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GOLD FIELDS AUSTRALIA PTY LTD – ST IVES GOLD MINE CORRECTIVE ACTION PLAN IMPLEMENTATION LETTER

Dear Sir

BACKGROUND

The Gold Fields Australia Pty Ltd (Gold Fields) St Ives Gold Mine (SIGM) was found to be non-compliant with the *International Cyanide Management Code for the Manufacture, Transport, and use of Cyanide in the Production of Gold* (the Code) on 30 December 2016. Accordingly SIGM developed a Corrective Action Plan (CAP) to address the identified deficiencies (*Gold Fields Australia Pty Ltd – St Ives Gold Mine Recertification Audit – Corrective Action Plan* (Report No. 1649211-005-R-Rev0, Golder Associates Pty Ltd, October 2016)).

This letter confirms the successful implementation of the CAP resulting in the operation being fully compliant with the Code.

VERIFICATION OF CORRECTIVE ACTION PLAN IMPLEMENTATION

A review of the evidence presented by SIGM supporting the full implementation of the CAP was conducted by Golder Associates Pty Ltd (Golder) in March 2016 and a site visit was conducted on 27 March 2017. The results are summarised in Table 1.

Table 1: CAP Implementation Verification

Standard 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.
Deficiency summary in relation to question 4.1.4.	Management of Change (MoC) assessments were not completed for all changes identified during the audit period, specifically the modifications to the Heap Leach. Of the reports provided, none were completed in their entirety, particularly the sign-off confirming that the plant and process register has been updated, the modification report completed and filed.
Corrective Action	Finding/Evidence
To re-establish and maintain compliance SIGM is required to implement a MoC process (or modify current process) that will identify and assess changes that can impact on Code compliance including changes in organisational arrangements, changes in operating practices or facilities, changes to key operating parameters that protect worker safety or the environment (i.e. alarm levels, containments etc.). In order to complete this corrective action the following actions are necessary:	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has:</p> <ul style="list-style-type: none"> ■ Decommissioned the Heap Leach. ■ Reviewed and amended its MoC process. ■ Developed and implemented a training package to reinforce its MoC process to staff. ■ Incorporated MoC as an agenda item in its Weekly Planning Meeting demonstrating changes are raise and considered. Over four months of meeting minutes were provided as evidence.



<ul style="list-style-type: none"> ■ Review the current management of change procedure and the scope change procedure and evaluate if these can be used effectively for this purpose. The scope of the review is to consider the following as a minimum: <ul style="list-style-type: none"> ■ Will the process prompt identification and consideration of changes to discharges and composition of discharges? ■ Will the process prompt for period review or verification of the change mitigation measures? ■ Will the process prompt identification and consideration proposed changes imposed on cyanide facilities? ■ Does the process clearly consider worker exposure risks and risk to the environment? (In the context of the code for environment this should include failures that could releases to the environment (spills) and access for wildlife to solutions above 50 mg/l WAD CN) ■ Does the process prompt inspection of the facility/process/arrangements as part of the assessment process? ■ Does it prompt consideration of short term and long term impacts? ■ Does it prompt for hold points or contingencies? ■ Following the review, agree and communicate the process for managing non-engineering changes to managers and supervisors that have role in or a stakeholder of Code compliance. ■ Train Supervisors and managers in the process and the use of associated tools. ■ Collate and document the critical parameters for Code compliance in a single reference list that can be used as to in identify where an action constitutes a changes and the potential impacts of a change. ■ Modify the agenda of monthly processing operations meetings to include a specific item on changes and initiatives (internally and externally driven) to provide additional opportunities to identify when the process developed in item 2 needs to be used. 	<ul style="list-style-type: none"> ■ Collated list of critical parameters for Code compliance within its Cyanide Management Plan that can be used to identify if an initiative represents a change. This is supported by a roles and responsibility matrix within the Cyanide Management Plan. <p>Interviews with the Processing Manager, Senior Metallurgist, Mechanical Projects Coordinator and Processing Technician supported the implementation of this corrective action.</p>
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<p>Deficiency summary in relation to question 4.1.6.</p>	<p>The operation does not consistently inspect cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters.</p>
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	<p>Limited records are available confirming that operational inspections occurred at the Heap Leach during the audit period. Weekly documented checks were largely discontinued for the audit period and the Monthly EHS Inspections using checklists deteriorated resulting in a lack of current information on the substandard condition of the facility being filtered through the organisation to relevant managers.</p>
Corrective Action	Finding/Evidence
<p>To re-establish and maintain compliance SIGM is required to re-establish awareness and knowledge of the ICMC and SIGM's commitments across the management team, with a focus on front line supervisors. The operational decisions and actions of frontline supervisors have a significant bearing on ICMC compliance.</p> <p>Re-establishment of awareness and knowledge would typically involve the following activities:</p> <ul style="list-style-type: none"> ■ Development or re-establishment of a consolidated commitment register. ■ Allocation of responsibilities for commitments within the RACI or similar. ■ Training of personnel accountable for achieving commitments. ■ Demonstrate annual review of RACI (or similar) responsibilities by employees (must include responsibilities for maintaining Code compliance). 	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has:</p> <ul style="list-style-type: none"> ■ Revised its Cyanide Management Plan to contain relevant information that will enable SIGM to maintain the knowledge level of ICMC across the management team. This is supported by a roles and responsibility matrix within the Cyanide Management Plan. ■ Improved its EHS inspection process of cyanide areas at the Lefroy Plant. Over four months of records were provided as evidence. <p>Interviews with the Processing Manager, Senior Metallurgist, Mechanical Projects Coordinator and Processing Technician supported the implementation of this corrective action.</p>
<p>Deficiency summary in relation to question 4.1.6.</p>	<p>Preventive maintenance programs are partly implemented and activities partly documented to ensure that equipment and devices function as necessary for safe cyanide management.</p> <p>Limited records are available for the Heap Leach Wet Plant.</p>
Corrective Action	Finding/Evidence
<p>To re-establish and maintain compliance SIGM is required to refer to 4.1.4 and 4.1.6.</p>	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has implemented the corrective actions as described in 4.1.4 and 4.1.6.</p>
<p>Standard of Practice 4.3.</p>	<p>Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.</p>
<p>Deficiency summary in relation to question 4.3.1.</p>	<p>A probabilistic water balance to prevent unintentional releases to the environment has not been consistently in use during the recertification period.</p>
Corrective Action	Finding/Evidence
<p>To re-establish and maintain compliance SIGM is required to demonstrate continued use of the water balance over a six month period.</p>	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has:</p> <ul style="list-style-type: none"> ■ Used its water balance model over a six month period. ■ Implemented a system to use of the water balance and escalate to senior management in the event that the water balance is not run in accordance with schedule and parameters. This is supported by a roles and responsibility matrix within the Cyanide Management Plan.

Standard of Practice 4.4.	Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.
Deficiency summary in relation to question 4.4.1.	<p>The operation has not implemented measures to restrict access by wildlife and livestock to all open waters where WAD cyanide exceeds 50 mg/L.</p> <p>During the audit period the WAD cyanide and copper concentrations at the spigot and within the supernatant were found to be largely within the prescribed operating parameters, however salinity was found to be deficient. The salinity, required to be above 50 000 mg/L TDS was found to be generally less than this up to August 2015 and at times to February 2016.</p> <p>The requirement for daily sampling was also not being complied with during much of the audit period with sampling conducted only during week days and when the mill was operational.</p> <p>It was also observed that wildlife observations were conducted by on-site staff on 90% of days, although, training of wildlife observers did not commence until 6 November 2015.</p> <p>A site inspection of the Heap Leach identified that pregnant solution returning from the Heap Leach was being discharged directly into perimeter drains and flowing to the netted containment pond (the net was noted as being damaged and did not fully enclose the pond). The damaged net and cyanide solution in open drains resulted in wildlife potentially accessing solutions greater than 50 mg/L WAD cyanide.</p>
Corrective Action	Finding/Evidence
To re-establish and maintain compliance SIGM is required to refer to 4.1.4 and 4.1.6.	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has:</p> <ul style="list-style-type: none"> ■ Implemented the corrective actions as described in 4.1.4 and 4.1.6. ■ Provided 6 months of data showing compliance with M398 requirements for WAD cyanide and TDS. <p>The operation, however, was unable to provide 6 months of data showing consistent compliance with the operating limits for copper. In March 2017, SIGM submitted a peer reviewed study supporting changes to established alternate protective mechanism for protection of wildlife (M398 Study) as it was recognised that several of the recommendations included in the original M398 project required updating or revision, or were no longer relevant. One change included the removal of the operating limit for copper as it has no direct impact on wildlife.</p> <p>The ICMI has reviewed the materials submitted by the SIGM supporting the M398 changes and has noted that the submission by SIGM is complete with respect to the Cyanide Code's requirements for establishing or revising an alternate mechanism for protection of wildlife to satisfy Standard of Practice 4.4. In light of this, the requirement for 6 months of data showing compliance with the operating limits for copper is no longer required.</p>
Deficiency summary in relation to question 4.4.4.	<p>The operation does not consistently apply leach solutions in a manner designed to avoid significant ponding on the heap surface. It does limit overspray of solution off the heap liner.</p> <p>The solution irrigated onto the Heap Leach is >50 mg/L WAD. An inspection of the facility during the audit identified significant ponding that extended across multiple irrigation points and in one instance was over 400 m² in extent. Interviews confirmed that this was not an isolated event. The operation has not implemented a formalised check on ponding and a standard had not been established to inform operators what constitute acceptable levels of ponding and what was considered significant.</p>

Since the audit, SIGM has decommissioned the Heap Leach.	
Corrective Action	Finding/Evidence
To re-establish and maintain compliance SIGM is required to refer to 4.1.4 and 4.1.6.	SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Specific evidence reviewed indicated that SIGM has implemented the corrective actions as described in 4.1.4 and 4.1.6.

Standard of Practice 4.7.	Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.
Deficiency summary in relation to question 4.7.1.	<p>Spill prevention or containment measures are not provided for all cyanide process solution tanks.</p> <p>The operation has solution tanks installed on ring beams:</p> <ul style="list-style-type: none"> ■ Five CIL tanks ■ One process water tank. ■ Three heap leach tanks <p><u>CIL Tanks</u> The CIL process tanks were observed to have leak detection installed within the ring beam but no evidence to show how the installed design would detect leaks. The basis for design for this system to confidently detect leaks was not provided. The current system comprises short pipes that extend 0.08 m into the oil sand layer underlying the tanks. The tanks are approximately 16 m in diameter.</p> <p><u>Process Water Tank</u> The process water tank does not have a leak detection system installed. The tank is emptied and inspected on a 12 weekly cycle.</p> <p><u>Heap Leach Tanks</u> Three cyanide solution tanks at the Heap Leach facility do not have a leak detection system installed.</p>

Corrective Action	Finding/Evidence
To re-establish and maintain compliance SIGM is required to install leak detection units in accordance with consultant's recommendations.	<p>SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice.</p> <p>Specific evidence reviewed indicated that SIGM has:</p> <ul style="list-style-type: none"> ■ Completed the installation of leak detection units as evidenced by construction documentation and site inspection. ■ Provided 3 months of leak detection data for the process water tank and CIL tanks. Cyanide solution tanks at the Heap Leach facility were decommissioned.

Standard of Practice 6.1.	Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.
Deficiency summary in relation to question 6.1.3	Refer to 4.1.4.

Corrective Action	Finding/Evidence
To re-establish and maintain compliance SIGM is required to refer to 4.1.4 and 4.1.6.	SIGM has completed this corrective action and is Fully Compliant with this question and Standard of Practice. Refer to 4.1.4 and 4.1.6.

STATEMENT OF COMPLIANCE

Based on the evidence observed, I am satisfied that SIGM has fully implemented the Corrective Action Plan submitted to the ICMI and consequently the operation is fully compliant with the Code.

Should you require any additional information, please do not hesitate to contact me.

Yours faithfully

GOLDER ASSOCIATES PTY LTD



Ed Clerk
Principal EHS Consultant

MCW/EWC/hsl

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