakage. This may indicate environmental leakage, recognizing that cobalt is sometimes naturally occurring.	I	The possible leakage as currently encountered is not serious, but could develop into a serious situation if it worsens. At this stage NGGL should consider whether there is anything that can be done (e.g., improved management of supernatant fluid; pumpback wells) and if it is necessary to increase the number of monitoring wells and the frequency of monitoring to better characterize the nature of leakage from the TSF.
<i>Biodiversity and Ecological Management</i>						
	Biodiversity Management Plan			NGGL continues to progress in its biodiversity management activities, but the partnership with Conservation International (CI) has significantly changed with CI's modifying their organization such that the CI office in Accra has closed and their activities are currently administered from Liberia. Key CI staff members in Accra now work with a different organization, Conservation Alliance (CA), an NGO with their main offices in Accra and NGGL plans to continue biodiversity management with CA.	Observation	Biodiversity management working with CA will not have the same degree of external acceptance as working with CI. NGGL will need to be very transparent in their work with CA and may want to consider seeking additional support from an international conservation organization.
	Biodiversity Management Plan			The inspection of the VRA transmission line corridor was undertaken in June 2010 by a joint NGGL/VRA team. Their observations reveal that there has been a gradual encroachment into the forest reserve consisting of illegal small scale mining (Galamsey), presence of new logging routes, and the development of several new farms since the last inspection.	Observation	The inspection report recommends that these activities be halted based on a planned concerted effort between the Forest Services Division, VRA, NGGL, Conservation Alliance and the forest fringe communities to protect the Tano – Offin Forest Reserve from further encroachment. ECMG concurs with this recommendation and that NGGL work with the other stakeholders to develop an Action Plan to mitigate against the observed situation.
	Environmental Standard - Closure and Reclamation Planning			NGGL was able to demonstrate successful reinstatement at the toe of the Apensu stockpile west of the Apensu pit covering approximately 3.5 Ha, but this area is only about 10% of the area projected to be reclaimed by this time from the Reclamation Security Agreement between NGGL and the Ghana EPA made two years ago. It is emphasized that NGGL is working to achieve reclamation and that the lack of progress does not constitute any environmental emergency, but there could be financial consequences to NGGL if performance is not improved.	Observation	NGGL has prepared a Reclamation and Closure Plan Revision including an updated Reclamation Security Agreement that was submitted to the Ghana EPA in October 2010 to address what is currently considered to be realistic for a reclamation schedule.

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
Waste and Wastewater Management						
	Waste Management Plan			NGGL achieved a major milestone in terms of the goals of the Waste Management Plan with the inauguration immediately before the ECMG site visit of a high temperature incinerator designed for the combustion of oily materials (a portable SMART ASH incinerator manufactured by Elastec/American Marine in the U.S.) that has eliminated the need to send this waste to Kumasi.	Observation	Discontinuing the use of the Kumasi landfill is a major achievement. Care will need to be taken to make sure that there are no setbacks to current practice due to equipment problems, in particular for the incinerator as it is a very small unit.
M7.7	Management System Procedure for Contractor Selection and Management	Dec-10		Newly installed filter crushers at the IFAC, MANTRC and WBHO workshops significantly reduce the volume of waste filters, allowing for the recovery of the waste oil that is sent to an accredited contractor for use as a fuel at a Tema refinery. The waste scrap metal from this operation is being recycled by the same contractor who is also accepting waste wet cell batteries for the recovery of lead. Although the procedures being followed by this contractor appear to be acceptable based on what has been described to NGGL, their recycling facility has not been audited by NGGL for the recycling of the crushed filters and wet cell batteries.	I	Although this contractor has been audited for the management of waste oil and lubricants, new audits are required before different waste streams are included in their responsibilities. This situation can be resolved when NGGL shows that this recycling subcontractor has been audited and that their management of these waste streams is consistent with Project requirements.
Health and Safety						
	Light Vehicle Operation and Control Policy and related Standards involving community safety			Outside-the-fence safety has previously been identified as a significant issue by the ECMG. The main safety issue with Ahafo South, as is also the case with most major development projects, is traffic safety. Ahafo South has also been associated with drowning incidents, which occurred (two in 2005; one in 2009; and one in 2010). It is recognized that only one fatal traffic accident was actually associated with a Newmont vehicle and that Newmont vehicles have GPS controls to identify speeding and discipline drivers. The drowning incidents took place in spite of warnings, relevant safety signs, and community awareness-raising programs.	Observation	The issue that is being addressed by NGGL is whether or not the Company is doing all that is necessary to prevent similar accidents. This needs to be a special focus of the HSLP Department.
	Technical Standard for Medical Programs and Malaria Management Plan			From the standpoint of health, special recognition has been given to NGGL by the Global Business Coalition on HIV/AIDs, Tuberculosis and Malaria for their workplace program for HIV/AIDs and malaria, which was awarded best in category for initiatives in disease prevention and control.	Observation	NGGL deserves commendation for this special award.

Mission/ Issue No.	NGGL Document/ Commitment	Opening Date	Closing Date	Description	Level	Comments
WSF/TSF Management						
	Tailing Management Standard – IFC OP 4.37			The last remaining issue for IFC compliance still pending at the time of the 6th ECMG site visit in December 2009 was an independent review of the investigation, design, and construction of the WSF/TSF. This issue was addressed with by means of a third-party independent audit in October 2010 by Golder Associates. The draft report for this inspection dated November 2010 was reviewed by ECMG and found to be competently undertaken, with the note that we expected to see a review of the design basis for the dams, rather than just a review of how the construction and operation of these impoundments complies with design.	Observation	ECMG’s main concern with design basis is with respect to allowable freeboard, which is a function of assumed requirements for flooding. The observation that in October 2010 the freeboard at the WSF was only 30 cm, requiring the notification of regulators, ongoing community engagement and involvement of the NGGL Engineering department suggests that the design basis should be part of an independent review. It is understood that plans are in place for a freeboard review in 2011.
	Tailing Management Standard – IFC OP 4.37			The independent audit conducted by Golder did encounter some aspects of WSF/TSF management that do require significant improvement.	Observation	The most significant observation made by Golder is that the TSF has a quantity of supernatant liquid that surpasses design and extends beyond the area underlain by a synthetic liner. The independent audit also identified a concern that the consolidating tailings accumulating against the liner could result in high tensile stresses against the liner, which may result in tearing of the liner. Both issues are of particular concern as there is evidence of leakage of chemicals from the TSF.

1 EHS MANAGEMENT

1.1 PLANS AND PROCEDURES

Project Strategy:

The basic NGGL EHS and social commitments are contained in publicly disclosed documents: ESIA, the Resettlement Action Plan and the Public Consultation and Disclosure Plan. The Environmental and Social Action Plan (ESAP) that is part of the ESIA identifies the Project management programs and specific mitigation measures expected to reduce potentially adverse impacts to acceptable levels. 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 three years this system has been phased out to be replaced by an Integrated Management System (IMS) based on certification under ISO 14001/OHSAS 18001. The goals of Newmont Ahafo's IMS are as follows:

- ensuring that Ahafo management, employees, contractors and stakeholders are aware of safety, health, environmental and social issues so that all parties can effectively carry out their responsibilities in managing these issues with a goal of reducing the impact of our activities;
- facilitating the formation of the cross-functional and multidisciplinary teams necessary to meet safety, health, environmental and social challenges successfully, to ensure they are effectively communicating and monitoring their performance;
- improving risk management by identifying and addressing as early as possible potential safety, health, environmental and social liabilities identified from risk assessments, incident and accident reports, inspections, audits and observations; and
- managing change, so that safety, health, environmental and social issues associated with routine or non-routine changes in operational processes, significant process volume, facility design, and equipment modifications are identified and dealt with early enough in the planning process to avoid delays and other impediments to business goals.

An important part of NGGL's IMS is also to be certified under 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:

International Organization for Standardization (ISO) 14001:2004 and Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 certifications were completed in June 2010. This is a major accomplishment and represents the formal acknowledgement that an environmental, social and health and safety management system is now in place.

The IMS Procedures are currently framed in an overarching document entitled "Integrated Management System (IMS) Manual Newmont Ahafo Operations" developed as a part of the ISO/OHSAS certification effort, completed in 2009. In addition to the general management system standards, including Management of Change, there are ten Environmental Standards (Hydrocarbon, Chemical, Cyanide, Mercury, Tailings, Waste Rock, Waste, Water, Air Quality, and Closure and Reclamation Planning). Within the HSLP group 15 basic standards have been developed (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) to function within the OHSAS 18001 framework. An SOP Register has been developed to track the development, management and control of SOPs for both Environmental and Social Responsibility (ESR) and HSLP. In addition to the operational aspects of the IMS related to environmental and health and safety management, the IMS also covers Emergency Preparedness and Response and the requirements for checking; monitoring and measurement; evaluation of compliance; nonconformity, corrective action and preventive action; control of records; internal auditing; and management review.

An observation regarding the structure of the IMS is that many of the Environmental Standard documents do not appear to be up-to-date. Many are the same Newmont Five-Star policy documents that were

reviewed by ECMG in 2006 where we noted that they had not been adapted to reflect site-specific conditions. In particular, most indicate that they are not associated with supporting documents, but this is not the case. For example, the Environmental Standard - Closure and Reclamation Planning states that it does not have supporting documents, when in fact it is supported by a Reclamation and Closure Plan, a Reclamation and Closure Plan Revision and 10 SOPs, including SOPs for topsoil management, vegetation monitoring, and weeding.

An observation of the IMS is that NGGL does not assign different levels of either non-compliance or non-conformance to breaches in Project commitments as defined in other Plans, Procedures and SOPs. ECMG's experience with most other large development projects is that levels of non-conformance or non-compliance are assigned when Project rules are found to be broken by internal audits and inspections. The rationale for this type of classification is that it serves as a flag to senior management such that the seriousness of a particular situation is readily apparent and goes beyond a simple designation of priority as identified in the Management System Procedure for Corrective and Preventative Action (CAPA).

An issue with the IMS in its current form is with respect to the degree of incorporation of applicable IFC Guidelines, in particular the General Environmental Guidelines. The IMS contains commitments to follow IFC requirements, but some of the details are missing, specifically with respect to some environmental standards. The standards for blast vibrations, air overpressure, or noise are not stated in any of the environmental Plans, Procedures, or SOPs, but are referenced only from the old Environmental Management Plan, the contents of which are not reflected in the IMS. Water emissions standards are provided in a document entitled Ahafo Fluid Management Plan (AFMP), but this is a draft, not a final, document. In particular, the AFMP indicates that "Bacterial analysis and BOD & COD will not apply to NGGL discharges due to background levels", which is contrary to IFC requirements. The AFMP standards differ from the NGGL standards reported by Knight-Piésold in their TSF inspection reports (e.g., total cyanide; cobalt).

Project environmental standards need to be defined in the form of final documents incorporated within the IMS. In the single case where a standard is identified in a final IMS document (air emissions) the standards are stated to be those of the USEPA without actually saying what they are, which would not be a simple matter to determine from a review of USEPA regulations. The lack of an integrated presentation in the IMS is considered to be a deficiency assigned a Level I issue in Table 1.

Another observation regarding the IMS is that biodiversity issues are not addressed, except in terms of the Environmental Standard - Closure and Reclamation Planning. This situation is not considered a non-compliance as biodiversity and ecology are covered by other NGGL documents, but it is not obvious why biodiversity issues are not considered within the NGGL IMS, as they are an important part of NGGL's commitments to protect natural resources well defined in the ESIA.

The current management system applies to the ongoing open pit operations. The new Subika Underground project is currently working under its own independent management system, although environmental and HSLP staff from the Ahafo South mining is working with Subika Underground staff. The two management systems will need to merge by the time the Subika Underground project becomes operational, which implies that the existing system will need some significant revision if it is to cover the two different types of mining. Another significant part of developing a uniform IMS is that NGGL will need to incorporate current IFC standards (2007 Performance Standards and associated Guidelines) for the Subika Underground Project when it becomes operational. NGGL may wish to consider upgrading the IMS for the entire project to reflect these newer standards, or else it will be necessary to enforce different standards for the same Project footprint. Several of the HSLP Technical Standards already reflect the current (2007) IFC requirements under the EHS Guidelines for Electrical Safety (GHA-HSLP-039); Light Vehicles and Road Safety (GHA-HSLP-043); Safe Working at Heights (GHA-HSLP-044a); and Scaffolding and Scaffold Tagging (GHA-HSLP-044a). The Cultural Resources Management Plan from February 2008 incorporates a commitment to follow Performance Standard 8. Nevertheless, much of the current IMS commits to follow only the obsolete IFC requirements.

An Environmental Incident Register (EIR) continues to be available that includes the list of environmental incidents, mainly spills, but also exceedances of effluent discharges. Four Level 2 incidents were reported, the most serious being in August 2010: 4000 liters of fuel spilled from a fuel and service truck and 400 liters of decant water (process water) splashed out from a pipeline. Contaminated soil from the fuel spillage incident was observed to be treated within the new Integrated Waste Management Facility.

1.2 ORGANIZATION AND STAFFING

ECMG considers that the current organization and staffing of the Environmental and HSLP groups are sufficient to implement the IMS, but an issue that has frequently been flagged as significant to management is staff turnover. The presence of a developed IMS should help smooth over staff transitions in that performance expectations are written down, but care will be required to minimize the effects of staff turnover, in particular that staff is starting to increase responsibilities in working with the Subika Underground project.. Within the environmental group, at least, senior management is demobilizing and some staff is being transferred to NGGL's upcoming Akyem project in eastern Ghana.

1.3 RECOMMENDATIONS

1. Review the status of the IMS Environmental Standards to make sure they are up-to-date and reflect appropriate support documents;
2. Consider assigning levels of non-compliance or non-conformance to better flag action priorities;
3. The Plans and Procedures associated with biodiversity and management of invasive species should be folded into NGGL's IMS to make sure that ecology receives the same degree of attention as other topics;
4. Consider putting cultural resource management requirements of the IMS under its own topic as opposed to "Closure and Reclamation Planning". Cultural Resource Management (CRM) is independent of closure and reclamation and is effectively an independent discipline, and
5. Develop a revised IMS incorporating requirements for underground work before the Subika Underground project becomes operational. The recommended starting point is to undertake a gap analysis to identify where changes in the IMS need to be made to fully embrace the IFC Performance Standards and associated Guidelines.

2 POLLUTION PREVENTION

Pollution prevention encompasses compliance with standards for air quality, noise and vibrations, surface water contamination, groundwater contamination and the associated systems and processes in place to prevent pollution. These topics are reviewed independently.

2.1 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.

NGGL has incorporated requirements for air quality in an Environmental Standard - Air Quality Management with the following requirements:

- Sites shall identify point source and non-point source forms of air emissions for the mine life cycle of the mining facility including construction, operations, and closure and reclamation phases. This will include development and maintenance of an emission inventory to quantify all pollutants;
- Facilities that will be sources of air emissions shall be designed, constructed and operated with appropriate air pollution controls in order to comply with host country's applicable laws and regulations. If the host country's laws are non-existent or incomplete, U.S. EPA national ambient air quality standards shall be used in each case, as applied at the facility boundary. Conformance shall be modeled at the facility boundary using a relevant air quality dispersion model;
- Best Management Practices shall be adopted to control fugitive dust emissions;
- Hazardous air pollutants for which annual emissions at a facility exceed 10 short tons (9 metric tons) per pollutant shall utilize risk-based, cost-effective control technologies;
- Sites shall permit air emission sources in accordance with appropriate regulatory authorities and shall operate in compliance with conditions specified in air quality permits, licenses, and regulatory requirements; and
- Sites shall conduct a review to determine if source testing of point source emissions is warranted.

These requirements also apply to contractors.

Observations:

The monitoring of ambient air continues to be a routine aspect of environmental management. Stack emissions monitoring test results are now available and show compliance with Ghana EPA and Project requirements, although dust emissions slightly exceeded the IFC standard of 100 mg/Nm³ at the Carbon Regeneration Unit Heater Stack. PM₁₀ values above the 70 µg/m³ standard for ambient air were recorded from January to April 2010 with a peak in March (189 µg/m³ recorded at Rank Camp and 160 µg/m³ at the Mensah Kumta village). These high PM₁₀ values are likely due to Harmattam dry weather conditions, although the correlation between dust and PM₁₀ values has not been completely established.

A criticism of the Air Quality Management Standard is that there is no clear definition of what standards are to be followed. There is no mention of IFC requirements and the standard requires that the user conduct an analysis of USEPA requirements and Ghana EPA requirements to determine what are allowable ambient air and stack emissions. Although reference is made to specific standards, it is not reasonable to assume that the followers of this standard are going to know what constitutes compliance. A minor

observation is that it is not necessary to conduct a review to determine if source testing of point source emissions is warranted, as this has been established and tests conducted.

Recommendations:

1. Take baseline measurements away from the mine area to verify that the PM₁₀ concentrations are not due to the dust from stack emissions or other site activity;
2. Revise the Environmental Standard - Air Quality Management such that compliance standards are clearly defined for the major emissions sources, in particular the Processing Plant, as well as for ambient air quality. The standards should also account for the fact that there are people who live “within the fence” of the Project such that ambient air standards should also be applied to these groups of people; and
3. Verify if air dispersion models are up-to-date with respect to the current state of operations including from the Amoma pit.

2.2 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, NGGL routinely monitors both environments. Within the NGGL IMS there is no Environmental Standard for either blast vibrations/overpressure or community noise levels, although there are SOPs for both noise and blast monitoring that describe the procedures to follow for making the physical measurements. NGGL does have a Hearing Conservation Plan/Procedure where occupational noise levels are clearly defined.

In practice, noise and vibrations from blasting are being monitored under the requirements of the Social Action Plan, but it is the Environmental Management Plan (2007) where NGGL has established limits for vibration compliance to limits of 5mm/s for peak particle velocity (ppv) and 115 dB for the air blast. It should be noted that these standards are very conservative in terms of what constitutes best practice. For the ambient noise in community areas, reference is made to the World Bank’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.

Observations:

Blasting and overpressure measurements demonstrate generally good compliance with Project standards from the three pits where blasting is still taking place (Subika, Apensu and Awonsu – blasting has reported not started at the Amoma pit). The single issue has been exceedance of the Project standard of 115 dB(L) for blast overpressure from the Apensu pit more than 5% of the time. It should be noted that the Project standard is very conservative as the IFC requirement is 130 dB(L) and this level has not been exceeded. Although blasting parameters have been compliant at the Awonsu pit, the local community of Akorekrom on the north side of the pit has been the source of complaints associated with mining activities and noise. Nighttime ambient noise levels at this community have been higher than the 45 dBA IFC standard, apparently due to animal noises as well as mining activities, but as a result of the complaints NGGL has increased the frequency of monitoring and stopped mining or rock dumping on the north side of the pit at night. A rock waste sound barrier is also being constructed to minimize noise at Akorekrom village. Should this situation not be resolved, it could evolve to be a non-compliance. At the Katinka and Morokrom settlements high nighttime noise levels have also been recorded, interpreted to be caused by Subika pit east expansion activities; however, these two villages are in the process of being resettled. Both day and nighttime noise exceedances at Agbesi and Kwabena Atta villages are interpreted to originate from vehicular traffic on the Kyenasi to Ntotoroso road.

Recommendation:

1. An Environmental Standard or Management Plan for noise and vibrations is missing from the IMS, as the EMP is not a document formally incorporated as part of the IMS. This standard or plan at a minimum should define specifically what are the standards and responsibilities for implementation. Conversely, the 2007 EMP could be revised as appropriate and fully

integrated into the IMS and reference made to that document when defining the standards for blasting and noise.

2.3 WATER MANAGEMENT

Project Strategy:

The ESIA defines the need for the Project to construct a WSF, several ECDs designed for sediment control as well as Best Management Practices for erosion control, waste rock facilities, and a TSF. The Amoma pit also has an ECD with the designation of Sediment Control Structure (SCS)8. 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 and SCSs) are 50 mg/l total suspended solids (TSS) for a maximum storm event of 25-year, 24-hours precipitation. No water discharge is allowed from the TSF. Another Project commitment is that water from mine pit dewatering will be not discharged from the site, unless it meets water quality standards and conditional to Ghana EPA approval.

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. Data were not available for the newly-constructed SCS8 at the Amoma pit. 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.

The extraction of groundwater from pit dewatering has the potential for lowering the water table at community wells and also has the potential for affecting local wetlands. NGGL models groundwater extraction with the goal of predicting future conditions and the last update to this model is from a report prepared by AMEC – Geomatrix dated May 8, 2009.

Standards for water management within the IMS are provided in several documents. The basic Environmental Standard – Water Management is dated January 2006 and is a generic Newmont 5-Star document that has not been updated and serves only to define general policy. Details of what is required for water management is provided as a Water Storage Facility Management Plan dated September 2009 and the Ahafo Fluid Management Plan dated June 2008. The AFMP is a draft document. Management of the TSF is covered separately.

Observations:

Surface Water

Water quality monitoring continues to take place at compliance and surveillance points for both surface and groundwater regimes. Water quality standards are defined in the AFMP, although this is a draft document and the lack of final standards within the IMS formed the basis for assigning a Level I issue in Section 1.1 and as Item 7.1 in Table 1. A particular issue with the AFMP is that the document indicates that “Bacterial analysis and BOD & COD will not apply to NGGL discharges due to background levels”, which is contrary to IFC requirements. Also, the AFMP standards differ from the NGGL standards reported by Knight-Piésold in their TSF inspection reports (e.g., total cyanide; cobalt).

An ongoing issue with respect to surface water has been sediment loading from runoff associated primarily with the ongoing excavation of the Awonsu pit, as reflected in some high TSS readings, especially at ECD2. NGGL is currently using a device (Neutra-Mill Technology mobile chemical dispensing system) to effect a reduction in turbidity via flocculation/sedimentation in the ECDs, but measured values are still high, especially in ECD2. ECD2 was the main source of community complaints from an overflow that took place during heavy rains at the beginning of July 2010. NGGL has only one Neutra-Mill Technology

system, which does not allow for it to be used at multiple ECDs. The release of high TSS water from the ECDs is not consistent with Project commitments and assigned as a Level I issue in Table 1. This is not a severe problem in that release of high TSS during flood events is a situation experienced whether the ECDs are there or not. The issue is more with respect to providing additional controls to keep down TSS values under normal operating conditions.

Another ongoing water quality issue has been the presence of high sulfate and nitrate from pit dewatering. Sulfate is an issue from the Subika pit and sulfate above the AFMP allowable discharge limit of 300 mg/l was measured in 2010 from the discharges from ECD4 and ECD6, the two control structures downgradient of the Subika pit. Although the pit water from the Apensu pit does not have high sulfate, surface water sampling next to Apensu South waste rock dumps (upstream from Subika) does show high sulfate and sometimes high nitrate. It is understood that NGGL is constructing a collection system to prevent seepage from the Apensu South rock dump from entering the surface water regime. High nitrate assumed to have originated from blasting is found from the dewatering of all of the pits, but now especially in both the Apensu and Awonsu pits. Discharges above the AFMP limit of 16 mg/l have been recorded from ECD3 (35.3 mg/l – 2/2010) and from ECD4 (99 mg/l – 2/2010) and several measurements of discharges from ECD2 and ECD4 are close to being exceedances. These discharges are assigned a Level I issue in Table 1 as being distinct from the discharge of TSS, as they are separate problems. The adding of flocculate to the ECDs is not likely to resolve the issue of chemical discharges and NGGL needs to conduct a study that determines how these chemical enter the ECDs and what mitigation measures are required.

Elevated levels of both sulfate and nitrate are being recorded at the discharge point into the WSF. NGGL operates two storage ponds that allow for some contaminated water to be diverted to the processing plant such that this water does not enter surface or groundwater regimes, but measurements at the WSF and ECDs show that this system is not fully effective. As of July 2010 approximately 70% of all of the dewatering water from the pits was being piped to the WSF, corresponding to an amount of about 120,000 m³/month or 45 l/sec.

A new issue that started in April 2010 is the detection of ammonia in the water tested from the WSF at concentrations exceeding the NGGL standard as defined in the AFMP. Test results for ammonia are not provided for the ECDs, so it is unknown if ammonia is present at these water bodies. As ammonia is also likely to have originated from blasting activities at the pits (it is recorded above the AFMP standard of 1.0 mg/l in measurements from all of the pits), the proposed mitigations are to decrease the water table in the pits by pumping and to divert more of the contaminated water to the processing plant. A flaw with this concept is that the discharge from the processing plant to the TSF already has too high a fluid content and the supernatant liquid already exceeds the design basis for the TSF (see Section 8.2). An alternative solution is needed and NGGL has initiated a pilot program to determine the feasibility of capturing the ammonia at a treatment plant using zeolites.

Another parameter of concern observed from the test data for the pit dewatering is cadmium, which is commonly encountered at levels above the AFMP standard of 0.1 mg/l, especially from the Apensu and Awonsu pit discharges, but also from a single sample of discharge to the WSF. It has not been detected in significant concentrations at the ECDs. Manganese and iron are also commonly found at concentrations above allowable discharge limits in many of the surface water samples, including from the pit dewatering, but these elements are not considered priority pollutants and were identified as normal constituents of surface and groundwater from baseline surveys conducted for the ESIA.

The current situation that allows for the discharge of ammonia, but also high sulfate, nitrate, and cadmium into the WSF is considered to be a Level II issue in Table 1. This situation is considered serious, because discharges from the pits into the WSF have progressively deteriorated over a period of years. That the situation would have developed to the point that it could adversely impact a body of water as large as the WSF is not acceptable. Of particular concern is if cadmium starts to be routinely detected, as this is a very toxic metal (to date it has been found in only one sample at the discharge point to the WSF and not in the WSF itself). Hopefully, the treatment plant currently being planned will resolve this situation. This situation can be resolved only when non-compliant discharge to the WSF stops and water quality parameters are back in a normal range.

Groundwater

Although groundwater extraction has continued from the Subika, Apensu and Awonsu pits and the Subika Underground project has extracted groundwater beyond what required for the open pit, community wells

have yet to be impacted. Dewatering rates from the Subika Underground project are much less than projected, minimizing impact, at least in the short-term. Groundwater modeling is in the process of being updated to reflect the actual results of pit dewatering as part of the EIS preparation for the Subika Underground project, but in any case the community wells are being monitored and NGGL has plans to prevent community water supplies from being adversely impacted.

There is some evidence that groundwater resources are being impacted by both sulfate and nitrate. Monitoring well GWC-3 next to ECD6 shows sulfate contamination above the NGGL discharge limit of 300 mg/l in the shallow part of the monitoring well and the deep monitoring point shows sulfate well above background levels. It should be noted that the World Health Organization (WHO) has not derived any health-based guideline value for sulfate in drinking water, but notes that there could be taste impairment at levels above 250 mg/l. The sulfate measured from GWC-3 could originate directly from ECD6, rather than directly from the Subika pit, as ECD6 also has some occasional sulfate contamination. Anomalous nitrate levels were recorded from the shallow groundwater at GWC7 next to EDC4, which is also impacted by nitrate. The highest concentration of nitrate in the deep part of the aquifer is 9.8 mg/l (NGGL discharge standard is 16 mg/l), although most of the test results show a concentration of less than 1.0 mg/l. In the shallow part of the aquifer, the measured concentrations are generally less than 2.0 mg/l, except for a single test result from November 10, 2010 when 714 mg/l was recorded. Without additional confirmation, this value is considered suspect and probably not indicative of actual conditions. The WHO assigns a guideline drinking water concentration for nitrate of 50 mg/l to protect against methaemoglobinaemia in bottle-fed infants (short-term exposure).

Arsenic in dissolved form is present in the deep portion of Ground Water Compliance (GWC)-8, located about 2 km south of the TSF. Concentrations are typically close to the NGGL standard of 0.1 mg/l with the highest value recorded as 0.12 mg/l. Before assuming that the TSF or some other part of the mine is the source of the arsenic, it should be noted that the highest levels of arsenic were recorded at the deep part of GWC-1, located upgradient of the WSF, far from the influence of mining. The WHO drinking water standard for arsenic is 0.01 mg/l and this level is exceeded in the shallow portion of GWC-1 and the deep portion of monitoring wells GWC-4 and GWC-5. Water pumped from the Apensu and Awonsu pits exhibits arsenic slightly above the WHO drinking water standard, but significant arsenic is not measured from the Subika pit. Local community wells have arsenic in excess of the WHO standard at well WSFBH3 near Huhure-nanase Nkwanta and at well GyddbH at Ntotoroso. Arsenic at these locations also does not appear to be related to mining activities, as the locations are upgradient or side gradient from mining activities. Anomalous arsenic was also identified during the baseline surveys for the preparation of the ESIA and the basic observation is that arsenic is a naturally occurring contaminant that may be present in the local groundwater.

Manganese and sometimes iron are encountered at levels exceeding AFMP discharge standard (2 mg/l for iron and 0.1 mg/l for manganese) in many of the monitoring and community wells. WHO does not assign a guideline drinking water concentration for iron, but does assign 0.4 mg/l for manganese. The concentration of 0.1 mg/l used as a discharge standard by NGGL is based on taste, rather than health concerns. The WHO standard is generally not exceeded, although some community wells do show slight manganese exceedances. Anomalous iron and manganese was identified during the baseline surveys for the preparation of the ESIA and the basic observation is that these elements are naturally occurring and can be expected to be present in the local groundwater. Similarly, the few samples with an anomalously low pH, mainly in GWC-1, 2, 8, and 10 and in many of the local community wells are also considered to be within what was previously defined to be normal for the Ahafo mine area as part of the ESIA baseline survey.

Groundwater monitoring at and around the TSF reveals that there is some minor leakage through the liner, as low levels of free cyanide and total cyanide have been measured in the LCRS (Leachate Collection and Recovery System) below the liner (maximum concentration: 1.61 mg/l total cyanide), in the TSF Underdrain (maximum concentration: 1.87 mg/l total cyanide), and the TSF Decant (maximum concentration: 0.19 mg/l free cyanide). The AFMP assigns a discharge standard of 0.1 mg/l for free cyanide, but does not provide a standard for total cyanide, although this standard is taken to be 1.0 mg/l based on what is reported by Knight-Piésold in their TSF inspection reports. Cyanide in any form is not detected in the monitoring wells surrounding the TSF. Another indicator for leakage through the liner is with respect to dissolved cobalt, which is also found in the LCRS (maximum concentration: 0.29 mg/l), Underdrain (maximum concentration: 0.29 mg/l), and Decant (maximum concentration: 0.38 mg/l). Unlike cyanide, however, cobalt also appears in monitoring well MB-7 (maximum concentration: 0.1 mg/l) located

at the northern end of the TSF near the spillway for the WSF. The AFMP does not provide a standard for dissolved cobalt, although the NGGL standard is taken to be 0.05 mg/l based on what is reported by Knight-Piésold in their TSF inspection reports. WHO does not assign a guideline for cobalt in drinking water, primarily because it is so rare to encounter this element. The situation as currently encountered is not serious, but the presence of cobalt is interpreted to possibly indicate a small amount of leakage to the environment from the TSF, as it is not normally a naturally-occurring element, although some minor detection has been reported from other wells away from the TSF.

Recommendations:

1. Consider increasing addition of flocculates in the ECDs with more Neutra-Mill Technology systems;
2. Consider if structural modifications to the ECDs are needed to prevent downstream flooding. The design basis for a maximum storm event of 25-year, 24-hours precipitation has been exceeded to the point of downstream flooding on more than one occasion since the ECDs were constructed;
3. Evaluate whether there is anything that can be done to control leakage from the TSF (e.g., improved management of supernatant fluid; pump-back wells around the TSF) and if it is necessary to increase the number of monitoring wells and the frequency of monitoring to better characterize the nature of leakage; and
4. Evaluate the presence of low pH water in monitoring wells surrounding the TSF by comparing the recent results with past measurements to determine if there are any trends and if the current results are similar or dissimilar from baseline conditions.

3 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

NGGL's commitments are for the protection, maintenance, and rehabilitation of natural habitats, and also to assure that plans and procedures are in place and being implemented for mine reclamation activities (topsoil management; planting of vegetation to prevent erosion and encourage self-sustaining development of a productive ecosystem on the reclaimed land). An associated project with a focus on biodiversity is monitoring of the Volta River Authority (VRA) transmission line corridor, work that is conducted with the VRA.

3.1 BIODIVERSITY AND ECOLOGY

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. 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.

NGGL has strived to build alliances with local communities and with NGOs. As part of this effort, the Project entered into a biodiversity partnership with Conservation International (CI), an internationally recognized NGO and leader in global conservation. Conservation International officially entered into partnership with NGGL in 2006, but their partnership memorandum of understanding expired in February 2010.

Observations

NGGL continues to progress in its biodiversity management activities, but the partnership with CI has significantly changed with CI's modifying their organization such that the CI office in Accra has closed and their activities are currently administered from Liberia. Key CI staff members in Accra now work with a different organization, Conservation Alliance (CA), an NGO with their main offices in Accra, but also with sub-offices in Monrovia (Liberia) and Freetown (Sierra Leone). NGGL has established a relationship with CA to fulfill the commitments for biodiversity management and monitoring. The CI community projects conducted in association with NGGL are also still ongoing, in particular the two herbal plant farms of an acre each at the OLA and Ntotroso Resettlement communities, whose residents were displaced by the Ahafo South Project. The herbal farms contain a variety of herbal plant species that serve as herbal medicinal plant resources for communities and schools in an effort to expand local knowledge on how to sustainably manage natural resources. The farms are managed by local residents.

ECMG's observation is that biodiversity management working with CA will not have the same degree of external acceptance as working with CI. NGGL will need to be very transparent in their work with CA such that the extent of the work conducted can be easily appreciated by external parties.

At the time of the ECMG visit in December 2009, The Biodiversity Management Plan (BMP) and the Biodiversity Implementation Plan, which is the program to implement the BMP, were considered operational. What is still needed is the development of a Biodiversity Impact Monitoring Plan as a 5-year follow-up to the baseline surveys conducted in 2006 – 2007. CA is proposing to prepare a Field Implementation Plan that will be part of the Biodiversity Impact Monitoring Plan and has identified several key indicator species. These plans are expected to be finalized by the beginning of 2011.

Additional ecological studies include a survey undertaken by Water Research Institute to evaluate fauna and flora in the WSF in September 2010. Their report is pending, but aspects of their evaluation are expected to include the evolution of tilapia as the dominant fish species after their introduction to control mosquito larvae as part of the overall NGGL program to reduce the occurrence of malaria. NGGL is considering adding an additional species and is awaiting recommendations from this study before going forward. NGGL is also considering allowing community access to the WSF, as the reservoir offers some significant community benefits, in particular from fishing. A final decision will also need to account for community safety, as deaths from drowning have already occurred.

An observation made in Section 1.1 of this report is that biodiversity and ecological issues are not addressed in the IMS, except in terms of reclamation. Similarly, the Implementation Plan for Noxious Weeds is not part of the IMS and the SOP entitled Vegetation Monitoring for Newmont Ghana does not

even mention monitoring the presence of invasive species should they be encountered. It is unclear why biodiversity issues are not considered within the NGGL IMS, as this is an important part of NGGL's commitments to protect natural resources well defined in the ESIA.

Recommendations:

1. Consider seeking additional support from an international conservation organization, and
2. Incorporate biodiversity and ecological management into the IMS (same recommendation as with Section 1.1).

3.2 VOLTA RIVER AUTHORITY (VRA) TRANSMISSION LINE – ASSOCIATED FACILITY

Project Strategy:

A 161kV overhead power transmission line between Kumasi and Sunyani substations was constructed by VRA primarily to serve NGGL and the line is identified as an associated facility in the Ahafo South ESIA. The power line was constructed along a 30-meter wide right-of-way (ROW), extending 154-km and totaling an approximate 470-hectares, including access tracks².

In addition to supplying electricity to the mine site, the transmission line provides an alternative power supply route to the load centers located in Brong Ahafo, Northern, Upper East, and Upper West Regions of Ghana. As the IFC considers the VRA transmission line an associated facility to the Ahafo South Project, general compliance with applicable Operational Policies is required.

A Gap Analysis was conducted by an independent consultant in August 2006 to determine if there were any evident policy violations of the IFC's Operational Policies, including Operational Policies (OP) 4.04 - Natural Habitats, among others. In the Final Report produced from this exercise, it was determined that there were no major policy violations at the time of writing; however, a series of recommendations were made to ensure future compliance. Of particular significance is that part of the transmission line corridor passes through Compartment 98 of the Tano Offin Forest Reserve, which is considered as a Globally Significant Biodiversity Area. NGGL committed to conduct biannual inspections of the ROW to monitor any potential encroachment in the vicinity of Compartment 98.

Observations:

NGGL continues to conduct biannual monitoring of the VRA transmission line ROW. The last biannual inspection of the VRA transmission line corridor was undertaken in June 2010 by a joint NGGL/VRA team. CI has had involvement with the monitoring and community interaction aspects of the VRA transmission line corridor, but this responsibility might also be transferred to CA. This inspection was performed without CI or CA participation. The inspection was conducted through interviews held with resettled property owners within the ROW and by visual surveys from vehicles and on foot; findings were documented with a digital camera.

The focus areas of the inspection included:

- encroachment on forest reserves which include human activities such as logging, hunting, farming and bush burning;
- erosion that can destabilize the towers;
- entanglement of towers by climbers that can result in power outages; and
- safety compliance by dwellers along the towers.

The observations of the NGGL/VRA team are that there has been a gradual encroachment into the forest reserve consisting of illegal small scale mining (Galamsey), presence of new logging routes, and the development of several new farms since the last inspection. The inspection report recommends that these activities be halted based on a planned concerted effort between the Forest Services Division, VRA, NGGL, Conservation Alliance and the forest fringe communities to protect the Tano – Offin Forest Reserve from further encroachment.

² 472-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.

Recommendation:

1. ECMG concurs with this recommendation of the NGGL/VRA inspection team and that NGGL work with the other stakeholders to develop an Action Plan to mitigate against the observed situation.

3.3 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 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), as well as the SCS8 recently constructed to serve the Amoma pit 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. These standards are described as an Environmental Standard – Closure and Reclamation Planning. This policy document is supported by a Reclamation and Closure Plan, a Reclamation and Closure Plan Revision and 10 SOPs, including SOPs for topsoil management, vegetation monitoring, and weeding. 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.

Observations:

The experimentation undertaken by NGGL to identify workable procedures to reclaim rock slopes has been completed successfully. This research has included identifying procedures for topsoil management, optimization of topsoil and subsoil mixtures, and planting of specific plant species (approximately 40 species are considered for reinstatement). Deeply buried stockpiled topsoil does show evidence of deterioration, but it can regain viability when mixed with shallow topsoil and saprolite such that the soil is aerated; a formula of 30 cm topsoil/70 cm saprolite has proven to be acceptable. NGGL was able to demonstrate successful reinstatement at the toe of the Apensu stockpile west of the Apensu pit covering approximately 3.5 Ha, but this area is only about 10% of the area projected to be reclaimed by this time from the Reclamation Security Agreement between NGGL and the Ghana EPA made two years ago. It is emphasized that NGGL is working to achieve reclamation and that the lack of progress does not constitute any environmental emergency, but there could be financial consequences to NGGL if performance is not improved. NGGL has prepared a Reclamation and Closure Plan Revision including an updated Reclamation Security Agreement that was submitted to the Ghana EPA in October 2010 to address what is currently considered to be realistic for a reclamation schedule.

NGGL continues to follow their Implementation Plan for Noxious Weed Management developed in 2008. Ongoing work has been to implement pilot weeds control using mechanical, chemical and Integrated Weeds Management at a reclamation trial plot, assess the effectiveness of various controls, and update the invasive species management plan in the light of the results of the pilot project.

4 WASTE AND WASTEWATER MANAGEMENT

4.1 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”.

Since the preparation of the ESIA, NGGL has further quantified its commitments for waste management. Specifically, the IMS for NGGL has an Environmental Standard – Waste Management that includes wastes generated at Newmont sites through the mine life cycle and covers the generation, collection, storage, transportation, and disposal of hazardous wastes, non-hazardous wastes and wastewater. This Standard also provides policy for the use of external disposal facilities and specifically states “Sites shall conduct environmental audits of off-site treatment and disposal facilities prior to their selection to verify that the facility is engineered, and operates, in a fashion that is protective of human health and the environment. Sites shall conduct periodic follow up audits of treatment and disposal facilities.” This Standard is supported by a site-specific Waste Management Plan prepared primarily to assure compliance with Ghanaian environmental law and IFC requirements for international operations. USEPA RCRA (Resource Conservation and Recovery Act) waste management requirements were adopted as the recommended best management practices in cases where IFC guidelines or Ghanaian regulations lacked specific detail and direction (i.e. characterization of waste streams), although the document states that best management practices from the USEPA will be implemented only when feasible and practical on a case by case basis.

Observations:

One of the most difficult issues identified in previous ECMG reports has been the continued use of the Kumasi Municipal Landfill, a facility licensed by the Ghanaian Government, for the disposal of several waste streams, including some hazardous waste. The problem is that this facility does not have any leachate treatment and the leachate from this landfill that accepts hazardous waste directly enters the surface water regime. NGGL developed the policy of achieving internal, independent waste management, but as to the December 2009 ECMG audit, the use of this facility had not been fully discontinued.

For this visit, ECMG is pleased to report that the NGGL waste management practices previously identified as not being consistent with good practice during previous ECMG visits (specifically the use of the Kumasi landfill) have been rectified, as systems are now in place such that waste no longer is sent to Kumasi. The last waste stream being sent to the Kumasi landfill was oily rags, but the inauguration immediately before the ECMG site visit of a high temperature incinerator designed for the combustion of oily materials (a portable SMART ASH incinerator manufactured by Elastec/American Marine in the U.S.) has eliminated the need to send this waste to Kumasi. It is understood that NGGL is planning on acquiring a backup unit in the near future and that incineration will be a disposal option only for oily rags. Medical waste will not be incinerated by on-site incineration, but will continue to be incinerated at the Sunyani hospital until a better solution is identified. Disposal solutions are not yet available for some hazardous waste streams, but interim storage at the now-functional Integrated Waste Management Facility (IWMF) is acceptable and discontinuing waste disposal at the Kumasi facility is a major accomplishment.

The IWMF has now been functional for about a year and manages waste streams that previous to its construction were not well managed. Specifically, the volatilization pad for soils contaminated with hydrocarbons has been functional for more than a year and is proving to be effective for the treatment of soil affected by hydrocarbon spills. NGGL is testing the use of S-200 BIOGEL fertilizer to speed up the abatement (normal maturing time is about 1 yr) with significant results. Composting is now the solution for dewatered sludge and organic waste previously sent to Kumasi. The composting recipe was finalized on June 2010 with components including paper waste, wood chips, dewatered sludge, fruit and vegetable waste, and egg shells. Composting started in July 2010 but is currently suspended due to lack of sludge cakes from the wastewater treatment plant, but it was expected that operations would soon resume. The composting is being undertaken appropriately, as evidence by the lack of odor at the composting pad, and it is anticipated that the compost will contribute to the success of revegetation at waste rock piles and other areas where reclamation efforts are to be undertaken. The installation of an aerosol aspirator and a crusher with a filter for recovering mercury from waste fluorescent light bulbs has eliminated the problem of

disposing this waste. At some point in the future, it will be necessary to identify a solution for disposing the filters contaminated with mercury, but this material is easy to be safely stored and the waste glass can be disposed as inert waste at the on-site disposal pit. Leftover wood and plastic sheeting are locally recycled in an "as is" condition through authorized vendors or local institutions, such as schools. Waste plastic pipe is being stored at the IWMF until an appropriate disposal solution can be identified.

A problem previously encountered with the disposal of inert waste at the site disposal pit was the presence of flies and scavenger birds attracted to the residual organic material present on used food cans and contaminated plastic. The operation of this disposal pit has been improved with the increased use of laterite soil to cover the waste, an air gun to scare away the birds and access control to prevent any unauthorized dumping of inappropriate waste.

Another improvement to solid waste management is the installation of filter crushers for light vehicles at the IFAC, MANTRC and WBHO workshops. An additional crusher has been ordered for the Subika Underground project. The crushers significantly reduce the volume of this type of waste, allowing for the recovery of the waste oil that is sent to an accredited contractor for use as a fuel at a Tema refinery. The waste scrap metal from this operation is being recycled by the same contractor who is also accepting waste wet cell batteries for the recovery of lead. Although the procedures being followed by this contractor appear to be acceptable based on what has been described to NGGL, their recycling facility has not been audited by NGGL for the recycling of the crushed filters and wet cell batteries, which is not consistent with the Management System Procedure for Contractor Selection and Management and is flagged as a Level I issue in Table 1. Although this contractor has been audited for the management of waste oil and lubricants, new audits are required before different waste streams are included in their responsibilities. Recycling is a more difficult option for other types of household batteries. An awareness program has been initiated to prevent the inclusion of hazardous spent batteries into the waste stream and batteries are being stored at the IWMF until a final disposal option can be identified.

NGGL has been in operations for a sufficient period of time such that electronic waste (old computers, printers, etc.) is beginning to accumulate. Recognizing that Ghana has been a dumping ground for large quantities of electronic waste generated overseas and that this has been flagged as a special problem in Ghana, electronic waste is being stored in a container at the IWMF while disposal and management (e.g., a donation program) options can be evaluated and eventually implemented.

Recommendation:

1. Make sure that there are no setbacks to current practice due to equipment problems, in particular for the incinerator as it is a very small unit.

4.2 WASTEWATER MANAGEMENT

Project Strategy:

The Environmental Standard for Waste Management also covers policy for the management of wastewater and states "Wastewater shall be treated using sewage treatment plants or septic systems that are capable of producing effluents that meet applicable discharge standards." The Environmental Standard also includes the policy for effluent discharge: "The following sewage treatment plant effluent parameters shall be monitored: pH, conductivity, dissolved oxygen, suspended solids, free chlorine (if applicable), biological oxygen demand (BOD), alkalinity, nutrients and relevant microbiological parameters. The results shall be utilized to optimize plant performance."

Observations:

The two permanent Sewage Treatment Plants (STPs) are installed behind Camp A at the plant site and at the Mensah Kumtuh Camp. Treated effluent from both facilities is sent to the TSF where it is mixed with tailings decant water and recycled for processing. Raw sewage from the Rank and the Kenyasi septic tanks that had been going to the Camp A STP was diverted to the STP at the Mensah Kumtuh camp in August 2010. The export of sewage sludge to the Kumasi landfill was ended in June 2010 with the inauguration of the composting facility. Although technical difficulties associated with the use of a bulk flocculent were encountered at the time of the ECMG visit that prevented the production of sludge suitable for composting, the situation was being managed and it was expected that normal sludge production would begin in the near future. Upgrades planned at the time of the previous ECMG visit had been completed such that the

capacity of the Camp A STP has increased from 220 to 430 m³/day. The entire area is now paved and the construction of a backup retention pond is now complete.

Both the Camp A and Mensah Kumtah Camp STPs show generally good compliance for effluent discharge, with the note that the AFMP does not provide a full definition of what effluent parameters should be. Specifically, the AFMP states that all bacteriological analyses, chemical oxygen demand (COD), and biological oxygen demand (BOD) results are not applicable with the explanation “*Bacterial analysis and BOD & COD will not apply to NGGL discharges due to background levels.*” This is an inappropriate interpretation, as the quality of the receptor bodies is irrelevant to good practice management of the STPs and also in conflict with the Environmental Standard – Waste Management document. The standards should be 400 mpn/100 ml for total coliforms, <1 mpn/100 ml for fecal coliforms and <1 mpn/100 ml for E. coli. The normal BOD standard is 50 mg/l and 250 mg/l is the normal COD standard to be consistent with IFC requirements. In practice, it is noted that NGGL endeavors to comply with these additional standards and internally reported the exceedance of total coliforms at the Mensah Kumtah Camp STP to be a Level 2 non-compliance. During 2010 both STPs had exceedances with respect to effluent conductivity and total dissolved solids during the first half of the year, but was generally compliant during the second half of the year. Both plants are consistently compliant with BOD and COD and the problems with high bacteriological discharges were over by July at the Camp A STP and by September at the Mensah Kumtah Camp STP. ECMG does not consider the operations of the STPs to be non-compliant in the sense that they generally operate well and the few excursions from Project standards have already been flagged as non-compliances by NGGL.

Recommendations for Improvement:

1. Consider adding alkalinity and free chlorine to the effluent testing program as these are parameters normally monitored from STP effluent and are listed as being requirements of Newmont policy. It is noted that there is an SOP for measuring free chlorine.

5 HAZARDOUS MATERIALS MANAGEMENT

5.1 HAZARDOUS MATERIAL TRANSPORT, STORAGE, USE AND DISPOSAL

Project Strategy:

Hazardous material management is covered under a general Environmental Standard – Hazardous Material Management that is part of the NGGL IMS. There are also basic Environmental Standards specifically for hydrocarbon and cyanide management. At the Ahafo South location, the most critical hazardous material is cyanide. The Newmont Environmental Standard – Cyanide Management generally defers to the ICMC (the Cyanide Code) and includes controls to have in place to manage cyanide, including requirements for the transport of cyanide. NGGL also has controls in place to verify that fuel transport is conducted consistent under the Environmental Standard for Hydrocarbon Management.

Observations:

The ECMG observations have basically remained the same for the past several missions in the sense that hazardous materials are being properly managed. Transportation of hazardous materials is one of the activities associated with the greatest hazard, but Contractors' procedures for handling hazardous substances and segregation and management of hazardous substances are fully in place. Companies like Orica (cyanide transport) and Shell (fuel transport) have well-developed procedures to minimize the potential for accidents. Evidence that the overall system is working is that there has not been a significant spill of cyanide or fuel as part of the transport process. Good practice has been observed for the handling of hazardous materials in the workplace. Training, both for NGGL and Contractors' personnel, is continuing under NGGL's Maintenance Department responsibility.

5.2 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 plant to achieve acceptable wildlife and livestock contact concentrations (Weak Acid Dissociable [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. 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 is certified under 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:

NGGL operations continue to be certified to be in Full Compliance with the ICMC Code. The requirements of the Code are associated with comprehensive requirements for cyanide transport, and the

cyanide transportation is being managed by Orica, an international company also certified under the Cyanide Code.

With respect to cyanide waste from the processing plant, the Counter-Current Decantation plant continues to reduce the concentration of WAD cyanide by washing the tailings before they are discharged into the TSF. For 2010 (up to December 4) 0.03% of the measurements (2 out of 651 measurements) exceeded the standard of 50 parts per million (ppm) at the spigot, but the highest value recorded was only 53 ppm. The few slight excursions of the WAD cyanide entering the TSF appear to be associated primarily with power outages that prevent the efficient operation of the plant. The WAD cyanide in the actual tailings reservoir as represented by the decant water is typically less than 2 mg/l, although in May 2010 there were excursions where the decant water reached as high as 25 ppm, still below the level of concern to wildlife. Following the cyanide spill that took place on October 12, 2009, NGGL reviewed and modified its control systems and monitoring procedures to ensure such incidents do not happen in the future and has implemented corrective measures to:

- reduce the risk of overfilling the event pond during mill shutdowns;
- improve the reliability of the instrumentation and level detection systems;
- increase the event pond pumping capacity to redirect process solution more quickly during rain events;
- improve containment within the processing plant site in the event other systems fail during a process water overflow;
- improve and accelerate communication with stakeholders; and,
- improve onsite protocols and procedures.

Newmont Ghana paid a 7 million cedi (about US\$5 million) compensation to the Ministry of Environment, Science and Technology for this accidental overflow of process solution. It is understood that 45% of this compensation is intended to be used to meet some development needs of the affected communities, 40% is to be paid to the Ghana EPA and the remaining 15% to the Inspectorate Division of the Minerals Commission.

6 HEALTH, SAFETY AND LOSS PREVENTION

6.1 OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

Project Strategy:

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. A major difference is that since that first site visit the HSLP organization has prepared a complete set of plans and procedures, including for emergency response, to fulfill the requisites for certification under OSHAS 18001 requirements within the NGGL IMS. The basic standard for the HSLP within the IMS is the Management System Procedure – Occupational Health & Hygiene (September 2010) that requires the identification, management, and monitoring of occupational health and hygiene hazards within the workplace by utilizing a systematic approach that, at a minimum, includes the following:

- Occupational Exposure Limits;
- Hazard Communication;
- Training;
- Basic Characterization of the Workplace;
- Risk Assessments – both qualitative and quantitative assessments;
- Identification and Establishment of Similar Exposure Groups;
- Documented Monitoring Plan;
- Sample Identification and Tracking;
- Sample Results and Analysis;
- Employee Notification;
- Equipment Calibration;
- Hazard Control; and
- Records Management.

Community health and safety is also covered under the social plans within the IMS.

With respect to health, NGGL also has a Medical Programs Technical Standard that defines the requirements for physicals and standards for medical care. NGGL also has a comprehensive Malaria Management Plan.

Observations - Safety:

The Health and Safety program continues to improve. The effectiveness of the HSLP programs is reflected in the accident statistics. Over the past year the total recordable accident frequency ratio (TRAFR) 12-month moving average has dropped from 0.63 to less than 0.2, below target values for this indicator. There is always more work to do, but the statistics show that workplace safety is close to as good as can be expected.

A remaining concern regarding safety raised during the 6th ECMG site visit is with respect to “outside the fence” accidents, as highlighted in recent newspaper articles in the Ghanaian press. The main safety issue with Ahafo South, as is also the case with most major development projects, is traffic safety. It is recognized that only one fatal traffic accident was actually associated with a Newmont vehicle and that Newmont vehicles have GPS controls to identify speeding and discipline drivers. Ahafo South has also been associated with drowning incidents (two in 2005; one in 2009; and one in 2010). The drowning incidents took place in spite of warnings, relevant safety signs, and community awareness-raising programs. The issue being addressed by NGGL is whether or not the Company is doing all that is necessary to prevent similar accidents, but one of the focal points of the NGGL safety program has been road safety, where they are a regional leader.

Observations - Health

Occupational health procedures have previously been demonstrated to be of a high caliber. Workers' exposure is controlled through a program of monitoring and in the past this program has been shown to be effective, especially for workers exposed to lead. When test results have shown unacceptably high lead levels, the worker is removed from the job where lead exposure is an issue and his blood levels continued to be monitored and verified to return to acceptable levels.

From the standpoint of health, special recognition has been given to NGGL by the Global Business Coalition on HIV/AIDs, Tuberculosis and Malaria for their workplace program for HIV/AIDs and malaria, which was awarded best in category for initiatives in disease prevention and control. NGGL has an aggressive program to ensure the use of malaria prophylaxis by their non-immune employees and significant effort is made to engineer earthworks and drainage in such a way as to eliminate potential breeding grounds. The HSLP department also undertakes periodic outdoor space spraying, using substances approved by the World Health Organization, to further reduce the mosquito population. These efforts show a decline in malaria from about 8% of employees at the start of the program in 2006 to just 1.3% by the end of September 2010. The HIV/AIDS program includes voluntary counseling and testing services that consist of a wellbeing test for blood pressure and blood sugar, as well as a comprehensive condom distribution program that is free to employees and contractors. NGGL reports that they have a Peer Educator initiative program that delivers education on malaria and HIV/AIDS to over 10,000 people each year. The Global Business Coalition award is a significant achievement for NGGL.

6.2 EMERGENCY PREPAREDNESS AND RESPONSE

Project Strategy:

NGGL emergency preparedness and response requirements are documented in an Emergency Response Plan that contains the following basic components:

- information about hazardous materials used, including their possible safety, health, environmental and social impacts and actions to prevent or mitigate this impact in case of accident;
- procedures for communication and emergency response;
- organization and responsibilities in case of emergency, including internal and external notifications via our Rapid Response System;
- availability of the necessary resources (e.g. Trained full-time emergency responders available 24/7, fire-fighting equipment, fire truck, 2 ambulances and other vehicles, spill response equipment, personal protective equipment) in case of emergency;
- full time medical staff including doctors, paramedics, nurses available 24/7 at an on-site clinic;
- methodology, plans and resources for medical evacuations;
- training for key personnel with emergency response responsibilities;
- testing of emergency response plan (e.g. simulation drills, actual drills); and
- periodic review of plan, including after the occurrence of incidents or emergency situations.

Additional aspects of emergency response are documented in the portions of the IMS dedicated to Accident/Incident Reporting and Investigation.

Observations:

The HSLP organization is fully staffed and equipped for emergency response. A deficiency noted internally by NGGL was with respect to hazmat training, but this has been undertaken over the past year and much of the future training will be focused on refresher courses. The Emergency Response Plan is being revised to make it more of a hands-on document, rather than a policy document; it will be better linked to other emergency response documents like the Emergency Preparedness Plan for the WSF/TSF.

7 CULTURAL RESOURCE MANAGEMENT

Project Strategy:

Cultural resource management is defined within the NGGL IMS as a Cultural; Resource Management Plan dated February 2008 as a “related document” under the topic of Closure and Reclamation Planning. This Plan was developed in accordance with Newmont’s internal standard for the management of heritage sites and IFC Performance Standard 8 – Cultural Heritage (formerly Operational Policy 4.11 Physical Cultural Resources). During the process of achieving ISO 14001 compliance, some deficiencies to this document were identified, specifically with respect to its requirements for curating survey findings, recording data, and having a mechanism to involve local stakeholders in a periodic review of the Plan. Additional details to cultural resource management are now also provided in a Cultural Resource Management SOP.

Observations:

Archaeological surveying in the Ahafo South area corresponding to the Subika, Apensu and Awonsu pits was completed with the submission of site excavation reports in July 2008. After that time work carried on in the area of the Amoma pit, which since beginning operations in the third quarter of 2010 has become integrated into the Ahafo South project. The original archaeological baseline survey of the Amoma pit area was completed in February 2008 along with the rest of the Ahafo South and Ahafo North lease areas. From this initial study two archaeological sites were identified to be within the footprint of the Amoma pit and were subsequently excavated and studied by AMEC Geomatrix working in association with Dr. Yaw Bredwa-Mensah, a Senior Lecturer in the Department of Archaeology at the University of Ghana, Legon-Accra.

The two sites identified are significant in the context of the prehistory of Ghana. The first site was an iron smelting furnace that required excavation and evaluation of 1,803 square meters of ground surface. The site was dated to be approximately 2,000 years old and represents one of the very few documented iron smelting sites identified in Ghana and the details of the finds document how ancient people made iron from hematite ore encountered as nodules in local laterite. The second excavation is a Late Stone Age Kintampo culture site associated with the manufacture of stone tools similar to what was encountered at the Awonsu pit. NGGL is evaluating options for the final disposition of the collected artifacts from the Amoma pit and from the similar study conducted at the Awonsu pit that could include placement in a future on-site heritage museum or another existing secure location within Ghana.

Previous ECMG trip reports have highlighted a deficiency to NGGL’s CRM program in that site field personnel were not trained to identify cultural materials and archaeologists were not always present to identify inadvertent or chance finds made at the time of groundbreaking. This training has now been initiated with staff from the environmental group in accordance with the chance finds requirements of IFC Performance Standard 8 by Dr. Bredwa-Mensah. The Cultural Resource Management SOP clarifies that the Environmental Reclamation Superintendent also has the position of being the Cultural Resource Manager with responsibility for implementing the CRM Plan. Given that it can be difficult to identify cultural heritage sites in the field prior to groundbreaking, it is expected that some chance finds will be made. The Cultural Resource Management SOP also provides specific requirements for the preservation of archaeological collections and cultural heritage resources beyond what was presented in the original Management Plan and requires that the Cultural Resource Manager negotiate a curation agreement with a national repository, museum, the University of Ghana, or other approved facility for final curation of artifact collections and associated records removed from land controlled by NGGL.

8 TAILINGS STORAGE FACILITY (TSF)

Project Strategy:

The TSF was designed by Knight Piésold Pty Ltd in 2004. The design of the tailings pumps, pipework and return water system were carried out by Lycopodium Engineering Pty Ltd. 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 TSF comprises a valley storage located 2 - 3 km west of the plant site. The storage is approximately 2,000 m from north to south and has a decant tower that is equipped with two pumps and a spillway on the west side. The basin area is lined with HDPE over 50% of the area and 50% with low permeability soil liner (1×10^{-8} m/s) and has an underdrainage network on top of the liners which flows by gravity to an inclined underdrainage sump at the south embankment. In addition, the facility has a leachate collection and recovery system beneath the liner that was constructed as part of the starter facility and flows by gravity to a separate inclined sump at the south embankment. Stage 5/6 of the TSF was completed in 2010 to provide an additional two years of capacity. 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.

Observations:

The last remaining issue for IFC compliance still pending at the time of the 6th ECMG site visit in December 2009 was an independent review of the investigation, design, and construction of the WSF/TSF. This issue was addressed with by means of a third-party independent audit in October 2010 by Golder Associates and NGGL now complies with the requirements of IFC OP4.37. The draft report for this inspection dated November 2010 was reviewed by ECMG and found to be competently undertaken, with the note that a review of the design basis for the dams was expected, rather than just a review of how the construction and operation of these impoundments complies with design.

As noted in previous ECMG audit 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. The results of the dam break analysis conducted as part of the preparation of the Emergency Preparedness Plan indicates that the potential for human impacts does exist and table top drill scenario have been conducted with the anticipation that drills involving local communities will be conducted in the field. The main difference in design between a significant hazard versus a high hazard dam is with respect to the design flood, which in the former is commonly the 100-year flood (the current design basis) as opposed to a Probable Maximum Flood (PMF). The observation that in October 2010 the freeboard at the WSF was only 30 cm, requiring the notification of regulators, ongoing community engagement and involvement of the NGGL Engineering department suggests that the design basis should be part of an independent review. It is understood that plans are in place for a freeboard review in 2011.

The independent audit conducted by Golder did encounter some aspects of WSF/TSF management that do require significant improvement. These aspects have also generally been identified by the reviews conducted for NGGL by the designer Knight-Piésold and include:

- increase and maintain the solids content in the tails stream near the design intent of 47% to improve the beach profile and promote tailings consolidation; and
- develop and implement an action plan to bring the supernatant pond volume back into the design range. The supernatant pond has exceeded the HDPE lined area, and has encroached into the clay lined area – which is in conflict with the design intent.

The independent audit also identified a concern that the consolidating tailings accumulating against the liner could result in high tensile stresses against the liner, which may result in tearing of the liner. As noted from the results of groundwater monitoring, there is already evidence of slight leakage from the TSF,

which could be associated with small tears or simply because the supernatant pond area has exceeded the portion of the TSF underlain by HDPE.

Although there is room for improvement, it is emphasized that the basic conclusion of the independent audit is that *“the TSF/WSF have been designed and constructed in accordance with generally accepted geotechnical practices and protocols implemented by similar operations operating in similar environments. The current performance of the structures comprising the TSF and WSF are consistent with the observation of good engineering design practice. A few design issues were identified for follow-up or documentation, however these do not represent a “fatal flaw” for the current operation of the facilities.”*

The overall process for evaluating potential failure modes of the TSF/WSF, conducting flood routing analyses to identify potentially impacted areas, preparing an Emergency Preparedness Plan, and most recently having Golder Associates undertake an independent inspection represents all of the steps for IFC compliance. NGGL now complies with the requirements of IFC OP4.37.

Recommendation:

1. Re-consider the hazard classification of the TSF. Conventional practice as defined by guidelines such as ICOLD would classify a large dam as high hazard if people live in the inundation area (repeat recommendation).