



SUSTAINABILITY
FUTURE GROWTH

**INTERNATIONAL CYANIDE MANAGEMENT CODE
GOLD MINING OPERATIONS**

**BARRICK GOLD OF AUSTRALIA LIMITED
PORGERA JOINT VENTURE
Porgera Gold Mine Recertification Audit
Summary Audit Report**

November 2012





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SUMMARY AUDIT REPORT

Name of Mine

Porgera Gold Mine

Name of Mine Owner

Porgera Joint Venture

Name of Mine Operator

Barrick (Niugini) Limited

Name of Responsible Manager

Glenn Kelly, Process Manager

Address

PO Box 484
Mount Hagen, WHP
Papua New Guinea

Contact


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LOCATION DETAIL AND DESCRIPTION OF OPERATION

Globally Barrick has 26 operating mines, located in some of the world's most prospective gold districts in North America, South America, Australia Pacific and Africa.

Barrick's Australia Pacific region is comprised of 8 operating gold mines: the Kalgoorlie, Kanowna, Plutonic, and Yilgarn South (Granny Smith, Darlot and Lawlers) gold mines in Western Australia; the Cowal gold mine in New South Wales; and the Porgera (95%) gold mine in Papua New Guinea.

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

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The Porgera gold mine is a joint venture operation in the Enga Province in the Central highlands of Papua New Guinea (PNG). The mine is located about 130 km west of the established town of Mount Hagen, 600 km northwest of Port Moresby and about 680 km by road from the coastal port of Lae from which all materials are freighted. The mine is situated in rugged, mountainous terrain at 2,300 m elevation on the floor of the Porgera Valley, which rises to 2,800 m at the rim. The annual rainfall is approximately 3.7 m and daily temperatures range from 10°C to 25°C.

The major components on the Porgera processing plant include:

- crushing circuit and coarse and fine ore storage;
- grinding circuit;
- gravity and regrind circuit;
- flotation circuit;
- pressure oxidation and tailings neutralisation circuits;
- leaching and adsorption circuits;
- acid wash and stripping elution circuit;
- electrowinning and gold refinery;
- oxygen plant;
- chemical storage and mixing;
- cyanide destruct plant; and
- tailings pipework and infrastructure.

AUDITOR'S FINDING


This operation is:

- in full compliance
- in substantial compliance
- not in compliance

with the International Cyanide Management Code.

This operation has maintained full compliance with the International Cyanide Management Code throughout the previous three-year audit cycle.

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

26 November 2012
Date

Audit Company

Sustainability Pty Ltd
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North Beach, WA, 6020
AUSTRALIA

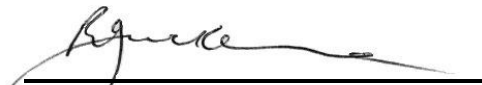
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Audit Team Leader

Susan Giles (susan.giles@sustainability.net.au)

Names and Signatures of Other Auditors



R John McKenna
26 November 2012


Date(s) of Audit

Inclusive of the period from 8 to 11 June 2012.

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.

<u>Porgera Gold Mine</u> Name of Mine	 Signature of Lead Auditor	<u>26 November 2012</u> Date
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<u>Porgera Gold Mine</u> Name of Mine	 Signature of Lead Auditor	<u>26 November 2012</u> Date
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PRINCIPLE 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.

in full compliance with

The operation is in substantial compliance with Standard of Practice 1.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with standard of Practice 1.1, requiring the operation 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.

Porgera purchases its sodium cyanide from Orica Australia Pty Ltd under a contract dated 1 January 2012 which requires that supplied cyanide is manufactured at a facility certified under the Code.

Orica supplies cyanide to Porgera from its Yarwun, Australia facility which ICMI announced as full re-certified under the Code on 17 March 2010. Thus the operation is in full compliance.

Porgera Gold Mine
Name of Mine

Roslan Aib
Signature of Lead Auditor

26 November 2012
Date

PRINCIPLE 2 – TRANSPORTATION

Protect communities and the environment during cyanide transport.

Standard 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.

in full compliance with

The operation is in substantial compliance with Standard of Practice 2.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with the Standard of Practice 2.1 requiring that the operation establishes clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.

For the purposes of the Code, transportation of cyanide from Orica's Yarwun production facility in Queensland, Australia to Porgera is split into two stages managed by two different entities. These are:

- Orica Australia Pty Ltd for transport between Yarwun and Port of Lae, Lae, PNG (via Brisbane); and
- Toll (PNG) Limited for transport between Port of Lae and the Porgera mine.

Orica's Australian and PNG supply chains and Toll (PNG) Ltd's supply chain have been certified under the Code. Thus the operation is in full compliance.

Standard of Practice 2.2


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

in full compliance with

The operation is in substantial compliance with Standard of Practice 2.2

not in compliance with

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

26 November 2012
Date

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 2.2 requiring that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

Both of Orica's supply chains, ie Australian and PNG are certified under the Code and Toll (PNG) Limited's PNG supply chain is also certified under the Code. Thus the operation is in full compliance.

Porgera Gold Mine
Name of Mine

Rosan Cibe
Signature of Lead Auditor

26 November 2012
Date

PRINCIPLE 3 – HANDLING AND STORAGE

Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 3.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 3.1 requiring that unloading, storage and mixing facilities are designed and constructed with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.


Solid cyanide arrives at Porgera in sealed 20 foot general shipping containers. The shipping containers are unloaded from the truck and placed directly onto a newly constructed concreted bulk storage area.

The mixing shed floor where cyanide in solid form is mixed with water to make cyanide solution is made of concrete and thus can prevent seepage to the subsurface. The cyanide mixing and storage tanks stand in a concrete bunded area. Any spillage will be collected inside the bund and can be recovered.

Consultants GHD prepared a report in 2007 concluding that the cyanide unloading, mixing and storage facilities were in accordance with sound and accepted engineering practices. This report has been retained.

There were two changes to the unloading, storage and mixing facilities since the certification audit in 2009. These are the newly constructed bulk cyanide storage area consisting of a 300 mm thick, reinforced concrete sloping slab and the refurbishment in 2011 of the gold room spillage pond to ensure that its HDPE liner provides an effective element in the secondary containment system. QA/QC documentation for the liner refurbishment work was sighted.

Porgera Gold Mine
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Standard of Practice 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.

in full compliance with

The operation is in substantial compliance with Standard of Practice 3.2

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 3.2 requiring that unloading, storage and mixing facilities are operated using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Porgera has developed and implemented SOPs to prevent exposures and releases during cyanide unloading and mixing activities, in addition to procedures to respond to spills. These procedures include:

- SOP-300-000-201 Cyanide & PAX Box Destruction
- SOP-300-000-203 Cleaning out Sea Containers
- SOP-304-003-110 Cyanide Mix
- SOP-304-003-102 Delivering Cyanide to Cyanide Mixing Shed
- SOP-304-003-140 Cyanide Spill Clean-up
- CBT-TRG-LIC-312-103 Processing – Forklift

Facilities are in place to recover spill reagent back into storage.

Porgera Gold Mine
Name of Mine

Rosan Cibe
Signature of Lead Auditor

26 November 2012
Date

PRINCIPLE 4 – OPERATIONS

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

Standard of Practice 4.1

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:


Porgera is in FULL COMPLIANCE with Standard of Practice 4.1 requiring management and operating systems designed to protect human health and the environment are implemented and include contingency planning and inspection and preventive maintenance procedures.

Porgera have developed and implemented SOPs for all of its cyanide facilities. These SOPs and their associated training modules include the assumptions and parameters on which the facilities are based. The Cyanide Related Documentations Quick Find Index identifies the documentation within Porgera's operating system that relate to operations involving cyanide risks.

Inspection of the cyanide facilities are completed regularly, eg the leach, CIP and strip areas are inspected by operators twice per day. Where issues are raised work orders are raised.

There is a comprehensive program of preventative maintenance that includes appropriate coverage of mechanical and instrumented systems that must function effectively for cyanide management. The program includes tanks, vessels, pumps, fans, pipelines, valves, instruments and secondary containments that form part of Porgera's cyanide facilities.

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

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Date

Standard of Practice 4.2

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.2

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.2 requiring management and operating systems be introduced to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

New ore types are not tested for cyanide consumption rates as the blending of ore on the ROM paid, additional blending in the CSTs and the oxidisation process in the autoclaves produces a homogenous feed requiring a relatively constant cyanide addition rate.

Another factor influencing the cyanide addition rate is the direct discharge of tailings to the environment. The requirement to have a low cyanide level at the discharge point generally limits the process plant's ability to increase cyanide addition rates in the leach circuit above 180 ppm.

The cyanide addition rate in the leach circuit is automatically controlled using Cyantific instrumentation in Tank 0 and 3. The addition of cyanide is automatically stopped if the instrumentation in Tank 0 records cyanide levels about 170 ppm. The Process Operators also perform manual titrations for quality purposes.

Standard of Practice 4.3

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.3

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.3 requiring a comprehensive water management program be implemented to protect against unintentional releases.

Porgera Gold Mine
Name of Mine

Rosan Cibe
Signature of Lead Auditor

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Porgera practices riverine disposal of its tailings after they have been treated to reduce the concentration of cyanide to less than 0.5 mg/L WAD cyanide. There is no accumulation of cyanide-bearing tailings outside the actual processing plant from which a loss of containment could occur.

Porgera engaged Water Management Consultants (WMC) in 2007 to assess Porgera's water balance against the Code requirements. In their report, WMC noted that the release of tailings to the wider environment is planned, intentional and fully in accordance with mine permits.

Standard of Practice 4.4

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.4

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.4 requiring measures be implemented to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

There are no open water bodies at Porgera that have WAD cyanide levels in excess of 50 mg/L. As such, there is no requirement under the Code to restrict wildlife.

Ensuring the WAD cyanide levels in the discharged tailings to less than 0.5 mg/L WAD cyanide is effective in preventing significant wildlife mortality.

Standard of Practice 4.5

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.5

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.5 requiring measures be implemented to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

The operation directly discharges tailings to surface waters. Tailings from the process plant are discharged onto the Anawe erodible waste rock dump located within the Maiapam Creek valley. The tailings are released onto the Anawe erodible waste rock dump at an authorised discharge point listed within the Porgera Environmental Permit issued by the PNG Government.

The Cyanide Destruction Plant ensures the WAD cyanide levels in the discharged tailings stream are less than 0.5 mg/L WAD cyanide.

The PNG Government has referenced SG3 as the end of the designated mixing zone in Porgera's Environmental Permit, approximately 160 km from the point of discharge. This point is sampled monthly and all free cyanide results have been less than the analytical detection limit of 0.02 mg/L which is less than Cyanide Code limit of 0.022 mg/L.

The operation could potentially discharge to surface water indirectly through springs flowing into the surface water. Springs within the first 7 km downstream of the tailings discharge are monitored for cyanide but no cyanide has been detected. Springs further downstream are believed to be fed from catchments outside the footprint of the mine. All springs observed by WMC in 2007 lead to the Pongema River catchment and the surface water is ultimately sampled at the end of the designated mixing zone at SG3 where free cyanide is less than the analytical detection limit of 0.02 mg/L which is less than Cyanide Code limit of 0.022 mg/L.

Indirect discharges from the operation have not caused cyanide concentrations in surface water to rise above levels protective of a designated use for aquatic life.

Standard of Practice 4.6


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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.6

not in compliance with

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

26 November 2012
Date

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.6 requiring measures be implemented to manage seepage from cyanide facilities to protect the beneficial uses of ground water.

The operation manages seepage by operating the Cyanide Destruction Plant for tailings released to the riverine environment and by maintaining facilities that prevent the seepage of cyanide from the processing plant. As there is no TSF at Porgera, there is no requirement to manage seepage from such a facility.

Groundwater within the vicinity of Porgera has not been designated a beneficial use by the PNG DEC. Notwithstanding this, Porgera commissioned WMC in 2007 to develop a hydrogeological conceptual model of Porgera.

Based on the WMC report it was determined that the beneficial use of groundwater in the area is drinking water and domestic uses from groundwater-fed springs. Accordingly, the Environment Department monitor groundwater at the point of actual groundwater withdrawal for use, which is the springs. Monitoring results at the springs have not detected WAD cyanide.

There are no regulatory compliance requirements for cyanide levels at the site of withdrawal, ie the springs. As Barrick's Australia Pacific Business Unit is headquartered in Perth, Australia an appropriate level has been taken from the Australian Drinking Water Guidelines 6 (Australian Government, 2004) which states that "*based on health considerations, the concentration of cyanide in drinking water should not exceed 0.08 mg/L*".

Monitoring results show that Porgera is meeting this limit for groundwater at the point of withdrawal.

Standard of Practice 4.7

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

in full compliance with


The operation is in substantial compliance with Standard of Practice 4.7

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.7 requiring spill prevention or containment measures be provided for process tanks and pipelines.

Porgera Gold Mine
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Spill prevention or containment measures are provided for all cyanide storage and mixing tanks and for process solution tanks. Cyanide process solution pipelines are associated directly with these tanks and bunding and so those containment measures are effective for pipelines as well as tanks. Cyanide reagent piping is jacketed at the locations where it crosses unsealed ground. Weep holes are in place where those jackets are close to the ground level within the bunded areas or the jackets are left open at the discharge point to enable leakage from the inner pipe to be made visible under relatively safe conditions.

Since completion of the Cyanide Destruction Plant, tailings lines outside the secondary containment areas are not classified as cyanide solution pipelines.

In addition, Porgera have undertaken and completed the compliance works as recommended by GHD in 2007 and reported in the 2009 certification audit. That is:

- Lysimeters have been installed as a leak detection system beneath each cyanide solution tank with a ring beam – the lysimeters are monitored monthly by the Environment Department.
- Refurbishment of the CIP Spillage Pond and Gold Room Spillage Pond to ensure that its HDPE liner provides an effective element in the secondary containment system for process tanks.
- Reconfiguration and extension of arrangements for cyanide process tank bunds to overflow via spoon drains and to flow under a plant road to the Spillage Pond.
- Construction of a new culvert to enable tails lines to cross the plant road and to provide a flow path for spillage to the Spillage Pond.
- Installation of additional concrete surfacing in areas identified by GHD as being at risk of process spillage.

Standard of Practice 4.8


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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.8

not in compliance with

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

26 November 2012
Date

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.8 requiring quality control/quality assurance procedures be implemented to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

In April 2007, engineers and scientists appropriately qualified and experienced in risk management issued a report based on the March 2007 investigations. This report confirmed that the facility was in a suitable condition for continued operation. The documents provided as evidence during the certification audit were sighted but as they had been reviewed and referred to in the 2009 certification audit, they were not reviewed during this audit.

There were two changes to the unloading, storage and mixing facilities since the certification audit in 2009. These are the newly constructed bulk cyanide storage area consisting of a 300 mm thick, reinforced concrete sloping slab and the refurbishment in 2011 of the gold room spillage pond to ensure that its HDPE liner provides an effective element in the secondary containment system. QA/QC documentation for the liner refurbishment work was sighted.

Standard of Practice 4.9

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 4.9


not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 4.9 requiring monitoring programs be implemented to evaluate the effects of cyanide use on wildlife and surface and ground water quality.

Porgera developed standard procedures for monitoring activities that form part of the recently reviewed Environment Chemistry Laboratory Sampling Manual. The sampling procedures specify how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions and cyanide species to be analysed. These procedures were written by appropriately qualified persons.

Porgera Gold Mine
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The Cyanide Destruction Plant has reduced WAD cyanide levels in the discharged tailings to less than 0.5 mg/L WAD which negates the requirement for formal monitoring of wildlife mortalities. If monitoring personnel note anything unusual related to wildlife, it is noted during sampling as there is an opportunity to record "observations" on the field data sheet.

Cyanide in surface water is monitored at SG3 on a monthly basis as required in the Environmental Permit. Groundwater monitoring is not directly undertaken, due to the hydrology groundwater and that there is no regulatory requirement for groundwater monitoring. Groundwater is indirectly sampled at the springs which are the points of actual groundwater withdrawal for use.

The frequency at which the monitoring is conducted is adequate and depends on the location and the type of sampling. Areas where changes in WAD cyanide need to be identified quickly are sampled frequently, ie the tailings stream monitoring is conducted by the Process Department hourly and is confirmed by additional sampling by the Environment Department twice daily. Areas where cyanide levels are not expected, ie SG3 and the springs, are monitored monthly.

Porgera Gold Mine
Name of Mine

Roslan Aib
Signature of Lead Auditor

26 November 2012
Date

PRINCIPLE 5 – DECOMMISSIONING

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

Standard of Practice 5.1

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 5.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 5.1 requiring procedures for effective decommissioning of the cyanide facilities be implemented to protect human health, wildlife and livestock.

Barrick engaged a consultant in 2007 to develop the Porgera Decontamination and Decommissioning Plan (DDP). This plan was developed to be and is compliant the Code's Standard of Practice 5.1 and 5.2. The plan is currently under review to include the Cyanide Destruct Plant and Paste Plant.

The DDP includes an implementation schedule divided into monthly units and the planned tasks are scheduled up to 24 months prior to closure and continue for up to 24 months after closure.

The operations have committed to reviewing its DDP periodically or when a change to operations affecting CN use is made.

Standard of Practice 5.2


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

in full compliance with

The operation is in substantial compliance with Standard of Practice 5.2

not in compliance with

Porgera Gold Mine
Name of Mine


Signature of Lead Auditor

26 November 2012
Date

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 5.2 requiring an assurance mechanism be established capable of fully funding cyanide related decommissioning activities .

For Barrick operations located in countries without the requirement for financial assurance, the Company engages an independent certified public accountant to assist in obtaining a corporate financial guarantee for all cyanide decommissioning activities using relevant guidance published in the US Code of Federal Regulations 10 CFR 30, Appendix A. The process was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants.

The report contains several summary statements concerning Barrick's financial strength including the statement that it has a ratio of "current assets to current liabilities of 1.5 times or greater". This was interpreted to mean that Barrick has sufficient financial strength to meet its cyanide decommissioning costs.

Porgera Gold Mine
Name of Mine

Rosan Cibe
Signature of Lead Auditor

26 November 2012
Date

PRINCIPLE 6 – WORKER SAFETY

Protect workers' health and safety from exposure to cyanide.

Standard of Practice 6.1

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 6.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 6.1 requiring potential cyanide exposure scenarios be identified and measures taken as necessary to eliminate, reduce and control them.

The operation has developed a series of procedures describing how cyanide-related tasks such as unloading, mixing, plant operations, entry into confined spaces and equipment decontamination prior to maintenance should be conducted to minimise worker exposure.

All procedures have a section that outlines "Necessary Equipment" and "Additional PPE" that details the equipment (eg HCN monitor) and PPE requirements for each task/procedure.

All employees and contractors working on the site are required to undertake an assessment prior to conducting any task. The type of risk assessment undertaken is dependent on the task.

The operation has a change management procedure that outlines the principles and process for use within Barrick to manage proposed, temporary and/or permanent changes to activities, infrastructure, products and services and their potential impacts on worker health and safety.

Standard of Practice 6.2

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 6.2

not in compliance with

Porgera Gold Mine
Name of Mine

Roslan Aib
Signature of Lead Auditor

26 November 2012
Date

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 6.2 requiring cyanide facilities are operated and monitored to protect worker health and safety and the effectiveness of the health and safety measures are periodically evaluated.

The Porgera metallurgists have determined that, based on its solution chemistry, a target pH of 10.5 shall be maintained throughout its operation to limit the evolution of HCN gas. The target pH is communicated to the operators as part of the Leach Circuit Training program and by way of a set point board in the control room.

The operation has identified areas and activities where workers may be exposed to cyanide in excess of 10 ppm and employees are made aware of these areas and activities through induction, procedure training and signage.

In addition, the operation uses a combination of both static and personal monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas. HCN monitoring equipment is maintained, tested and calibrated and the records retained.

The Porgera Incident Reporting and Investigation Procedure is in place and is capable of investigating and evaluating cyanide exposure incidents.

Standard of Practice 6.3

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 6.3

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 6.3 requiring emergency response plans and procedures be developed and implemented to respond to worker exposure to cyanide.

The operation has developed and implemented both a Cyanide Emergency Response (CER) Standard Operating Procedure (SOP) and a Response to Cyanide Exposure Standard Working Procedure (SWP) to respond to cyanide exposures. Mock emergency drills are conducted annually and cyanide training is a core competency of all ERT team members.

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Rosan Cibe
Signature of Lead Auditor

26 November 2012
Date

The onsite Medical Centre provides First Aid or medical assistance to workers exposed to cyanide. The facility is open 24 hours and a doctor is on call during the night shift. In addition, Porgera has made formalised arrangements with the regional hospitals.

Porgera Gold Mine
Name of Mine

Rosan Cibe
Signature of Lead Auditor

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PRINCIPLE 7 – EMERGENCY RESPONSE

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

Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

in full compliance with

The operation is in substantial compliance with Standard of Practice 7.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 7.1 requiring detailed emergency response plans are prepared for potential cyanide releases.

The operation has developed a Cyanide Emergency Response (CER) SOP which addresses potential accidental releases of cyanide that may occur on site.

This document forms part of the site's overall emergency response which includes the high level Emergency Management Team (EMT) Plan and the Processing Incident Management Plan.

The purpose of the EMT Plan is to provide guidelines for the successful and professional management of "crisis" incidents affecting Porgera Mine, its employees, their families, contractors and the public.

The Medical Centre maintains the Response to Cyanide Exposure SWP that provides detailed guidelines for the emergency first aid and medical treatment in the form of antidotes.

Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

in full compliance with


The operation is in substantial compliance with Standard of Practice 7.2

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 7.2 requiring the involvement of site personnel and stakeholders in the planning process.

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The current CER SOP is a revised version of the externally developed Cyanide Emergency Response Plan (CERP). Section 8.4 of the CERP, developed by Emergency Training Consultants Pty Ltd, noted that it was developed with collaboration from:

- Orica;
- Porgera's Safety Department, Environmental Department, Mill Department, Community Affairs, Medical Department, Fire Rescue, Logistics and Technical Services;
- Barrick Gold Employees (Porgera, Lawlers, Granny Smith, Plutonic and Kanowna).

The CER SOP states that the plan "is to be reviewed and revised following all cyanide-related emergencies and exercises". Review and revision solicit and incorporate feedback from stakeholders as required and updated roles and responsibilities are distributed to stakeholders as appropriate.

Standard of Practice 7.3

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 7.3

not in compliance with


Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 7.3 requiring appropriate personnel are designated and the necessary equipment and resources are committed for emergency response.

The CER SOP designates primary and alternate emergency response coordinators and lists the key on site personnel who will be contacted during a cyanide emergency at PJV. It states that these managers "have authority to commit the resources necessary to implement the CER SOP when on site".

The duties and responsibilities of the IMT – Processing, Process Manager, Anawe Production Superintendent, Anawe Shift Foreman, Maintenance Manager, Safety & Health Specialist, ER Coordinator, Security Control Centre Supervisor, ER Team Members and employees are detailed within the CER SOP.

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In addition, the medical equipment resources (oxygen and antidote kits) on site and their location are listed.

Excluding medical services, Porgera does not anticipate the involvement of external assistance with cyanide emergencies but includes the following regulatory agencies as having a potential role in an emergency:

- PNG Department of Mining;
- Department Environment & Conservation; and
- Environmental Coordinator Enga Province.

The community have not been allocated a role in the CER SOP.

Standard of Practice 7.4

Develop procedures for internal and external emergency notification and reporting.

in full compliance with

The operation is in substantial compliance with Standard of Practice 7.4

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 7.4 requiring procedures are developed for internal and external emergency notification and reporting.

The CER SOP includes the contact information for notifying management, regulatory agencies, outside response providers and medical facilities.

In addition, the CER SOP details the procedures for communicating with the media, that is there is an onsite Communications and Media Manager and all forms of communication outside of Porgera Mine must be directed through this person.

Standard of Practice 7.5

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 7.5

not in compliance with

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Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 7.5 requiring response plans and remediation measures are incorporated into monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The CER SOP describes:

- how to clean up both solid and liquid cyanide;
- how to neutralise soils, including the use of ferrous sulphate for spills to soils;
- how to decontaminate equipment and the resultant wash water; and
- how to decontaminate waterways.

In addition, it prohibits the use of hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has (or could potentially be) released into surface water and addresses the need for environmental monitoring, including sampling methodologies, parameters and possible locations.

Standard of Practice 7.6

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 7.6

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:


Porgera is in FULL COMPLIANCE with Standard of Practice 7.6 requiring response procedures and capabilities are periodically evaluated and revised as needed.

The CER SOP states that it *"... is to be reviewed and revised following all cyanide related emergencies and exercises (in the absence of incidents, review and revision should occur immediately after the cyanide emergency exercises) and revision information kept on file"*.

The CER SOP has recently been reviewed in June 2012.

Mock emergency drills have been conducted annually and debriefs are conducted after all mock drills. The resulting corrective actions are entered into RIMS for tracking until they are closed out.

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PRINCIPLE 8 – TRAINING

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

Standard of Practice 8.1

Train workers to understand the hazards associated with cyanide use.

in full compliance with

The operation is in substantial compliance with Standard of Practice 8.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 8.1 requiring workers are trained to understand the hazards associated with cyanide use.

Basic cyanide awareness is a component of the site induction training courses and all persons encountering cyanide are required to also attend a more comprehensive cyanide awareness course. The cyanide awareness courses contain information on hazards associated with cyanide.

The Processing Department track and schedule cyanide awareness training and the more comprehensive training requirements through a Citrix system database.

Standard of Practice 8.2

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 8.2


not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 8.2 requiring appropriate personnel are trained to operate the facility according to systems and procedures that protect human health, the community and the environment.

The Process Department has developed a structured training program that ensures workers are trained in their normal production tasks to prevent unplanned cyanide releases.

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A training needs analysis detailing the training elements required for each area within the plant and each operational levels has been established. The elements required for each level are based on the SOPs. A competency based assessment form has been developed for each SOP.

Training is based on a mentoring or buddy system and before employees are allowed to perform a task solo they are put through the following steps:

- instructed and shown how to do the task;
- read the operating procedure;
- observed and coached whilst performing the task;
- successfully pass a competency-based test on the task; and
- undertake the task solo.

Supervisors act as trainers and are responsible for mapping and tracking employees' progress in accordance with the training needs analysis.

Standard of Practice 8.3

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 8.3

not in compliance with


Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 8.3 requiring appropriate workers and personnel are trained to respond to worker exposures and environmental releases of cyanide.

The Cyanide Awareness Training which is provided to all personnel addresses cyanide releases. Refresher training is conducted annually.

Formal competency training, which includes cyanide tasks, is run by the Processing Training Coordinator for the process personnel and the Maintenance Training Senior Foreman for the maintenance personnel. Personnel are trained in the standard work procedures for all tasks undertaken.

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The High CN Gas Alarm procedure details the evacuation process in the event of high HCN being recorded and the Anawe Emergency Evacuation procedure describes the general evacuation process for other emergencies.

These procedures are included within the training needs analysis for process and maintenance employees.

Cyanide training is a core competency of all ER team members and all ER team members attending a cyanide incident are required to have this training.

The ER Team conduct training drills on a weekly basis. Hazchem forms a significant part of the training and cyanide scenarios have been specifically included in these drills.

Mock drill debriefs are conducted after all mock drills and any corrective actions are entered into RIMS for tracking until they are closed out.

Both hard copies and electronic copies of training records are retained. The electronic database is maintained on Citrix containing a record of completed process and maintenance training.

Hard copies of training records and assessment sheets are kept in each employee's file in the process training office or the maintenance office.

The records include the names of the employees and the trainer, the date of training, the topics covered and if the employee demonstrated an understanding of the training materials.

PRINCIPLE 9 – DIALOGUE

Engage in public consultation and disclosure.

Standard of Practice 9.1

Provide stakeholders the opportunity to communicate issues of concern.

in full compliance with

The operation is in substantial compliance with Standard of Practice 9.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 9.1 requiring stakeholders are provided the opportunity to communicate issues of concern.


The operation provides stakeholders with the opportunity to communicate issues of concern at an operational and a corporate level.

At an operational level all employees, contractors and visitors are required to attend the "general site induction" and "cyanide awareness training" prior to working on site where questions are encouraged. In addition, employees are encouraged to ask questions to Supervisors on issues contained in the Tok Save information sheet and the Ipili Wai Pii newsletter.

Community Relations Officers, cover communities within a 40 km radius of the site and approximately 85 km along the highway. The role of the Community Relations Officers is to engage the community providing information to the community and providing feedback from the community to the mine. In addition, various group meetings (Porgera Environmental Advisory Committee, Porgera District Women's Association, Porgera District Youth Association) are held wherein information with respect to cyanide is included.

At a corporate level Barrick Corporation place Porgera's annual environmental reports on their website which details their cyanide management and use at site.

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Standard of Practice 9.2

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

in full compliance with

The operation is in substantial compliance with Standard of Practice 9.2

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 9.2 requiring dialogue is initiated describing cyanide management procedures and responsively address identified concerns.

At an operational level Porgera utilise site inductions, cyanide awareness training, monthly safety topics, Tok Save information sheets and the Iplili Wai Pii newsletters to communicate with stakeholders and provide them with information regarding cyanide management practices and procedures.

Opportunities for the operation to communicate with external stakeholders are provided through the Community relations Department and the network of Community Relations Officers and the various group meetings, eg Porgera Environmental Advisory Kommittee, Porgera District Women’s Association, Porgera District Youth Association).

Barrick Corporation place on their website Porgera’s annual environmental reports which details their cyanide management and use at site.

Standard of Practice 9.3

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

in full compliance with


The operation is in substantial compliance with Standard of Practice 9.3

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Porgera is in FULL COMPLIANCE with Standard of Practice 9.3 requiring appropriate operational and environmental information regarding cyanide is made available to stakeholders.

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At an operational level, Porgera have developed written descriptions of how their activities are conducted and how cyanide is managed and these are communicated through the processes referred to in 9.1.1.

All written information produced by the operation, excluding the Ipili Wai Pii, is produced in both English and Tok Pisin and in some cases Tok Ples.

Community consultation is completed verbally in the language of the community. The communications strategy following an incident would depend on the circumstances surrounding each individual incident. At a minimum, Porgera would:

- adhere to all regulatory and corporate reporting requirements;
- communicate and consult directly with any community regarding a cyanide incident where not to do so would increase the risk to that community;
- Porgera will not deliberately mislead the community as to consequences resulting from an incident involving cyanide; and
- report all incidents through established internal reporting protocols.