SUMMARY AUDIT REPORT

for the January 2009
International Cyanide Management Code Audit

Prepared for:
Golden Star Resources Ltd., Bogoso/Prestea Operations

Submitted to:
International Cyanide Management Institute
1200 "G" Street NW, Suite 800
Washington, D.C. 20005

3 September 2009

GeoEngineers, Inc.
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SUMMARY AUDIT REPORT

Name of Mine: Bogoso/Prestea Mine

Name of Mine Owner: Golden Star (Bogoso/Prestea) Limited.

Name of Mine Operator: Golden Star (Bogoso/Prestea) Limited.

Name of Responsible Manager: Nigel Tamlyn, General Manager

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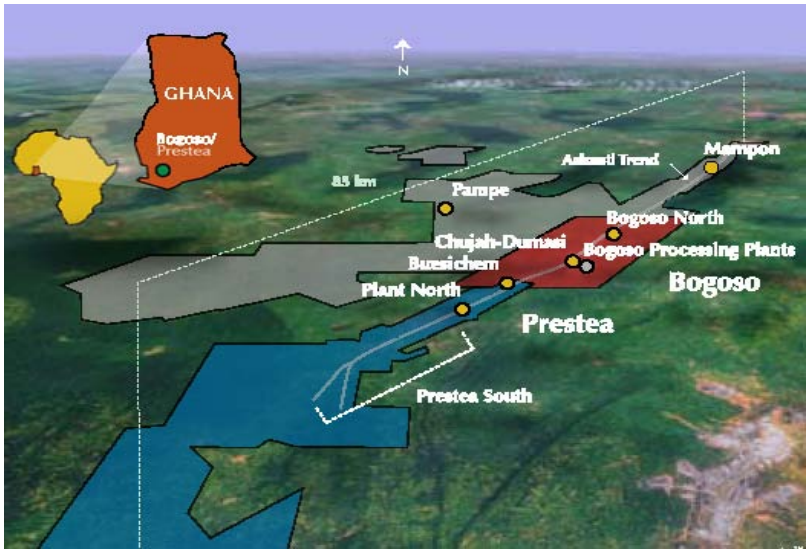
Location detail and description of operation:

Golden Star Resources Ltd. (Golden Star) owns a 90% interest in the Bogoso/Prestea gold mine, with 10% carried interest held by the Government of Ghana. The mine is located approximately 300 km from Accra in the Prestea Huni Valley District of the western region of Ghana.



The Bogoso/Prestea property covers approximately 85 km of strike length and is the largest landholding in the Ashanti Trend. Although historically the mine has produced oxide ore, 80% of reserves are now refractory sulphide ore that is processed through a new sulphide processing facility that uses BIOX® bacterial oxidation technology.

Gold concentrate from the standard flotation circuit is pumped into a stock tank and mixed with nutrients. The mixture is transferred to BIOX® reactor tanks where bacteria with the aid of oxygen convert the sulfide minerals to oxides. The oxide minerals and the acidic bacterial solution are separated by decantation in a three-stage counter current decantation (CCD) circuit, where the minerals are washed and thickened to remove the acid solution from the gold bearing mineral. The waste acid is neutralized by the addition of lime and the bacterial solution is returned to the reactor tanks. The gold bearing material to then transferred to a carbon-in-leach (CIL) circuit to extract the gold which is later recovered in an elution circuit.

SUMMARY AUDIT REPORT
Auditors' Finding

The operation is: ☐ **in full compliance**
■ **in substantial compliance** * (see below)
☐ **not in compliance**

with the *International Cyanide Management Code.*

*The Corrective Action Plan to bring the operations noted as being in substantial compliance consists of several discrete Corrective Action Request (CAR) documents, which are included as Appendix A. All CARs must be fully implemented within one year of the date of this audit.

Audit Company: **GeoEngineers, Inc.**
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USA

Audit Team Leader: John Lambert
e-mail: jlambert@geoengineers.com

Names and Signatures of other Auditors

Mark Montoya

Date(s) of Audit: 12 January to 16 January 2009

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors. I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the *International Cyanide Management Code Verification Protocol for Gold Mine Operations* and using standard and accepted practices for health, safety and environmental audits.

Signed before me at North Vancouver B.C.
By John Lambert on 8 September 2009

A Notary Public in and for the
Province of British Columbia

Bogoso/Prestea Mine
Name of Mine

Signature of Lead Auditor

3 September 2009
Date

LORRAINE E. JOHN
Notary Public
[illegible] Lonsdale Avenue
North Vancouver, B.C. V7M 2H9
Phone: (604) 985-4150

SUMMARY AUDIT REPORT

1. PRODUCTION **Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.**

Standard of Practice

1.1 Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 1.1

Discuss the basis for this Finding/Deficiencies Identified:

Golden Star (Bogoso/Prestea) Limited (GSBPL) purchases sodium cyanide exclusively from the Orica Australia Pty Ltd (Orica) manufacturing plant located in Yarwun, Queensland, Australia. The Cyanide Supply Agreement between Orica and GSBPL requires that the production facility complies with the International Cyanide Management Code (ICMC). Examination of the International Cyanide Management Institute (ICMI) website and evaluation of certification reports provided to GSBPL by Orica confirm the current certification status of this facility.

2. TRANSPORTATION **Protect communities and the environment during cyanide transport.**

Standards of Practice

2.1 Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 2.1.

Discuss the basis for the Finding/Deficiencies Identified:

Bogoso/Prestea Mine		3 September 2009
Name of Mine	Signature of Lead Auditor	Date

The Cyanide Supply Agreement between GSBPL and Orica states that Orica is responsible for the handling, storage and transport of sodium cyanide from its plant in Yarwun to the site and must comply with the provisions of the ICMC. GSBPL is responsible for transport, unloading, storage, security, prevention of losses, personnel training and emergency response activities once they are in procession of the product. The responsibilities of each party are further detailed in a *Sodium Cyanide Transportation Protocol for Bogoso Gold Limited and Wexford Goldfields Limited,* prepared by Barbex Technical Services Limited (Barbex), Orica's agent and transporter within Ghana.

Orica has engaged subcontractors to provide transportation services from Yarwun to the Port of Brisbane (Toll Resources); shipping from the Port of Brisbane to the Port of Takoradi (Mediterranean Shipping Company); and transport from the port of Takoradi to a transfer facility at Tarkwa, operation of the transfer facility, and transport from the transfer facility to GSBPL (Barbex). Each subcontractor along the supply chain is either certified to the ICMC or has been verified to meet the ICMC through third party audits commissioned by Orica.

2.2 Require that cyanide transporters implement appropriate emergency response plans and capabilities, and employ adequate measures for cyanide management.

The operation is: ■ in full compliance
□ in substantial compliance
□ not in compliance…with Standard of Practice 2.2.

Discuss the basis for the Finding/Deficiencies Identified:

The Sodium Cyanide Supply Agreement states that Orica is responsible for the use, handling, storage and transport of the cyanide up to the point at which risk transfers to GSBPL. The Agreement also requires Orica to comply with the provisions of the ICMC. Orica is therefore responsible for ensuring that its transportation contractors meet the Code and thereby have appropriate emergency response plans and capabilities, and that their measures for cyanide management are adequate.

Orica has provided GSBPL with copies of ICMC certification audit reports, third party due-diligence verification audits, or ICMC-equivalent non-certification audit reports for each link of the transportation route between the processing plant in Yarwun, to the mine site in Ghana. These include:

- Orica Mining Chemicals, ICMC Cyanide Transportation Certification Audit, Cyanide Transportation (Northern Territory, Queensland and New South Wales) Summary Audit Report, Golder Associates Pty Ltd, dated February 2007. (This audit includes the shipment of cyanide between the Yarwun Plant and the Port of Brisbane)

- Orica Australia Pty Ltd., Third Party Code Equivalent Transportation Audit, Ghana, Golder Associates Pty Ltd, dated May 2008. (This audit included the shipment of cyanide between the Port of Brisbane and the Port of Takoradi);
- Internal Due-Diligence Assessment of Mediterranean Shipping Company, completed by Orica Mining Chemicals, April 2007. (This audit was reviewed by Golder during a third party due-diligence verification audit (see below) and found to meet the requirements of the ICMC); and
- Barbex Technical Services Ltd, Cyanide Transportation Audit, Ghana, West Africa, Summary Audit Report, Golder Associates Ltd, November 2007 (This third party due-diligence verification audit included the shipment of cyanide between the Port of Brisbane and the Port of Takoradi).

The audit reports demonstrate that Orica meets the transportation requirements of the ICMC throughout the supply chain between the production plant in Yarwun and GSBPL mine site. These audits were conducted by an auditor or auditors meeting ICMI criteria. The audit reports have been approved by an ICMI-approved ICMC Lead Auditor, and all have been conducted within the previous 3 years.

3. HANDLING AND STORAGE Protect workers and the environment during cyanide handling and storage

Standards of Practice

3.1 Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 3.1.

Discuss the basis for this Finding/Deficiencies Identified:

The cyanide sparge facility is located within the secured area of the GSBPL plant facility, which is surrounded by chain link fence (topped with razor wire) and guarded 24 hours per day by security personnel. Additionally, the reagent yard in which the sparge facility is located, has a secondary security fence topped with razor wire, which is also locked and guarded by security personnel allowing authorized entry only. The plant site is over 800 m from the nearest habitation and approximately 400 m from the nearest surface drainage. The secondary containment at the sparge facility is constructed of reinforced concrete with an acid-resistant paint coating.

Sodium cyanide is delivered to the site by Barbex as solid cyanide pellets contained in isotanks. The truck carrying the isotank parks on a concrete apron that drains to a concrete bund surrounding the tanks, which is hydraulically linked to an adjoining concrete bund provided for the caustic tanks. A system of concrete channels within the plant site act as tertiary containment, capturing and conveying any site drainage to a concrete basin (Event Pond 1) located near the crushed ore stockpile.

Sparging refers to the mixing of the sodium cyanide solids in the isotank by circulating the water in the cyanide sparge mixing tank. Flexible hoses are used to attach the isotank to the mixing tank while all valves are in the closed position, minimizing the potential for human exposure. Following the sparging event and rinsing, Barbex removes the empty isotank from the site. Therefore, the only storage of cyanide occurs in the mixing and storage tanks.

The truck carrying the isotank parks on a concrete apron that drains to a concrete bund surrounding the tanks, which is hydraulically linked to an adjoining concrete bund provided for the caustic tanks. A system of concrete channels within the plant site act as tertiary containment, capturing and conveying any site drainage to a concrete basin (Event Pond 1) located near the crushed ore stockpile. The cyanide mixing and storage tanks are situated on concrete plinths (ring beams) located within a concrete bund. A sump with an automated pump returns any collected solution to the mix tank or storage tank. Another sump returns precipitation water to the caustic solution tank, if necessary. Both the mixing tank and storage tank are equipped with automatic level indicators and audible/visual high-level alarms.

The design drawing GRD Minproc drawing (No. P2024-05/C-300) shows a 150-millimeter thick mass concrete slab on the inside of the concrete ring foundations for the mixing and storage tanks demonstrating that an impermeable barrier exists between the tank bottoms and the ground. GSBPL contracted an independent professional engineer to conduct a drilling test on the two concrete foundations to ascertain and certify that the top of the tank foundations are capped with at least 150 millimeters of concrete. According to the results of the test, the engineer certified that the ring beam foundations for the cyanide mixing tank and the cyanide storage tank were constructed according to design (GRD Minproc drawing No. P2024-05/C-300). GSBPL provided certified copies (dated June 15, 2009) of the third party engineering report and the design drawing.

3.2 Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 3.2.

Discuss the basis for this Finding/Deficiencies Identified:

Sodium cyanide is delivered to the site by Barbex as solid cyanide pellets in 20 tonne bulk isotank containers. The truck carrying the isotank parks on a curbed concrete apron, which is sloped to drain to the concrete bund surrounding the mixing and storage tanks. The concrete bund provides secondary containment for any spills. A sump with an automated pump returns any collected solution to the mix tank or storage tank.

GSBPL has developed and implemented a detailed procedure for safe unloading and mixing of cyanide that provides detailed sequences for each component of the activity including the operation of all valves, couplings and pumps. The procedure lists required personal protective equipment (PPE) and requirements for first aid equipment, including the requirement to have an ambulance parked at the sparge facility during the event with a first aid person as an observer.

Two GSBPL operators perform the sparging procedure. The Barbex truck driver moves to a safe location after parking the delivery truck and does not participate in the sparging activity. GSBPL operators make connections to the truck, open the valves and contact the plant control room to initiate the sparging from a remote location.

Following a sparging event, the isotank is rinsed two times with raw water for seven minutes each time, and then drained. All valves on the isotank are then closed and Barbex removes the empty isotank from the site for reuse.

***4. OPERATIONS* Manage cyanide process solutions and waste streams to protect human health and the environment**.

Standards of Practice

4.1 Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

The operation is:
- □ in full compliance
- ■ in substantial compliance
- □ not in compliance…with Standard of Practice 4.1.

Bogoso/Prestea Mine		3 September 2009
Name of Mine	Signature of Lead Auditor	Date

Discuss the basis for the Finding/Deficiencies Identified:

GSBPL has developed written management and operating plans and procedures for the cyanide facilities. The active cyanide facilities at the GSBPL operation include the cyanide sparge facility; semi-autonomous grinding (SAG) and ball mills and regrind circuit; BIOX® CIL plant; Oxide CIL plant; carbon wash circuit; elution circuit; process water pond; tailings distribution and reclaim water pipelines; Tailings Storage Facility (TSF) I (no longer receiving tailings); TSF II (Cells 1, 2 and 2A); and cyanide detoxification system. The operating plans and procedures developed and implemented by GSBPL cover safe operation of the entire cyanide management facilities. These and the regulatory requirements, form the basis of the facility design and operation.

The TSF is designed in accordance with the general requirements and currently accepted practices in Ghana. Knight Piésold designed the TSF and developed the operations manual for the TSF. The TSF Operations Manual provides a description of the operating requirements, a set of clear operating procedures, a list of responsible personnel, and typical operation and contingency plans for a number of emergency situations. The primary operating objectives are to protect the environment and remove water from the tailings, thus increasing the tailings density to the maximum extent possible. This is accomplished by using sub-aerial deposition methods to form air-dried beaches and by minimizing the supernatant pond area.

The TSF Operations Manual provides the water management procedures and inspection program for the TSF. The procedures call for removing water as rapidly as possible and keeping the supernatant pond as small as possible by maintaining the depth only high enough to float the pump barge and prevent solids from being sucked into the pump. Reclaim water is transferred to the process water pond at the plant for process makeup. The inspection program provides for daily, weekly and quarterly inspections of the TSF. The inspections cover (amongst other items) tailing beach levels; supernatant pond location, elevation and depth; operation of decant pumps; pipelines; embankment integrity; seepage sumps; and water balance.

GSBPL has implemented a change management procedure, which identifies a Risk Assessment Team. According to the procedure, the team must approve written notifications of proposed changes to cyanide facilities before the changes are instituted. The procedure also employs a risk assessment procedure to evaluate proposed changes.

Subsequent to the audit, GSBPL installed level sensors at the process water pond and adjoining raw water pond, which are continuously monitored in the plant control room via the online SCADA system. The sensors are alarmed to alert mill control room personnel when water elevations rise above normal operating levels. GSBPL also implemented the Procedure for Managing Upsets in Operational Water Balance, Prior to and to Avoid

Overtopping of Ponds/Impoundments (Procedure 046), which provides actions to take in the event the normal operating level in the pond system is exceeded. Although GSBPL has contingency procedures in place for monitoring upset conditions at the process water pond, inconsistencies between the field procedures and associated written procedures require rectification. Refer to CAR **GSBPL-ICMC-CAR-01** in Appendix A.

The Cyanide Equipment Inspection Training Procedure (Procedure 044) and the related daily inspection checklist provides for daily inspections of the pond system capacity. The process water pond has a lined overflow channel with an invert elevation located approximately 40 centimeters below the embankment crest, which is connected to the adjoining raw water pond. The raw water pond has a concrete spillway with an invert elevation located at 70 centimeters below the embankment crest. The raw water pond spillway conveys overflow from the pond system to Event Pond 1 via a concrete channel. Therefore, based on the provision for an automated and controlled overflow to a secondary containment basin, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

The regulatory permit that GSBPL has with the Environmental Protection Agency (EPA) establishes specific effluent quality guidelines for discharges into natural water bodies. The operating procedure for the cyanide detoxification plant currently incorporates the EPA water quality guidelines as the allowable discharge standards (see section 4.5 below).

GSBPL utilizes an online cyanide monitor and controller (TAC 2000 system) to regulate, and minimize, cyanide addition at the CIL plant. The controller monitors plant parameters and online actual titrated cyanide values to determine how much cyanide should be added to drive the plant toward a desired set point.

GSBPL has a formal inspection procedure and checklist for performing and documenting daily inspections of the process areas. This daily inspection procedure includes checking for cracks in the concrete containment floors at the sparge facility and CIL circuits. However, no records were provided showing evidence that the other secondary containments described above are being inspected on a routine basis. Refer to CAR **GSBPL-ICMC-CAR-02** in Appendix A. Prior to the onsite verification audit, inspections of cyanide facilities at the process areas conducted by operations personnel were not on a specific schedule and were not documented in a logbook or on an inspection checklist. Nonetheless, according to GSBPL personnel interviewed during the onsite audit, operations personnel had been inspecting process facilities on a regular basis and work orders provided the only form of inspection documentation. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

GSBPL implements a Preventative Maintenance (PM) program and uses a software program to schedule and track maintenance work. The PM program covers pumps, CIL tank agitators, the elution circuit, the fine carbon thickener, emergency eyewash/shower equipment, and the automatic level indicators and alarms on the mixing and storage tanks.

The maintenance department also conducts random inspections (over inspections) to confirm that previous maintenance work has been completed properly.

In addition to the PM program and inspections performed by maintenance personnel, operations personnel write work orders when issues requiring repair are identified at the sparge facility and CIL plant (process areas). The maintenance department evaluates work order requests on a priority basis, and emergency repairs are executed ahead of all scheduled work.

The inspection sheets, checklists and work orders document the inspector, observed deficiencies and nature of corrective actions. Hard copy records of the TSF inspections are retained and the PM checklists and work orders issued by operations personnel are retained on the software system.

GSBPL does not currently have an emergency power supply, although at the time of the onsite verification audit a backup power facility was under construction. In the event of a power failure, the milling and process circuits cease; water inputs stop and pumping of tailings from the plant to the TSF also ceases; therefore, no additional tailings enter the TSF and any drain back from the tailings line is captured in Event Pond 2 located near the plant.

4.2 Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 4.2.

Discuss the basis for this Finding/Deficiencies Identified:

GSBPL processes both oxide and sulfide ores. Oxide ores are processed via the Oxide CIL circuit and sulfide ores are processed via the BIOX® CIL circuit. Prior to entering the BIOX® CIL circuit, sulfide flotation concentrate is treated in a BIOX® process circuit. During the onsite verification audit, the Oxide CIL circuit was not active.

GSBPL utilizes an automated online cyanide monitor and controller to regulate, and minimize, cyanide addition at the CIL plant. The controller monitors plant parameters and online actual titrated cyanide values to determine the amount of cyanide that should be added to drive the plant toward a desired set point. The control system determines the amount of pulp entering the plant and adds cyanide in proportion. When pulp is not being transferred, the system stops adding cyanide.

To optimize recovery and minimize cyanide consumption, the operation attempts to maintain Free cyanide concentrations at the head tank (BIOX® CIL Tank 1) at 650 mg/l (set

point). Over the past several months, GSBPL has been refining its CIL process to reduce cyanide consumption and lower cyanide concentrations at the tailings hopper to 50 mg/l WAD. This target concentration is based on ICMC criteria for protection of wildlife. In addition to the automated online cyanide monitor and controller, GSBPL has implemented a procedure to manually sample and analyze CIL feed slurry to optimize cyanide consumption.

4.3 Implement a comprehensive water management program to protect against unintentional releases.

The operation is:
- □ in full compliance
- ■ in substantial compliance
- □ not in compliance…with Standard of Practice 4.3.

Discuss the basis for the Finding/Deficiencies Identified:

A water balance model has been developed for TSF II (Cells 1, 2, 2A and 3) using Microsoft® Excel® software. TSF I no longer receives tailings and GSBPL is currently dewatering the facility in advance of closure. Nonetheless, in the past, GSBPL has utilized TSF I as a receptor for TSF II decant water. The water balance model is used to evaluate conditions for average rainfall, 1 in 100 wet year rainfall, 1 in 20 wet year rainfall, and 1 in 20 dry year rainfall. The model was calibrated using meteorological data collected between 1939 and 2004 from the Tarkwa weather station, located approximately 35 kilometers southeast of the site. Data is currently collected at an onsite station located at TSF II. The TSF is operated such that it maintains adequate capacity to contain inflow from the 100-year, 24-hour storm event (300 mm) plus one meter of freeboard. On average, the GSBPL site receives approximately two meters of rainfall annually with approximately one meter of evaporation.

The water balance model accounts for runoff generated by precipitation from any upgradient watersheds surrounding the TSF. Surface water drainage collected at the plant site is collected and pumped to TSF I. The model also accounts for allowable seepage to the subsurface. The TSF is an unlined facility and the embankments are designed with upstream and downstream toe drains to collect and convey seepage to sumps which is then returned to the TSF impoundment by pumping over the embankment adjacent to the sump. Supernatant and surface runoff water is pumped back to the process water pond for reuse in the process circuits. Excess water is treated and discharged to surface water, as necessary.

During the wet season, the water balance is in a positive state, with the requirement to move water from TSF II to a water holding facility (i.e., TSF I or an alternate cell of TSF II) or provide detoxification and discharge to surface waters. The current detoxification plant consists of a series of five ponds, which utilize Hydrogen Peroxide and Copper Sulfate to

detoxify cyanide. Further reduction in metals and conductivity and final reduction in cyanide is provided by passing the detoxified water through a treatment marsh system, downstream of the detoxification plant, prior to final discharge to the receiving environment. The detoxification plant capacity (400 m^3 per hour) is capable of treating the maximum requirement for 2009 (371 m^3 per hour) that would occur during a 1 in 20 wet year condition.

The water balance model does not consider the effects of potential power outages or pump and other equipment failures. GSBPL does not currently have an emergency power supply, although a backup power facility is under construction. In the event of a power failure, the milling and process circuits cease and water inputs stop; pumping of tailings from the plant to the TSF also ceases; therefore, no additional tailings enter the TSF.

GSBPL performs comprehensive inspections of the TSF including individual daily inspections by the operators, shift supervisors, and the tailings supervisor, and quarterly inspections by the design engineer. The inspections cover (amongst other items) tailing beach levels; supernatant pond locations, elevation and depth; operation of decant pumps; pipelines; embankment integrity; seepage sumps; and water balance. GSBPL also inspects the operating level of the process water pond on a daily basis.

The September 2008 and January 2009 TSF inspection reports completed by the design engineer concluded that the supernatant ponds in all cells were larger than recommended and that beach widths were consequently insufficient. The reports recommended that supernatant ponds be reduced as a matter of urgency. Construction of an emergency spillway was also recommended between Cell 2 and 2A to reduce the risk of overtopping. The large supernatant ponds and narrow beaches were a result of problems that GSBPL was experiencing with its cyanide detoxification plant as the system has not been effectively reducing conductivity and cyanide levels to acceptable discharge standards. GSBPL is currently performing laboratory work to determine the optimal chemical dosing rates and removing lime from the first pond in the circuit ahead of re-commissioning the plant. Additionally, GSBPL is conducting test work to evaluate options for implementation of a new treatment system, which can more effectively reduce conductivity and cyanide levels. Refer to CAR **GSBPL-ICMC-CAR-03** in Appendix A.

Recent quarterly inspections of TSF II performed by Knight Piésold conclude that generally, all the confining facility embankments are in sound condition with no evidence of any structural problems, and no obvious signs of seepage on the faces or at the toes of any of the embankments. Additionally, water quality data downgradient of the TSF demonstrate that seepage and indirect discharges have not caused cyanide concentrations in groundwater or surface water to rise above levels protective of beneficial use. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR

4.4 Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation is: □ in full compliance
■ in substantial compliance
□ not in compliance…with Standard of Practice 4.4.

Discuss the basis for the Finding/Deficiencies Identified:

TSF I, TSF II and the process water pond are the only facilities at the GSBPL site where process solutions are open to the environment. Physical barriers to restrict wildlife access (e.g., fencing and covering or netting of open solutions) are not currently provided at TSF I, TSF II or the process water pond. GSBPL's rationale for not implementing restrictive measures at these facilities is discussed below.

TSF I no longer receives tailings, and during 2008, WAD cyanide concentrations in the supernatant pond ranged between <0.1 and 23.4 mg/l. Typically, WAD cyanide concentrations in TSF I are below the detection limit; however, decant water was pumped into the facility in July 2008 for water balance purposes causing the concentration levels to rise.

The process water pond serves to store reclaim water from Cell 3 of TSF II, which only receives neutralized flotation tailings slurry from the BIOX® circuit, and therefore does not contain cyanide. The process water pond also receives various other process streams, which do not contain cyanide. However, in the past, the pond has received reclaim water from Cell 2, which contains cyanide and as a result, cyanide has been detected in the pond. The feed line from Cell 2 has since been decoupled from the system, and Free cyanide concentrations in the pond are now below 0.07 mg/l.

Cells 1, 2 and 2A of TSF II receive tailings from the CIL circuit. WAD cyanide levels in the supernatant ponds in these cells ranged between <0.01 and 39.3 mg/l, averaging <12 mg/l over the year. Nonetheless, WAD cyanide concentration data for the spigot discharge for these cells between March and November 2008 show ranges up to 498 mg/l.

GSBPL conducts daily inspections of the TSF. These inspections include monitoring for the wildlife mortalities. According to environmental personnel interviewed, GSBPL has not had any cyanide-related wildlife mortalities, to date.

Because of the potential for WAD cyanide concentrations on the TSF beaches to exceed 50 mg/l, GSBPL commissioned the Ghana Wildlife Society (GWS) to conduct a wildlife survey, to assess the effects of cyanide concentrations on wildlife at the tailings discharge points, beaches and ponds. GWS focused its survey on bird species, based on its opinion that birds offer the most favorable combination of attributes for the study. The stated objectives of the survey were to obtain a complete species list for wildlife species, particularly birds that use the various ponds at the various sources; determine the main activities performed by birds in the specific areas of reference; determine bird species

diversity of the areas under investigation; and investigate possible effects of ponds on the birds.

The study concluded that of 88 total species observed, only 22 species used the TSF ponds directly. Those species used the ponds for the activities of feeding, preening, standing and nesting. Furthermore, the study concluded that these birds do not use the beaches where tailings are being deposited. The study states that this has been verified in studies conducted at other mine sites in Ghana.

Subsequent to the onsite verification audit GSBPL engaged an internationally recognized population ecologist to begin an independent peer review of the GWS study and data. Concurrently, GSBPL continued to investigate methods for fine-tuning its process circuits to reduce cyanide concentrations at the tailings discharge spigots. As a result, in early 2009 GSBPL became aware that thiocyanate was present in the tailings slurry at elevated concentrations (>100 mg/l), and that an analytical pre-treatment of the solution is required to appropriately determine cyanide concentrations. GSBPL concluded that the presence of thiocyanate at these elevated levels is associated with the BIOX® circuit and the oxidation of sulfides in that circuit, which subsequently results in thiocyanate forming in the CIL circuit.

As of late June 2009, cyanide analyses for samples collected at the active tailings discharge spigots and decant pond are performed with a pre-treatment step to eliminate any interference caused by thiocyanate and to provide a more accurate assessment of WAD cyanide concentrations. GSBPL has presented analytical results for initial samples collected in July 2009 at the TSF II, Cell 2A discharge spigots and decant pond, which demonstrate WAD cyanide concentrations well below 50 mg/l.

Based on GSBPL's recent discovery that elevated thiocyanate concentrations in the tailings slurry were causing interference with the analytical methods being used to measure cyanide concentrations, the company has chosen to further demonstrate that WAD cyanide concentrations are being consistently maintained at or below 50 mg/l in open process solutions at the TSF. This demonstration will be accomplished by ongoing collection of samples to establish a suitable database according to CAR **GSBPL-ICMC-CAR-04** (see Appendix A). Furthermore, as documented by the CAR, GSBPL will continually assess the potential for wildlife mortality due to cyanide exposure related to open solutions at the TSF and will implement protective measures (e.g., fencing and netting) to restrict wildlife to active beaches and mixing zones in the supernatant ponds if it becomes necessary.

Based on observations and conclusions made in the 2008 GWS study, results of the initial WAD cyanide analyses performed using pre-treatment to remove interference caused by elevated levels of thiocyanate, and evidence that GSBPL conducts wildlife inspections on a daily basis and has no recorded wildlife mortalities to date (see section 4.9.6 below), no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

4.5 Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 4.5.

Discuss the basis for the Finding/Deficiencies Identified:

During the wet season, the water balance at GSBPL is in a positive state, with the requirement to move water from TSF II to a water holding facility (i.e., TSF I or an alternate cell of TSF II) or provide detoxification and discharge to surface waters. The cyanide detoxification system has a primary, active treatment component and a secondary, passive treatment component. The EPA discharge standards for cyanide, applicable to the GSBPL operation (Mining and Minerals Processing Sector), are 0.2 mg/l Free, 0.6 mg/l WAD and 1.0 mg/l Total and apply at the discharge point from the secondary, passive treatment system to surface waters. The downstream use of surface water is agricultural, although not a beneficial use designated by government regulations or permit authorizations (i.e., the same discharge standard cited above applies regardless of use). The Ghana EPA regulates "end of pipe" discharges only and there is not an in-stream limit for surface water.

The current active treatment component is a detoxification plant, which utilizes Hydrogen Peroxide and Copper Sulfate to detoxify cyanide. Discharge from the detoxification plant passes through the secondary, passive treatment system, which consists of two marshes. Treatment Marsh 1 is an engineered facility with a series of dikes that direct flow in a meandering course to increase retention time. Treatment Marsh 2 is a natural wetland, downstream of Treatment Marsh 1, which serves as the final treatment facility prior to discharge to the receiving environment (Adjornum Creek).

Monthly water quality data provided for 2008, demonstrate that WAD cyanide levels in Adjornum Creek were all below 0.50 mg/l, with the highest value being 0.16 mg/l (August). WAD cyanide concentrations for 10 of the 12 months were below the detection limit of 0.01 mg/l.

The operation monitors for pH, conductivity and Free cyanide at the downstream end of the treatment marshes on a daily basis and obtains authorization from EPA prior to discharging from the marsh area to Adjornum Creek. Water quality results for the last discharges to surface water made in July and August 2007 showed that Free cyanide concentrations after passing through the treatment marsh system were below the detection limit (<0.003 mg/l) except for one, which was 0.004 mg/l.

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Monthly water quality data for 2008, demonstrate that Free cyanide levels at the four downstream surface water monitoring points were below 0.022 mg/l except for one occasion near the plant, where a value of 0.08 mg/l was recorded in one month at a single sampling point; all previous and subsequent results at this location were below the detection limit of 0.01 mg/l.

4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 4.6.

Discuss the basis for the Finding/Deficiencies Identified:

The TSF is an unlined facility and the embankments are designed with upstream and downstream toe drains to collect and convey seepage to sumps which return seepage water to the TSF impoundment. GSBPL conducts daily inspections of these sumps and collects monthly samples for Free cyanide analysis.

As previously discussed, GSBPL performs comprehensive inspections of the TSF including individual daily inspections by the operators, shift supervisors, and the tailings supervisor, and quarterly inspections by the design engineer. The inspections cover (amongst other items) tailing beach levels; supernatant pond locations, elevation and depth; operation of decant pumps; pipelines; embankment integrity; seepage sumps; and water balance. The TSF operations manual specifies that the ponds be maintained as small as possible in order to minimize seepage from the facility, maximize the flood absorption capacity of the facility, and maximize the area available for drying and consolidation of the tailings.

Monitoring bores are installed downstream of the embankments to enable sampling and analysis of the receiving groundwater regime. In total, eight groundwater monitoring wells are sampled monthly; three downgradient of TSF I and five downgradient of TSF II. Monthly groundwater quality data provided for 2008, demonstrate that WAD cyanide concentrations at all eight monitoring wells were below the detection limit of 0.01 mg/l except on one occasion in which the September WAD cyanide concentration was 0.06 mg/l at a single well MB-11.

According to GSBPL environmental personnel interviewed, the downgradient use of groundwater and surface water is agriculture, and the Ghana EPA does not have a regulatory limit for cyanide in groundwater. Therefore, for purposes of drinking water, GSBPL uses the numerical limit of 0.07 mg/l Free cyanide established by the World Health Organization (WHO) and referenced in the WHO Guidelines for Drinking-Water Quality, First Addendum to Third Edition, 2006.

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Seepage has not caused cyanide concentrations in groundwater to rise above levels protective of beneficial use and no remedial activity is currently required.

4.7 Provide spill prevention or containment measures for process tanks and pipelines.

The operation is:
- □ in full compliance
- ■ in substantial compliance
- □ not in compliance…with Standard of Practice 4.7.

Discuss the basis for the Finding/Deficiencies Identified:

GSBPL has implemented spill prevention and secondary containment measures for all cyanide mixing, storage and process solution tanks.

The cyanide mixing and storage tanks are located at the cyanide sparge facility and are situated on concrete plinths (ring beams) located within a concrete bund. A sump with an automated pump returns any collected solution to the mix tank or storage tank. The secondary containment volume provides 140 percent of the largest tank volume within the containment. GSBPL demonstrated that concrete slabs exist on the inside of the concrete ring foundations for the mixing and storage tanks, providing impermeable barriers between the tank bottoms and the ground (see section 3.1 above).

The Oxide CIL and BIOX® CIL tanks are also situated on concrete plinths (ring beams) located within concrete containment bunds, which are interconnected. Two sumps are located within the Oxide CIL bund area and one within the BIOX® CIL bund area. These sumps have automated pumps to return any collected solution back into the process. Engineering drawings have been provided, which show that an impermeable PVC liner, with weep holes above to detect leakage, has been constructed beneath the BIOX® CIL tanks but such drawings have not been provided to confirm that an impermeable barrier has been constructed beneath the Oxide CIL tanks. Refer to CAR **GSBPL-ICMC-CAR-05** in Appendix A. GSBPL personnel interviewed during the onsite verification audit stated that the Oxide CIL tank foundations were constructed to the same design as that for the BIOX® CIL tank foundations (i.e., PVC liner on the inside of the concrete ring foundations). Additionally, the tanks are relatively new (constructed in 2005/2006) and recent thickness testing conducted on the tank walls showed them to be in good condition. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

The carbon wash and elution circuits are also contained within concrete bunds. These secondary containments have dedicated sumps with pumps for returning solutions and slurries back to the process circuit.

The Oxide CIL and BIOX® CIL bunds are interconnected to provide a cumulative secondary containment volume of 591 m^3. The Oxide CIL and BIOX® CIL tank capacities are 1,200 m^3 and 763 m^3, respectively; therefore, the cumulative secondary containment volume only provides 50 percent of the largest tank volume within the containment. Consequently, GSBPL implemented a procedure to address the potential for spillage exceeding the bund capacity. In the event that spillage cannot be removed quickly enough, the CIL bund drain valve will be opened allowing the slurry to flow by gravity via a concrete channel to the concrete containment basin (Event Pond 1) located near the crushed ore stockpile. Including the capacity of Event Pond 1 the cumulative secondary containment volume (1,574 m^3) provides 130 percent of the largest CIL tank volume. Due to the relatively large drainage area collected by Event Pond 1, GSBPL must provide documentation demonstrating that the 30 percent surplus secondary containment volume provides adequate capacity to contain the design storm event and any solution draining back to the CIL bund area. Refer to CAR **GSBPL-ICMC-CAR-06** in Appendix A.

The secondary containment volume provided for the CIL tank farms is 130 percent of the largest tank volume (20 percent greater than the 110 percent rule of thumb generally used for the adequacy of secondary containment). Additionally, GSBPL inspects and maintains the sump pumps in the secondary containments on a routine basis and the process area is manned 24 hours per day, seven days per week. Furthermore, GSBPL has developed and implemented procedures for responding to cyanide leaks and spills. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

The concrete bund at the elution circuit provides greater than 200 percent of the elution column capacity. The carbon wash vessel is situated within a concrete bund that provides a secondary containment capacity greater than 350 percent of the vessel volume.

The secondary containments for the cyanide mixing, storage and CIL tanks and the carbon wash and elution circuit vessels, have dedicated sumps and pumps to remove cyanide solutions for return to the process circuits. GSBPL has implemented written procedures for operation of these sump pumps to management of cyanide solutions collected in secondary containments.

GSBPL has constructed all pipelines with spill prevention and containment measures to collect leaks and prevent releases. Single-walled pipelines are either located within concrete or lined containment, or are above ground where they can be visually inspected. The pipelines that are not within concrete or lined secondary containment are located within the plant site drainage system, which consists of concrete channels that report to the concrete lined Event Pond 1 located near the crushed ore stockpile. Any leakage from these pipelines would flow on the ground surface to the adjacent concrete drainage channel for collection and/or conveyance to Event Pond 1. The overhead HDPE cyanide feed line, between the sparge facility and the CIL circuits, is fitted with a secondary containment tray

for segments of the feed pipeline crossing outside concrete containment (e.g., at road crossings and the short segment outside sparge facility bund). The channel trays incorporate drainpipes, which convey any leakage and/or precipitation to the curbed concrete pads below.

For portions of the tailings distribution and reclaim water pipelines that present a risk to surface water, the pipelines are within a secondary containment channel, lined with geomembrane, or located on the inside slope of the TSF embankments. The lined secondary containment channel drains to a lined catchment basin (Event Pond 2).

GSBPL uses steel and HDPE primary containment pipelines for conveyance of cyanide solutions and slurries. Cyanide mixing, storage and process tanks are steel. These materials are compatible with cyanide and high pH solutions.

4.8 Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

The operation is:
- □ in full compliance
- ■ in substantial compliance
- □ not in compliance…with Standard of Practice 4.8.

Describe the basis for the Finding/Deficiencies Identified:

During the onsite verification audit, GSBPL provided some reports, documenting implementation of quality assurance/quality control (QA/QC) programs related to construction or raising of TSF facilities; however, original QA/QC documentation was not available for all stages of construction of the TSF or for the remaining active cyanide facilities. To supplement the original QA/QC documentation available, GSBPL commissioned Topsky Ventures and Knight Piésold to conduct inspections of various additional cyanide facilities.

In January 2008, Knight Piésold conducted a visual inspection to assess the structural integrity and capacity of the concrete containment structures (concrete bunds) at the sparge facility and CIL tank farms. Other than minor cracking and defective joints requiring sealing, the containments were in good condition. Visual inspections conducted during the onsite verification audit confirmed that cracks and open joints had been sealed.

In February 2008, Topsky Ventures conducted visual inspections and ultrasonic wall thickness testing on the mixing, storage and CIL tanks and on the 4-inch and 2-inch cyanide pipelines, and performed visual inspections of the steel structures supporting these facilities. Three of the six BIOX® CIL tanks recorded low values and one tank was not tested because it was rusted. The Oxide CIL tanks and the mixing and storage tanks at the

sparge facility were found to be in good condition. Topsky Ventures recommended reinforcement of the weak areas identified on the BIOX® CIL tanks. Accordingly, GSBPL is in the process of refurbishing all six BIOX® CIL tanks. At the time of the onsite verification audit, two tanks (Tanks 3 and 6) had been refurbished. The remaining four tanks (Tanks 1, 2, 4 and 5) remained to be refurbished. Refer to CAR **GSBPL-ICMC-CAR-07** in Appendix A. The BIOX® CIL tanks are provided with secondary concrete containment, which report to sumps with automated pumps. Additionally, GSBPL inspects the BIOX® CIL tanks daily for presence of leaks and signs of corrosion, and is currently refurbishing the tanks one at a time. Therefore, based on these measures and the procedures that GSBPL has implemented for responding to potential cyanide releases and spills, no immediate or substantial risk to health, safety or the environment is deemed to exist regarding this issue during implementation of this CAR.

The 4-inch and 2-inch cyanide pipelines were found to be in good condition.

In May 2008, Topsky Ventures performed a visual inspection and testing of the cyanide feed pipeline between storage tank and CIL circuit; however, the steel pipeline has since been replaced with an HDPE pipeline.

The Knight Piésold September 2008 inspection report concluded that generally, all the confining facility embankments were in sound condition with no evidence of any structural problems, and no seepage was evident from Cell 2 or 2A embankments and minimal natural spring water was observed at Cell 1 and Cell 3 embankments.

A report on a March 2008 inspection of TSF by Knight Piésold concluded that generally, the confining embankments were in sound condition with no evidence of structural distress, and no obvious sign of seepage was observed on the faces or at the toes of any of the embankments. The report recommended rechecking the water level within all piezometers and survey levels to confirm the accuracy of the currently reported levels and reassessing the stability analysis of the facility embankments if the levels differ from those currently reported. Additionally, the report recommends replacing or repairing of any piezometers found to be damaged or missing. Refer to CAR **GSBPL-ICMC-CAR-07** in Appendix A. Further recommendations regarding the ongoing management of the supernatant pond were also made. As mentioned above, the recent inspection of TSF I performed by Knight Piésold concluded that the confining facility embankments are in sound condition with no evidence of any structural problems, and no obvious signs of seepage on the faces or at the toes of any of the embankments. Additionally, water quality data downgradient of the TSF demonstrate that seepage and indirect discharges have not caused cyanide concentrations in groundwater or surface water to rise above levels protective of beneficial use. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist regarding TSF I during implementation of this CAR.

In March 2009, Topsky Ventures conducted a combination of visual inspections and ultrasonic wall thickness testing for the additional cyanide facilities not covered by the

original inspections. The inspections and testing covered the tailings and carbon thickener tanks; elution and acid wash columns; strip solution tanks; potable, process, elution and conditioning tanks; carbon and reagent hoppers; process and raw water pipelines; cyanide feed and return HDPE pipelines; cyanide detoxification ponds; concrete bunded areas for sparge facility and regrind area; ball mill; and SAG mill. The report recommends that GSBPL complete various corrective actions to remedy deficiencies identified by the inspections. Refer to CAR **GSBPL-ICMC-CAR-07** in Appendix A.

GSBPL has made the recommended repairs to the liner along the side slopes of the process water pond and is currently cleaning out the detoxification ponds in order to perform liner repairs and re-commission the system. The detoxification ponds have not been operated in a number of months and do not currently contain water that requires treatment. Other than completing the painting of the cyanide lines and inspecting the bottom of the process water pond, the other recommendations made in the March 2009 Topsky Ventures report regard the replacement of existing materials for improved function and longevity. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

4.9 Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 4.9.

Describe the basis for the Finding/Deficiencies Identified:

GSBPL has prepared and implemented written standard procedures for monitoring activities to evaluate the effects of cyanide use on wildlife, surface water and groundwater quality. The sampling and analytical protocols provided in the surface water and groundwater monitoring procedures were developed by qualified personnel. The GSBPL surface water and groundwater monitoring plans provide procedures for calibration of field equipment, purging (for groundwater) and sampling procedures; field log record keeping, sample management (including chain of custody procedures), quality control, analysis methods and data management. Sample locations and frequencies, and monitoring parameters, including cyanide species are summarized on an Environmental Monitoring Matrix. Field measurements recorded include weather, livestock/wildlife activities (such as mortality, anthropogenic influences, etc.). The field data logbook was reviewed during the onsite verification audit.

GSBPL monitors for cyanide in discharges of tailings decant water to surface water and in surface and groundwater downgradient from the site to ensure indirect discharges are not

occurring. This includes monitoring Free cyanide at the downstream end of the treatment marshes on a daily basis; Free cyanide at four downgradient surface water points and the TSF seepage sumps on a monthly basis; and sampling and analysis of the receiving groundwater regime at eight groundwater monitoring wells, three downgradient of TSF I and five downgradient of TSF II on a monthly basis.

Wildlife monitoring is integrated into the daily inspections performed at the TSF. During inspections, the Tailings Supervisor looks for the presence of dead wildlife and documents observances on the TSF Daily Inspection Sheet. Wildlife incidents and mortalities are documented as an Environmental Incident and Investigation Report. Among other information, the incident report records the date and description of the incident, immediate action taken, internal and external notification, members of investigation team, results of investigation, and a determination of whether procedures/controls were followed. The TSF Wildlife Monitoring procedure provides procedures for field observation locations and times, reporting of observed mortalities, specimen identification (including chain of custody procedures), and sample preservation. GSBPL has no recorded wildlife mortalities, to date.

5. DECOMMISSIONING **Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.**

Standards of Practice

5.1 Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of 5.1.

Describe the basis for the Finding/Deficiencies Identified:

A Reclamation Plan was submitted to EPA Ghana in October 2004 together with a reclamation cost estimate which formed the basis for the Reclamation Security Agreement between GSBPL and EPA. With regard to cyanide related facilities the reclamation plan/costs cover decommissioning of the plant facilities; freeing the plant site from all hazards, hazardous materials and waste; encapsulating any contaminated soils free from leachate; reducing water body levels to a minimum, and ensuring water discharges meet Ghana's Effluent Quality Guidelines. GSBPL updated their Closure (Decommissioning and Reclamation plan) and cost estimate for the mine concession in 2008. This was approved by EPA in March 2009.

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After becoming a signatory to the ICMC, GSBPL developed a Cyanide Facility Decommissioning Plan (CFDP) that describes in detail the activities and sequence in which the cyanide facilities will be decommissioned. The Plan provides a Gantt Chart with a conceptual schedule of closure activities and anticipated duration for each task. These activities include pre-closure; reagent stock drawdown; clean out of tanks, vessels, piping, pumps, concrete and steel structures; and cyanide disposal, as well as water management and release from the tailings storage facilities and removal of tailing pipelines. The Plan represents a base document that GSBPL has committed to review and update annually.

5.2 Establish an assurance mechanism capable of fully funding cyanide-related decommissioning activities.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 5.2.

Describe the basis for this Finding/Deficiencies Identified:

GSBPL is required to post security with EPA Ghana to cover mine closure costs. The cost estimate to perform the work described in the October 2004 Reclamation Plan was approved by EPA Ghana and formed the basis of the Reclamation Security Agreement between GSBPL and EPA, dated 12 December 2005. With regard to cyanide related facilities the reclamation plan/costs cover decommissioning of the plant facilities; freeing the plant site from all hazards, hazardous materials and waste; encapsulating any contaminated soils free from leachate; reducing water body levels to a minimum, and ensuring water discharges meet Ghana's Effluent Quality Guidelines. Security is provided through a combination of a bank guarantee (Barclays Bank) and a cash deposit. The guarantee is currently set at US 8.1 Million and the Bond US 900,000 based on the 2005 cost estimate. This more than covers the total estimated cost of decommissioning all of the cyanide related facilities.

GSBPL commissioned an independent consultant to review and update the Closure Plan (Decommissioning and Reclamation Plan) for the mine concession. The Plan and associated costs include decommissioning all cyanide related facilities. The revision was incorporated into an updated Environmental Management Plan that was submitted to EPA Ghana in early 2009. The cost estimate was based on quantities taken from available plans, maps and previous costs. Unit rates were obtained from the consultant's database and/or in consultation with demolition contractors. The total estimated cost for closure includes preliminary and general costs for a third party contractor to establish and conduct the decommissioning and reclamation work, as well as a contingency of 10%. The submission was approved by EPA Ghana on 24 February 2009 and will form the

basis for negotiating and revising the Reclamation Security Agreement required by EPA in 2009. A schedule for reviewing and adjusting the Security will be formalized with EPA at this time.

6. WORKER SAFETY Protect workers' health and safety from exposure to cyanide.

Standards of Practice

6.1 Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 6.1.

Describe the basis for the Finding/Deficiencies Identified:

GSBPL has developed documented standard operating procedures for all operating tasks associated with the storage and handling of cyanide. Operating procedures are available that address cyanide delivery, sparging, equipment decontamination, plant operations and confined space entry. These procedures specify the minimum PPE required and provide instruction on checking equipment and conditions of the work area prior to starting an assignment. Checks include, depending on the task, monitoring for hydrogen cyanide (HCN) gas, functioning of eye-wash and shower operation, correct position of flow valves, as well as the condition of tools and other equipment. Procedures also include requirements for Safe Work Permits or Confined Space Entry Permits that require pre-work checks, hazardous assessment, PPE requirements etc., and must have sign-off by a supervisor prior to being issued. Safety procedures are also reviewed and discussed during pre-shift meetings. GSBPL also has a change management procedure which requires proposed changes in operational process or plant to be formally evaluated by a Risk Assessment Team prior to any change being instituted. The process requires that a hazard identification and risk assessment is completed and a risk control action plan developed to ensure risks associated with the change are eliminated or controlled.

A number of forums are available where workers are encouraged to provide input to ensure work tasks are undertaken safely. These include pre-shift meetings, pre-job meetings, and safety meetings where workers may provide suggestions or generate questions. Supervisors table worker suggestions at daily production meetings and provide feedback to workers. Also, the workers union representative attends monthly central safety meetings where safety issues can be tabled to mine management. In addition, where workers may feel uncomfortable communicating a concern in person

there is an online forum or speakers board where workers can post issues in confidence to a third party hotline service.

6.2 Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

The operation is:
- □ in full compliance
- ■ in substantial compliance
- □ not in compliance…with Standard of Practice 6.2.

Describe the basis for the Finding/Deficiencies Identified:

Procedures are in place to ensure that process solutions are maintained at pH >10 to prevent the evolution of HCN. A target pH of between pH 10.5 and pH 12.0 is set in the mixing process. Lime is added to the tanks as required to maintain pH within the desired pH.

Workers that may be exposed to HCN gas or cyanide dust while undertaking critical tasks are required to carry portable HCN monitors and wear appropriate PPE. Procedures specify the type of PPE required when undertaking a given task. Workers are trained in the use of personal monitors and PPE including the use and maintenance of full face respirators with suitable cartridges. GSBPL has also trained personnel to use self-contained breathing apparatus (SCBA) equipment recently acquired for use in the event of an emergency.

Operations and Maintenance workers use personal HCN monitors when undertaking tasks where there is a potential for exposure to HCN gas or cyanide dust. The personal monitors are calibrated to alarm at 4.7 ppm and 10 ppm. If the 4.7 ppm alarm is triggered the worker must report the event to his supervisor. If the 10 ppm alarm is triggered the worker must leave the area immediately and warn other workers to do the same. Workers must use SCBA where HCN concentrations in an area are greater than 40 ppm.

Fixed "D-Guard" ambient HCN monitors are located at the sparging plant, CIL tails hopper, and BIOX® CIL. These monitors were recently upgraded with visual and audible alarms and connected to the control room via the SCADA system. There is no fixed HCN monitor located at the Oxide CIL, although GSBPL has committed to install one there prior to bringing this plant into production sometime in 2010. Refer to CAR **GSBPL-ICMC-CAR-08** in Appendix A.

HCN concentrations at each location are measured hourly by an operator and recorded in a logbook kept in the control room. Records indicate that during normal operations HCN

concentrations were generally in the range 0 to 2 ppm. There is also an ongoing program of monitoring HCN at different areas of the plant to evaluate changes in potential risk. Operations and Maintenance workers are also required to use personal HCN monitors when undertaking tasks where there is a potential for exposure to HCN gas or cyanide dust. Therefore, no immediate or substantial risk to health, safety or the environment is deemed to exist during implementation of this CAR.

The fixed and personal monitors are calibrated by Bartex. Calibration records show that calibration of all the monitors is current.

Signs are well posted throughout the facility to warn workers when cyanide is present. Cyanide warning signs are posted at the sparging plant, around the CIL tank areas, on pipe bridges that convey cyanide piping, and on tailings lines. Lines that convey cyanide solutions are colour coded and marked with flow direction arrows. Tanks and vessels that contain cyanide are also labeled to identify their contents/use. There is also signage for no smoking, eating and drinking posted around the plant. Dangerous chemical warning signs in English and Twi (the local language) are also posted around the tailings ponds, to warn possible trespassers that may enter the property.

Showers /eye wash stations are located in strategic areas of the plant. The water supply for the shower/eye wash stations is regulated at an operating pressure of about 25 psi. The stations are checked by maintenance on a two week schedule and operators check shower/eye wash operation each shift and prior to conducting a critical task such as cyanide sparging. Fire extinguishers are inspected monthly by the Fire Officer. Inspections are completed to a fixed schedule and recorded in a log book. Equipment requiring maintenance is sent to a qualified service company in Tarkwa. All fire extinguishers located within the plant operations are dry powder ABC type.

Material Safety Data Sheets (MSDS) training is provided to all new employees as part of General Cyanide training and a copy of the MSDS for sodium cyanide is provided to each employee. MSDS for sodium cyanide are also posted in strategic areas of the plant. The language of the workforce is English and all procedures, MSDS and worker training is provided in English. As a small number of workers are illiterate, the hazards associated with cyanide are regularly discussed at pre-work meetings. Cyanide hazard awareness is also taught and in the classroom during Induction Training and General Cyanide refresher training. First aid procedures are also provided in the Sodium Cyanide Emergency Response Procedure.

GSBPL has a documented procedure for investigating and reporting incidents and non-conformances. Supervisors and management have completed Incident Reporting training. All incidents must be reported immediately to the supervisor, who is responsible for completing an incident investigation report and forwarding the report to the Environmental Management Representative. A team is appointed to investigate the

cause of the incident and report to management. Based on the findings of the investigation, a Corrective Action Request Form is completed.

6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 6.3.

Summarize the basis for this Finding/Deficiencies Identified:

Shower /eye-wash units are located at strategic areas of the plant where cyanide and other hazardous chemicals are handled. Emergency response equipment is kept in emergency containers located within the plant compound and outside the plant near the sparging area. Oxygen resuscitator kits are located in the ambulance, in the "outside" and "inside" emergency containers, and in the control room. There are also oxygen resuscitators at the clinic and gold room. Antidote kits are located in refrigerators in each of the emergency containers and at the clinic. The expiry dates on each kit were inspected and found to be current. Documented inspections of emergency response equipment and oxygen resuscitator kits are conducted on a two week and monthly schedule, respectively.

GSBPL has developed a Cyanide Emergency Response Procedure (CERP) to respond to cyanide leaks and spills. The CERP describes the standard procedures to be followed in the event of an unplanned release of cyanide. The plan includes initial response, first aid, and emergency response actions to be followed for various possible emergency scenarios.
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In the event of an emergency at the plant workers can communicate through use of the radio system. Supervisors, managers and tailings area workers are also provided with cell phones. All workers receive General Cyanide training which includes: potential hazards of cyanide; symptoms of cyanide exposure, cyanide first aid, and application of oxygen resuscitators. A number of Emergency Response Team members have recently undertaken training in the application of amyl-nitrite. GSBPL is planning to provide all workers in amyl-nitrite training.

GSBPL has contracted Crusader Health Ghana Limited/Medical Services International for on-site medical services. The contract specifically includes services for treatment and stabilization of persons exposed to cyanide. The clinic is located in the Adikanfo mine camp which is less than a kilometer of the plant entrance. Resident clinic staff includes two doctors (one local and one expat) and two registered nurses. In the event of a cyanide incident a doctor and/or staff are available on 24 hr call out. Sodium

thiosulphate antidote is available at the clinic and plant site if required for application by the doctor.

The medical clinic provides trauma stabilization and evacuation service as part of its contract. There is an ambulance and driver available 24 hrs /7 days a week located at the clinic. The nearest hospital is ABA Hospital in Tarkwa, located approximately 40 km from the plant. The hospital is operated by the same company as the clinic and is well prepared to treat patients for cyanide exposure.

GSBPL has committed to conduct at least two mock drills a year. Since January 2008 four mock drills have been completed. Three of these involved mock cyanide exposure incidents. The emergency drill report provides a description of the drill, response times, participants, response performance and shortcomings, and a corrective action plan to improve response planning from the lessons learned.

7. EMERGENCY RESPONSE Protect communities and the environment through the development of emergency response strategies and capabilities.

Standards of Practice

7.1 Prepare detailed emergency response plans for potential cyanide releases.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.1.

Describe the basis for the Finding/Deficiencies Identified:

GSBPL has developed a CERP to guide responses to cyanide leaks and spills. The CERP describes the standard procedures to be followed in the event of an unplanned release of cyanide. The plan includes initial response, first aid, and emergency response actions to be followed for various possible emergency scenarios, including solid cyanide spill on land and wet areas; catastrophic release of HCN gas; liquid cyanide spill; spillage from pipe, valve and tank ruptures; dam failure; transportation emergency involving sodium cyanide; power failure and pump stoppages; overtopping of ponds and impoundments; uncontrolled seepage; fire and explosion, and cyanide poisoning. The CERP clearly sets out responsibilities of workers, managers and emergency response personnel.

Barbex is responsible for responding to transportation emergencies related to cyanide up to the delivery point where responsibility is transferred to GSBPL. The Barbex Cyanide Transportation Protocol addresses the method and vehicles used to transport cyanide to the plant, the routing and road conditions, and emergency procedures to respond to an

incident along the route. GSBPL has agreed to be available to coordinate initial response and provide assistance in the event of an emergency occurring near the mine site. GSBPL has also taken the initiative to communicate and train communities that may be affected if a transportation incident occurred. Community leaders have been trained to immediately inform GSBPL and to prevent curious observers going near the site. Communities are receiving training from GSBPL not less that three times a year on cyanide awareness and response.

The CERP provides specific response activities and responsibilities for various emergency scenarios including evacuation, isolation and control of spillage, communication with outside agencies and detoxification and clean-up. The CERP also provides information on health hazards associated with cyanide exposure, first aid procedures, location and contents of emergency kits, and clean-up and decontamination procedures.

7.2 Involve site personnel and stakeholders in the planning process.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.2.

Describe the basis for the Finding/Deficiencies Identified:

The CERP was developed with input from key personnel in the safety and ICMC departments. The procedure is updated on an annual basis or as appropriate to incorporate lessons learned from an incident or mock drill. Stakeholders and communities within the mine concession area and along the cyanide transportation route have been provided with cyanide awareness and emergency response training. Cyanide awareness training has also been provided to students and teachers at schools, and to community members, on the response actions that the mine and transportation company would take in the event of an incident and have advised the community to stay clear if such an incident occurred. Community leaders have been given the first response contact telephone number to call in the event of an emergency. Consultative meetings have also been conducted with the Prestea Fire and Police Services who have agreed to provide support in the event of an emergency. Community representatives were also invited to observe a mock drill that involved a vehicle accident and solid cyanide spill.

GSBPL has a formal arrangement with the Fire Service and Police Service to provide emergency response services support in the event of an emergency. Specifically the Fire Service has agreed to standby and support the emergency response team in fire-fighting in the event of a fire outbreak including a fire involving cyanide. The Police Service has agreed to provide crowd and traffic control and take care of emergency response

equipment in the event of an off-site incident. The Fire Service has been provided a tour of the plant and is familiar with the chemical used and general storage locations.

GSBPL has a contract with Crusader Health Ghana Limited to provide medical services, including the treatment and stabilization of persons exposed to cyanide and, when required, the referral of patients to ABA Hospital (a Crusader Health facility) located in Tarkwa. The medical clinic located at the mine site is staffed by two doctors and two trained nurses. There is also an ambulance and driver available 24 hrs, 7 days a week. GSBPL has provided training in cyanide emergency response and the use of PPE to nurses at the clinic in the event of a cyanide emergency at the plant.

7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.3.

Describe the basis for the Finding/Deficiencies Identified:

The CERP provides 24 hr emergency call phone numbers of managers with designated emergency response responsibilities in the event of an emergency. The Plan also lists responsibilities of supervisors and workers related to reporting communication during emergencies, evacuation and equipment shutdown. There is always an emergency response team crew on call at the plant. The contact list is maintained by the Security Superintendent and an updated list is maintained by security communication control centre. The CERP also defines the duties and responsibilities of Emergency Response Members (ERT) members, employees, supervisors and managers. These responsibilities include contacting outside regulatory agencies, police and fire services; community representatives, Orica/Barbex and Golden Star corporate, depending on the type of incident. The responsibilities of the Medical Centre Clinic are provided in Crusader's Contract with GSBPL.

The CERP includes an inventory of the emergency equipment available and where it is located. The emergency response equipment is checked twice monthly to ensure they are complete and maintained in the event of an emergency.

7.4 Develop procedures for internal and external emergency notification and reporting.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.4.

Describe the basis for the Finding/Deficiencies Identified:

The CERP provides an emergency response contact list for designated managers responsible for making contact with given stakeholders. As described in the Plan the discoverer immediately calls the control room and/or his/her supervisor to report the situation. Security Control will then contact the Emergency Coordinator and senior management as necessary and mobilize the ERT and medical clinic. The Emergency Coordinator is responsible for contacting police and fire service if required, advising departmental managers on emergencies; and reporting to regulatory agencies. He has the authority to stop all work in the plant and evacuate all employees and contractors from the danger area to safety. The Metallurgical Manager, Supply Manager or Environmental Manager is responsible for contacting Barbex in the event of an offsite transportation incident reported by the community.

The CERP provides a call list of community representatives and contact information in the event of an emergency. The Community Affairs Sustainable Development (CASD) Manager is responsible for contacting relevant community representatives, as well as the media at the approval of the Metallurgical Manager.

7.5 Incorporate into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.5.

Describe the basis for the Finding/Deficiencies Identified:

The CERP provides emergency response procedures and responder responsibilities for different cyanide emergency scenarios. These scenarios include response to solid cyanide spills on land and into wet lands as well as liquid cyanide spills. GSBPL has procedures for clean-up and decontamination for wet and dry spills. These include methods to neutralize cyanide impacted soil and liquid waste and management and disposal of such wastes. Where there is a potential for impact to community water resources, there is a provision to dye the water with carmoisine to warn the community of

possible contamination and not drink the water. In situations where there is a potential for water impact water tankers will be used to supply potable water to impacted communities.

The CERP prohibits the use of chemicals including sodium hydrochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide once it has reached a surface water body. The prohibition also applies to dry drainage areas where there is a potential for flow in the event of rainfall.

CERP requires that an area impacted by a cyanide release is investigated after an emergency event to ensure that the area has been adequately cleaned. The investigation would include collection of water samples along channels affected by a spill into a wet land area and collection of confirmatory soil samples following clean-up of a spill on land. Sampling procedures include sampling method, analysis method, QA/QC, and shipping and handling procedures. The Environmental Manager is responsible for developing mitigation methods for spill clean-up, designing investigation and monitoring programs, and confirmation that the area has been satisfactorily cleaned up.

7.6 Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 7.6.

Describe the basis for the Finding/Deficiencies Identified:

The CERP includes review procedures that require the plan to be reviewed at least once a year under normal operations procedures; whenever an incident or a mock drill reveals a procedural shortcoming; when there is a new technology, process, equipment or training method available to the mine; and when there is a structural or physical alteration or layout change. The Loss Control Manager is responsible to ensure that the CERP is updated as required. The weekly ICMC meeting provides a forum where proposed changes to the CERP are discussed and approved. The ERP was last reviewed in March 2008.

The CERP requires that mock drills are conducted at least twice a year. Since January 2008 four mock drills have been completed, three of which involved mock cyanide exposure incidents. The mock emergency drill report prepared by the observer provides a description of the drill, response times, participants, response performance and shortcomings, and a corrective action plan to improve response planning from the lessons

learned. The corrective action plan log lists the action to be taken, the responsible person, the due date and date of completion.

The Loss Control Manager is responsible for ensuring that the CERP is reviewed after the occurrence of an accident or emergency incident. To date there has been no cyanide related emergency so such a review has not been undertaken.

***8. TRAINING* Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.**

Standards of Practice

8.1 Train workers to understand the hazards associated with cyanide use.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 8.1.

Describe the basis for the Finding/Deficiencies Identified:

All visitors, contractors and new employees entering the plant are required to complete induction training to inform them of GSBPL policies, procedures and site safety (signage, PPE requirements, and emergency response). For visitors that may enter areas where cyanide may be present the induction includes cyanide awareness training.

All new employees are also required to complete Site Safety Induction training and General Cyanide training. This training includes recognition of cyanide; safe handling of cyanide; PPE, health effects of cyanide; symptoms of cyanide exposure and poisoning, first aid procedures to follow in the event of exposure to cyanide, and emergency response procedures. Workers that perform cyanide related tasks are also required to complete specific training on procedures that relate to specific cyanide management tasks before assumption of duty. The cyanide training is provided by a GSBPL trainer that has completed an Orica train-the trainer cyanide course. Employees are required to complete General Cyanide refresher training every 6 months.

Training attendance sign-off sheets and completed test sheets are retained by the trainer. Training status is tracked on an Excel® spreadsheet that details, for each employee, the minimum training requirements for the operation position the worker is assigned and the date the training was completed.

8.2 Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 8.2.

Describe the basis for the Finding/Deficiencies Identified:

Employees that perform cyanide related tasks are required to complete task specific training on the procedures related to that task. Training in operational procedures is provided by the Metallurgical Department Trainer. Training records are maintained through completion of attendance sheets and through an Excel® spreadsheet that is maintained by the trainer. Workers are required to complete task specific refresher training every 6 months. Employees are not permitted to perform cyanide related tasks when not with an experienced operator, without first completing task specific training. Participants of General Cyanide training and refresher training are required to pass a written test to evaluate the effectiveness of the cyanide training. Those that fail are required to be retrained until they meet the required pass mark. GSBPL is planning to introduce a similar test program for task specific training.

In addition to the written test, GSBPL also undertakes planned job observations (PJO) to evaluate worker competence and their compliance in following standard operating procedures. GSBPL conducts a minimum of three PJOs a year.

8.3 Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 8.3.

Describe the basis for the Finding/Deficiencies Identified:

All employees complete General Cyanide training and refresher training every six months. This training includes recognition of cyanide; safe handling of cyanide; health effects of cyanide; symptoms of cyanide exposure and poisoning, first aid procedures including use of oxygen resuscitator units in the event of exposure to cyanide, and emergency response procedures.

The ERT is made up of plant, mining, mine maintenance, security, safety and environmental personnel. ERT members have completed Emergency Response training,

Basic Fire Fighter training, First Aid (including cyanide first aid), Oxygen Resuscitator training, and use of SCBA equipment. ERT members have also been trained in application of amyl nitrite. GSBPL has also trained two nurses at the Crusader clinic in emergency response and applicable PPE. The response team members and coordinators complete emergency response training to ensure they are familiar with the CERP and their responsibilities in the event of an emergency. CERP training is provided by the Safety Superintendent. The Safety Officer at Golden Star's Wassa mine has been used as a resource to support SCBA equipment training at GSBPL. Emergency Response refresher training is scheduled to be undertaken annually.

The CERP requires that mock drills are conducted at least twice a year. Since January 2008 four mock drills have been completed, three of which involved mock cyanide exposure incidents. The clinic has also participated in the mock drills. The frequency and content of training programs are modified based on responder performance and lessons learned during mock drills.

The Community Affairs and Sustainable Development (CASD) department is actively engaged in community outreach programs that include training communities on the nature, hazards, and use of cyanide and actions the community should take in the event of an emergency that involved cyanide. These programs have been provided to community leaders and government representatives for the 14 communities located along the cyanide transportation corridor; representative teachers and students from six schools in the catchment area; and to local law enforcement and government disaster management units. One of the training sessions involved community observation of a mock drill of a vehicle accident and solid cyanide spill.

***9. DIALOGUE* Engage in public consultation and disclosure**.

Standards of Practice

9.1 Provide stakeholders the opportunity to communicate issues of concern.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 9.1.

Describe the basis for the Finding/Deficiencies Identified:

The CASD department is the primary point of contact for all external inquiries regarding cyanide-related issues. Communication may be in the form of a visit, telephone, fax, letter, email or direct contact in the field with GSBPL employees or contractors. CASD is responsible for responding to the inquiries and complaints, and monitoring

communications and progress of any approved mitigation measures or redress. Communication is tracked on a Complaints Registration Form that provides a record of the issue, summarizes the actions taken, and notes the action completion dates (i.e., correspondence, meeting notes and other inquiry-specific information retained for reference purposes).

GSBPL also undertakes a wide range of community outreach efforts including scheduled meetings and training forums. Monthly Community Consultation Committee meetings are held at each of the 25 communities located within the mine concession area. The meetings are attended by community leaders, representatives and government officials for each community. These meetings provide a forum for GSBPL to present information to the community including progress on any complaints, and for the community to discuss issues of concern. Since becoming a signatory to the ICMC in 2007, GSBPL has provided six training programs to the community. These programs have been delivered to community heads and officials, schools and other community members to provide information on cyanide and response action in case of a cyanide emergency. These forums also provide an opportunity for stakeholders to communicate concerns.

9.2 Initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 9.2.

Describe the basis for the Finding/Deficiencies Identified:

GSBPL provides dialogue to the community through provision of cyanide training programs. Since becoming a signatory to the Code in 2007, GSBPL has provided six training courses, the latest in January 2008. The training is provided in English and/or native Twi language also used in the community, depending on the audience, to community representatives, leaders and officials, schools and outside responders. Topics include general introduction to cyanide, and emergency response training. Attendance varies between 20 and 70 persons depending on the session. Community representatives are tasked with distributing the information gained to others in the community and have been provided with copies of the training materials for this purpose.

As the community associates cyanide to a mining company rather than the transporter, GSBPL has taken on the responsibility of providing emergency response dialogue to communities along the cyanide transportation route. Communities have been provided with a phone number to call in the event of an emergency or concern.

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9.3 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

The operation is:
- ■ in full compliance
- □ in substantial compliance
- □ not in compliance…with Standard of Practice 9.3.

Describe the basis for the Finding/Deficiencies Identified:

GSBPL has a policy of openness, trust and transparency toward the community. Activities related to environment and other issues are discussed at monthly Community Consultation Committee meetings which are attended by the various interested parties and stakeholders.

GSBPL has developed an "introduction to cyanide" training course which illustrates the properties and potential hazardous nature of sodium cyanide; establishes clear responsibilities for communities should an emergency occur involving sodium cyanide, and communicates GSBPL's commitment to cyanide management both onsite and towards communities. This training course is presented in the local Twi language as a PowerPoint® presentation. Copies of the presentation have been provided to community leaders to use for disseminating the information within their community.

GSBPL's Disclosure Process to the Public in the Event of a Cyanide Release to Potentially Affected Communities, sets out the communication channels and responsibilities within GSBPL to ensure clear and open communication with the public in the event of a cyanide incident. The procedure deals with communication in emergencies as well as communication with regulatory agents and the media.

Although there are no formal incident reporting requirements in Ghana, GSR operations have committed to report off-site environmental incidents that could impact health or the environment, and loss time injuries or fatalities to appropriate government authorities (i.e., Ghana EPA and Inspectorate Division of the Minerals Commission). In addition, Golden Star would also report incidents relating to cyanide to ICMI.

Outside of the established lines of communication with local communities and notifying government authorities GSR has also committed to publicly report on its environmental and safety performance. Information on cyanide related releases or exposures would be made publically available through the Annual Sustainability Report that GSR prepares and posts on its web site, www.gsr.com. The Sustainability Report provides information on social, environmental, health and safety performance, on an annual basis, and includes detail on environmental and safety incidents and responses. GSR is a signatory to UN Global Compact and also reports environmental performance through this initiative.

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