October 2015

INTERNATIONAL CYANIDE MANAGEMENT CODE RECERTIFICATION AUDIT

PT Nusa Halmahera Minerals - Gosowong Gold Mine Recertification Audit Summary Audit Report

Submitted to:

International Cyanide Management Institute (ICMI)
1400 I Street, NW
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UNITED STATES OF AMERICA

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AUSTRALIA

REPORT

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Golder Associates

SUMMARY AUDIT REPORT
FOR OPERATIONAL GOLD MINES

Name of Mine:	Gosowong Gold Mine
Name of Mine Owner:	Newcrest Mining Limited
Name of Mine Operator:	PT Nusa Halmahera Minerals
Name of Responsible Manager:	Mark Kaesehagen, Deputy Operations Director
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LOCATION DETAIL AND DESCRIPTION OF OPERATION:

1.1 Newcrest Mining Limited

Newcrest Mining Limited (Newcrest) is headquartered in Melbourne, Australia and is the largest gold producer listed on the Australian Stock Exchange (ASX).

The origins of Newcrest date back to 1966, when Newmont Mining Limited established an Australian subsidiary, Newmont Australia Limited. In 1990, Newmont Australia Limited acquired Australmin Holdings Ltd, and subsequently merged with BHP Gold Limited in late 1990, changing its name to Newcrest Mining Limited. The Company has been listed on the ASX since 1987 – initially as Newmont Australia Limited.

Newcrest owns and operates six (6) mines including Gosowong. Two (2) of these are located in Australia; these include Cadia near Orange in New South Wales and Telfer in the Pilbara region of Western Australia. Newcrest also has the Lihir and Hidden Valley Gold Operations in Papua New Guinea as well as the Bonikro operation in Côte d'Ivoire in West Africa.

1.2 PT. Nusa Halmahera Minerals

NHM is the joint venture company formed to manage the Gosowong Gold Mine. NHM is owned 75% by Newcrest, with PT. Aneka Tambang owning the remaining 25%. The Gosowong Gold Mine is located within the Gosowong gold province, which covers an area of approximately 30,000 ha. The mine is situated on Halmahera Island, in the North Maluku Province, Indonesia and is approximately 2,450 km north-east of the national capital, Jakarta.

Kencana is the third mine to be developed by Newcrest at the Gosowong site and the first underground mine. Kencana is located 1 km south of the original Gosowong pit. Underground development of the Kencana mine commenced in February 2005 with the first underground ore mined in March 2006.

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The existing Gosowong processing plant is used to process Kencana ore. The processing plant comprises a primary jaw crusher followed by two units of SAG Mills and one unit of Ball Mill ahead of a cyanide leach circuit. Gold and silver is recovered from the pregnant solution using the Merrill-Crowe (zinc precipitation) process before smelting to produce doré bars.

Materials required for the operation of the mine are imported through the Port of Barnabas and trucked to the mine site. NHM owns and manages the Port of Barnabas as well as the vehicles used to transport products between the Port of Barnabas and the Gosowong Mine Site.

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AUDITORS FINDINGS

The Newmont Boddington Gold Mine is:

☐ in full compliance with

☐ in substantial compliance with **The International Cyanide Management Code**

☒ **not in compliance with**

A number of cyanide incidents and releases were noted as occurring during the audit period. Details are provided within this report.

Audit Company: Golder Associates

Audit Team Leader: Ed Clerk, Exemplar Global (105995)

Email: eclerk@golder.com.au

Name and Signatures of Other Auditors:

Name	Position	Signature	Date
Ed Clerk	Lead Auditor and Technical Specialist		12 October 2015
Mike Woods	Auditor		12 October 2015

Dates of Audit:

The Recertification Audit was undertaken over four days between 27 and 29 January and 22-23 April 2015.

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's *Gold Mining Operations Verification Protocol* and using standard and accepted practices for health, safety and environmental audits.

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PRINCIPLE 1 – PRODUCTION

Encourage Responsible Cyanide Manufacturing by Purchasing from Manufacturers that 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 with**

☐ in substantial compliance with **Standard of Practice 1.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM 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.

NHM's contracts with its cyanide manufacturers specify that the cyanide be produced at a facility that has been certified as being in compliance with the Code or a signatory to the Code.

Prior to 2014, NHM purchased its sodium cyanide from Tongsuh Petrochemical Corp. Ltd. (Tongsuh) in South Korea under a *Purchasing Contract Agreement* (*Purchase Agreement*). Since January 2014, NHM has purchased its sodium cyanide from Australian Gold Reagents (AGR) under a *Minor Goods Supply Contract* (Contract). The Contract notes that the supplier is required to be a signatory to the International Cyanide Management Institute Code (ICMC) for the production and transport of cyanide.

Cyanide purchased by NHM is manufactured at facilities certified as being in compliance with the Code.

The Tongsuh production facility was recertified as being in full compliance with the Code on 11 March 2014.

The AGR production facility was conditionally recertified against the Code on 18 September 2013 and a Corrective Action Plan developed on 18 September 2013. The Corrective Action Completion Report to close gaps identified during the Recertification Audit was completed on 19 June 2014 and AGR is now fully compliant with the ICMC.

The Metallurgical Superintendent advised that NHM were aware of AGR's ICMC status and were checking with AGR at the time to confirm their implementation of AGR's Corrective Action Plan.

NHM does not purchase cyanide from an independent distributor(s).

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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.**

The operation is

☐ in full compliance with

☐ in substantial compliance with **Standard of Practice 2.1**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

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

NHM does not currently have written agreements between the operation, the cyanide producer and transporters designating responsibility for its supply chain. Agreements in place do not all specifically state that the designated responsibilities extend to any subcontractors used by the producer, distributor, transporter or the operation for transportation-related activities. The Recertification Audits of the cyanide suppliers and cyanide transport supply chains were used by NHM to assure that the designation of responsibilities to all parties has been adequately addressed.

Prior to 2014, the supply chain between the manufacturer (Tongsuh) and the Gosowong Gold Mine was comprised of the following:

- Tongsuh – Tongsuh is an ICMI certified manufacturer and was responsible for the road transportation between Tongsuh and the Port of Ulsan, South Korea. This was conducted by SAM IK Logistics Co., Ltd, which was recertified as being in full compliance with the Code on 17 December 2013.
- NHM – NHM is listed as a transporter under the Code with responsibility for the Gosowong Mine Supply Chain. The components of this Supply Chain included:
  - Port of Ulsan in South Korea (although the Purchasing Contract specifically notes that cyanide is supplied FOB (Free on Board) to Ulsan.
  - Shipping between the Port of Ulsan and the International Port at Surabaya, Indonesia. This was conducted by Wan Hai Lines Limited (WHL).
  - PT Trans Continent (PTTC) Supply Chain – The components of the Supply Chain include:
    - The Surabaya Domestic and International Ports
    - Road Transport between the Surabaya International and Domestic Ports within the Surabaya Port complex (Tanjung Perak)
    - Shipping between:
      - Surabaya Domestic Port, Indonesia
      - Surabaya Domestic Port to the Port of Port of Barnabas on the Island of Halmahera (including custom clearance and stevedoring operations)

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- Surabaya Domestic Port to the Port of Barnabas on the Island of Halmahera via the Port of Bitung (alternative route)
- The Port of Bitung, Indonesia

PTTC was recertified against the Code on 2 December 2014.

- The Port of Barnabas
- Road transportation between the Port of Barnabas and the Gosowong Mine site.

The Gosowong Mine Supply Chain was certified against the Code on 7 September 2011 but has not been recertified.

Since January 2014, the supply chain between the manufacturer (AGR) and the Gosowong Gold Mine was comprised of the following:

- AGR – AGR is an ICMI certified manufacturer responsible for the transportation of cyanide between its manufacturing facility and the Port of Surabaya. This includes:
  - Transportation of sodium cyanide from AGR's production facility to the Port of Fremantle, Western Australia utilising the AGR West Australian Supply Chain which was re-certified against the Code on 13 June 2013
  - Shipping between the Port of Fremantle to the Port of Surabaya, Indonesia utilising the AGR Ocean Freight Supply Chain which was re-certified against the Code on 29 September 2014.
- NHM – unchanged

Written agreements do not all specifically state that the designated responsibilities extend to any subcontractors used by the producer, distributor, transporter (excluding PTTC) or the operation for transportation-related activities. The Recertification Audits of the cyanide suppliers and cyanide transport supply chains were used by NHM to assure that the designation of responsibilities has been adequately addressed.

As the Gosowong Mine Supply Chain has not been recertified, NHM is now considered to be Non-Compliant with this Standard of Practice.

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Standard of Practice 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 with

☐ in substantial compliance with **Standard of Practice 2.2**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON 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.

The operation's contracts with its respective transporters do not specifically require all cyanide transporters to be certified under the Code. With the exception of the Gosowong Mine Supply Chain, all transporters involved in the transportation of cyanide from the point of manufacture to the Gosowong Gold Mine are fully compliant with the Code.

As the Gosowong Mine Supply Chain has not been recertified, NHM is now considered to be Non-compliant with this Standard of Practice.

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PRINCIPLE 3 – HANDLING AND STORAGE

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

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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 3.1, requiring that cyanide handling and storage facilities are designed and constructed consistent with sound, accepted engineering practices, Quality Assurance/Quality Control (QA/QC) procedures, spill prevention and spill containment measures.

Facilities for unloading and storing cyanide have been designed and constructed in accordance with sound and accepted engineering practices for these facilities. A Fit For Service Review was conducted during the Certification Audit and described in the initial Certification Audit Report. The layout and design of the facility has not changed since this assessment.

Unloading and storage areas are located away from surface waters. The nearest surface water is located more than 200 m from the reagent cyanide area.

A cyanide exposure risk assessment of the cyanide reagent storage areas was conducted that showed that existing separation distances between the cyanide unloading and storage areas and office environments did not warrant additional precautions outside of existing unloading procedures and emergency management measures.

The unloading, storing and mixing facilities at Gosowong consist of a secondary contained container storage yard, a covered box storage area, and a secondary contained cyanide mixing tank and storage tank. All pads and containment facilities are constructed of concrete that can minimise seepage to the subsurface as well as contain, recover and remediate cyanide spills.

NHM uses a level indicator and high-level alarm to prevent the overfilling of cyanide storage tanks. An overflow pipe is also present on the storage tank directing cyanide solution back to the mixing tank, thus preventing it being overfilled by pumping from the mixing tank.

Cyanide mixing and storage tanks are located sand filled concrete ring beams placed over a continuous concrete floor that can prevent seepage to the subsurface. An inspection of the secondary containment for cyanide storage and mixing tanks indicated that it was constructed of concrete that appeared to provide a competent barrier to leakage.

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Cyanide is stored:

- With adequate ventilation to prevent the build-up of HCN gas.

  Cyanide boxes are stored within locked shipping containers that prevent contact with water. The *Loading and Unloading* procedure requires the containers to be opened, ventilated and then checked for the presence of HCN prior to removing boxed cyanide. The boxes are transferred to the cyanide mixing area (covered box storage area) on an as needs basis.

  The cyanide mixing tank and storage tank are located within the same roofed facility, which is open at the sides to allow ventilation.

- Under a roof, off the ground, or with other measures to minimise the potential for contact of solid cyanide with water.

  Cyanide boxes are stored within locked shipping containers that prevent contact with water. The boxes are transferred to the cyanide mixing area which has a roof to keep the area dry.

- In a secure area where public access is prohibited within the fenced boundary of the plant and further within a separate fenced and locked area.

  Cyanide boxes are stored within locked shipping containers.

  The mixing tank and storage tank are located within a fenced compound that is kept locked. This compound is located within the mill area, which is also fenced and has controlled access.

- Separately from incompatible materials.

  Cyanide containers are stored within a designated bunded area.

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

Summarise the basis for this Finding/Deficiencies Identified:

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

NHM does prevent empty cyanide containers from being used for any purpose other than holding cyanide. The *Mixes Sodium Cyanide Solution* procedure notes that all cyanide packaging material (boxes, plastic bags and liners) should not be re-used for any other purpose other than storage and disposal of cyanide. Following cyanide mixing activities, plastic bags and liners are to be rinsed with water three times. The effluent is collected in the mixing tank containment sump and pumped to the leaching circuit. Rinsed bags are placed back into the empty cyanide boxes for transportation to the incinerator for disposal. The procedure notes that all packaging materials should be incinerated in accordance with environmental procedures. The *Disposal of Packaging* procedure provides further clarification on the transportation of waste material to the incinerator and disposal of incinerator ash.

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Ash from the facility is collected by a contractor and transported to a licensed waste disposal facility.

Two procedures have been developed covering the destuffing of the container and mixing and storing cyanide. The *Loading and Unloading* procedure details the steps necessary to safely and correctly destuff a cyanide container and transport cyanide boxes to the Reagent Mixing Area. The *Mixes Sodium Cyanide Solution* procedure details the steps necessary to safely and correctly mix a batch of sodium cyanide solution at the Cyanide Mixing Facility in the Reagent Mixing Area.

The mixing tank can only mix one box at a time and the storage tank cannot store multiple mix batches. Consequently only one cyanide box is removed from the container for each mix.

Cyanide boxes are staked two high within locked shipping containers. The Cyanide boxes were placed in the container by the cyanide supplier.

The *Mixes Sodium Cyanide Solution* competency assessment notes that the sump pump should be started immediately in the event that solution is observed or expected within the bund (spill or clean-up). The area is also hosed down upon completion of the job. The competency assessment also requires the mixing operation to be observed remotely. An initial check is made to ensure that CCTV is working and that an operator is available to observe the CCTV during the mixing operation.

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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 including contingency planning and inspection and preventive maintenance procedures.**

The operation is

☐ in full compliance with

☐ in substantial compliance with **Standard of Practice 4.1**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 4.1, requiring that the operation implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

Written management and operating plans and procedures have been developed for cyanide facilities including:

- Reagent Area
- Cyanide Pump
- Loading and Unloading
- SAG and Ball Mill Circuit
- Confined Space
- Preleach Thickener
- Leach/CCD Area
- Hopper Clarifier
- Mixing Sodium Cyanide Solution
- Grinding Circuit
- Clarification/Precipitation Circuit
- Leach Feed Thickener
- Tailings Management
- Cyanide Detoxification Circuit

NHM do not utilise a heap leach process for gold recovery and do not utilise cyanide regeneration and disposal systems.

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The Recertification Audit identified systemic failures in the management system that contributed to a number of specific deviations. Specifically there was a lack of knowledge with regards to the ICMC and specific commits made by NHM to maintain compliance with the ICMC.

The *Operating Guidelines* procedure outlines the operating guidelines to mill personnel at Gosowong Gold Metallurgical Plant. The procedure focuses on grind size, cyanide addition, cyanide destruction, and maintaining internal and external limits of WAD cyanide in the tailings discharge. The procedure references the assumptions and parameters on which the design or operating requirement was based. Personnel are trained in the procedure.

The operation has documentation that describes the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as inspections and preventative maintenance activities.

The procedures and manuals used for training include directions on specific requirements for implementing practices required including operational inspections in the reagent storage, leaching and tailings areas with focus on leaks from pumps and piping and readiness of secondary containments to handle such leaks.

There are also specific standard operating procedures that support the safe and environmentally sound operation of the facility.

Process (including the tailings storage facility (TSF)) pumps, pipes, valves and tanks are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item.

The operation has a procedure to identify when changes in processing or operating practices may increase the potential for the release of cyanide and to incorporate the necessary release prevention measures. The operation's *Change Management* procedure outlines the principles and process for use within NHM to manage proposed temporary, permanent or emergency changes involving administrative, physical, operational or organisational modifications, alterations or substitutions to a system, a process, plant or equipment.

The Auditor was provided with examples of this change management process and the examples included:

- A description of the existing problem
- A description of the proposed change
- The expected benefits of the change
- Alternatives considered
- A safety assessment
- Sign-off from the Environment Manager, OHS and Training Superintendent, Change Initiator and other relevant managers
- A determination from the concerned Department Manager that a formal risk assessment was not required
- Sign-off approval from the Deputy General Manager.

The operation has developed formal cyanide management documents that address contingency procedures for situations when inspections and monitoring identify a deviation from design or standard operating procedures.

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The *Cyanide Emergency Response Plan* (CERP) details procedures for the following situations:

- Catastrophic hydrogen cyanide release
- On-site transport emergency
- Off-site transport emergency (Port of Barnabas)
- Road transport (emergency response resource)
- Releases during uploading and mixing
- Fires
- Pipe, valve and tank ruptures
- Overtopping of ponds and impoundments
- Power outages and pump failures
- Uncontrolled seepage
- Detoxification plant failure
- TSF failure.

A number of procedures also contain contingency information relating to:

- Tailings pipeline failure
- Cyanide solution spillages
- HCN alarms
- Emergency shutdown of mill circuit.

The operation partly inspects cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. All NHM process pumps, pipes, valves and tanks are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item. The tasks and frequencies were initially set by the Superintendent using the recommendations contained within the equipment manuals. The tasks and frequencies were later adjusted based on observations made when conducting the tasks as well as experience gained during work instructions raised from Job Notifications.

NHM engaged a Corrosion Consultant (Extrin) to assess the state of corrosion on the plant as part of its 2 yearly assessment. The assessment was conducted approximately 12 months later than scheduled and the resultant Corrosion Report identified and prioritised deficiencies based on risk (Priority 1, 2 and 3). Priority 1 deficiencies were defined by Extrin as representing a risk to the health and safety of workers or the environment and required immediate rectification. NHM has progressed but not completed the Priority 1 deficiencies. Priority 2 deficiencies were recommended by the Corrosion Consultant to be completed within two years.

Evidence was available to demonstrate that the operation inspects all the required items at unloading, storage, mixing and process areas as follows:

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- All process pumps, pipes, valves and tanks are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item. Tasks and frequencies were observed to be:
  - Annual NDT thickness testing
  - NDT thickness testing and photographs every shutdown.
- External consultants are engaged every two years to conduct a Corrosion Assessment Survey of the process plant area including tanks and structures.
- NHM inspects secondary containments for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed and, if necessary, locked, to prevent accidental releases to the environment.
- The operation does not have leak detection and collection systems at ponds due to the low levels of WAD cyanide and the instrumentation is not required by the design documents.
- All process pumps, pipes, valves and drains are registered within SAP. Specific maintenance tasks and associated frequencies have been assigned for each item.
- Freeboards for the TSF and Polishing Pond are inspected two (2) times per day (once during day shift and once during night shift) and results recorded to confirm that they are still within the design limits.

Inspections conducted are documented, including the date of the inspection, the name of the inspector, and any observed deficiencies. The nature and date of corrective actions are also documented and records are maintained. Records are retained digitally and in some cases as hard copy.

Preventive maintenance programmes are partly implemented and activities documented to ensure that equipment and devices function as necessary for safe cyanide management. NHM has determined what equipment is critical in preventing releases and exposures. SAP software is used to administer schedules, requirements and records of routine preventive maintenance activities. A review of preventative maintenance schedules of cyanide critical equipment and discussions with the Plant Superintendent and Maintenance Planner confirmed that preventative maintenance inspection reports had been developed and scheduled for all cyanide critical equipment.

The operation has emergency power resources to operate pumps and other equipment to prevent unintentional releases and exposures in the event its primary source of power is interrupted. The site has two power stations with redundant capacity. Generators are synchronised and in the event of a drop in generating capacity or an increase in demand, the standby generators are started automatically. The site also has access to diesel powered pumps. The generators, including standby generators and pumps, are subject to preventative maintenance practices managed through SAP.

As the operation has not completed the high risk (Priority 1) items identified within the Extrin report, NHM is now considered to be Non-Compliant with this Standard of Practice.

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Standard of Practice 4.2: **Introduce management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 4.2**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 4.2, requiring that the operation limit the use of cyanide to that optimal for economic recovery of gold so that the waste tailings material has as low a cyanide concentration as practical.

NHM conducts a programme to determine appropriate cyanide addition rates in the mill and evaluate and adjust addition rates as necessary when ore types or processing practices change cyanide requirements.

The Gosowong Project commenced in 1997. In 2007, the Gosowong Extension Project began. This was commissioned in May 2009. Records for the leach test on different ore types were undertaken by AMTEC and SGS.

The original metallurgical test work concluded that the optimum grind size was 32 micron which resulted in a gold recovery of 95% using cyanide addition rates of between 450-600 ppm in the leach tank. Test work on slight refractory ores resulted in optimum cyanide addition rates of between 750-2000 ppm.

During the current audit period cyanide addition rates have been reduced to between 400-500 ppm based on reduced grade, better processing techniques and improvement in the gravity circuits; resulting in increased gold recoveries of 96% (2013 and 2014) and 96.5% for 2015 onwards.

The operation has evaluated various control strategies for cyanide additions. NHM conducts daily production reports to assess the recovery of leaching. If abnormalities occur, then subsequent leach test work of the ore is conducted. This test work includes aeration and non-aeration.

A set point is established and evaluated through bottle leaching test work and associated gold recovery results. Cyanide addition is controlled via the cyanide analyser and Citect (which is linked to the DCS) is used. The set point is also adjusted on a daily basis depending on the ore types and test work conducted.

NHM also continuously looks at reducing cyanide through reagent optimisation techniques. An example includes the addition of lead nitrate to improve gold recovery through increased activation at the surface of the particle.

NHM installed additional cyclones in 2013:

- Increasing the gravity circuit 1 cyclone from 1 to 2
- Increasing the gravity circuit 2 cyclones from 2 to 3.

These additional gravity cyclones resulted in a 10% gold recovery in 2012 and a 20% gold recovery in 2013.

In 2015, NHM installed a cyanide Oxygen (O_2) plant, which increased the oxygen and reduced the required cyanide addition concentration required.

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NHM has implemented a strategy to control its cyanide addition. Strategies include:

- Metallurgical test work
- Leach test work
- Addition of lead nitrate
- Cyanide addition controls through Citect
- Installation of cyanide Oxygen (O_2) plant
- Installation of additional gravity circuit cyclones.

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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in SUBSTANTIAL COMPLIANCE with Standard of Practice 4.3, requiring that the operation implement a comprehensive water management programme to protect against unintentional releases.

A probabilistic water balance to prevent unintentional releases to the environment has not been consistently in use during the recertification period.

Up until the end of 2013, the Metallurgist Team utilised a conventional excel spreadsheet to manually monitor the site's water balance. A non-probabilistic model was developed and implemented as a measure to manage water on the site following the breakdown of the original probabilistic model. The original model was a complex excel sheet developed by a consultant. The water balance was difficult to modify to reflect operational changes and consequently NHM approached the consultant to amend the water balance but were advised that support for the water balance was no longer available.

Toward the end of 2013, an internal ICMC assessment identified the lack of a probabilistic water balance and this prompted NHM to engage a new consultant to develop and implement a new water balance using GoldSIM. This water balance model was introduced on site mid-year in 2014 and was commissioned in the third quarter of 2014. At this time, the conventional excel spreadsheet model was discontinued.

The GoldSIM model is probabilistic and is based on Monte Carlo simulations. Monte Carlo simulations describe a method for propagating uncertainties in model inputs (e.g. climatic conditions) into uncertainties in model outputs (e.g. pond water levels).

The Model has been set up to run Monte Carlo simulations, which means the entire system can be simulated a large number of times (e.g. >100 times), and each simulation is equally likely. The results of each independent realization are assembled into probability distributions of possible outcomes. Therefore, the model outputs are not single values but probability distributions.

The GoldSIM water balance model considers some of the following in a reasonable manner and as appropriate for the facilities and environment:

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- Re rates at which solutions are applied to tailings – the water balance considers the amount of tailings deposited.
- Re a design storm duration and storm return interval that provides a sufficient degree of probability that overtopping of the pond or impoundment can be prevented during the operational life of the facility - the *Water Management and Release* procedure requires a freeboard of 0.5 m to be maintained at all times. A 1 in 100 year, 74 hour rainfall event is considered in the water balance. The spillway is intended to operate in 1:100 years. The Polishing Pond is contained within the TSF footprint.
- Re the quality of existing precipitation and evaporation data in representing actual site conditions – rainfall and evaporation is based on the NHM site record (2001 onwards). Stress years and events are included.
- Re the amount of precipitation entering a pond or impoundment resulting from surface runoff from the up gradient watershed, including adjustments as necessary to account for difference in elevation and for infiltration of the runoff into the ground – catchment parameters are included in the water balance model. These parameters include the intercept area; runoff (% rainfall); and recharge (% rainfall).
- Re the effects of potential freezing and thawing conditions on the accumulation of precipitation within the facility and the up gradient watershed – freezing and thawing is not applicable to the climate at Gosowong.
- Re the solution losses in addition to evaporation, such as the capacity of decant, drainage and recycling systems, allowable seepage to the subsurface, and allowable discharges to surface water – a seepage factor in m3/day is considered for the TSF. Evaporation losses are also included, divided into dry and wet beach coefficients.
- Re the effects of potential power outages or pump and other equipment failures on the drain down from a leach pad or the emergency removal of water from a facility – the model does consider pump failures, with ability to run the water balance with a theoretical pump failure. NHM also has backup diesel generators, the site also has access to diesel powered pumps in case of emergencies.
- Re where solution is discharged to surface waters, the capacity and on-line availability of necessary treatment, destruction or regeneration systems – the water balance model considers cyanide destruction time. In the event that the final polishing pond (PP3) has a too high concentration of WAD cyanide, the water is pumped back to the first polishing pond (PP1) to allow natural cyanide destruction process to continue. The capacity of the detoxification system is considered in the water balance.

NHM's operating procedures incorporate inspection and monitoring activities to implement the water balance.

NHM does conduct inspections of the TSF and Polishing Pond. Inspections of the TSF and Polishing Pond are conducted twice per day and results recorded to confirm that they are still within the design limits and include the following:

- Ensuring the detoxified discharge tailings slurry is released properly at the appointed discharge points at the TSF.
- Ensuring the decant area at the TSF is not covered by the settled tailings to keep the natural cyanide destruction and copper sedimentation occurring optimally.
- Running the decant pump based on the WAD cyanide and Free cyanide concentrations. If the concentration exceeds 0.5 ppm the pump must be turned off.

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The freeboard is measured daily by the Environmental Team. The maximum safe freeboard inside the TSF is 0.5 m from the spill way. The Daily Environmental Report includes a reading of the TSF freeboard.

The *Water Management and Release Procedure at Tailing Storage Facility* details that the Environmental Manager is responsible for ensuring water release from the TSF complies with the regulatory and ICMC standard. The Ore Treatment Manager is responsible for maintaining the WAD cyanide concentration at discharge below the internal company standard of 25 ppm WAD cyanide. The procedure contains guidance on the matrix in the operating decant pump.

The *Water Management and Release Procedure at Tailing Storage Facility* also details procedures for emergency conditions (e.g. high rainfall and limited freeboard).

Ponds and impoundments are designed and operated with adequate freeboard above the maximum design storage capacity determined to be necessary from water balance calculations.

Storage levels of tailings and decant water within the TSF are managed to provide sufficient freeboard to the emergency spillway on the western side of the storage to maintain a probability of spillway discharge not exceeding 1% per annum. The spillway is designed for a 1:100 year event.

The Polishing Pond is contained within the raised TSF, although water is released into the stream by gravity through a pipe, therefore it is designed to run at a high level. The freeboard has been integrated into the water balance.

The operation does measure onsite precipitation and evaporation on a daily basis at the mine and TSF.

NHM measures rainfall from the TSF and the mine area. Evaporation is only measured at the TSF. Data is recorded daily. The *Environment Monitoring Guideline at Tailing Dam (S6TS) and Polishing Pond (S10PP) Safe Work Practice* details the daily measurement of rainfall and evaporation by site personnel. The rainfall is recorded in the daily environmental report.

The probabilistic water balance does consider the rainfall, and the manual states that the model is to be run every three months. Monitoring data updates will also be run every three months while calibration runs will be run two years after operation. Whenever a condition changes, the model should also re-run.

NHM is considered to be in Substantial Compliance with this Standard of Practice.

In making this determination it was noted that:

- NHM had shown a good faith effort to comply by:
  - Attempting to repair the original probabilistic water balance.
  - Developing an alternate (non-probabilistic) water balance as an interim measure to manage water on site.
  - Identifying the lack of a probabilistic water balance during an internal ICMC assessment.
  - Developing and implementing a new probabilistic water balance.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as the operation actively monitors its pond levels and a release did not occur during the period.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 4.4, requiring that the operation implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation does not have any open water bodies exceeding 50 mg/L WAD cyanide. Consequently the operation is not required to implement measures to restrict access by wildlife and livestock to open waters.

The TSF is measured daily at point of release (pumping) to the Polishing Pond. Daily monitoring data was observed.

The Polishing Pond is a flow through system to the environment with a compliance point (S10PP) located 50m downstream of the Polishing Pond. This point is also monitored daily for WAD and free cyanide. If the results at S10PP exceed the standards set by the Government (free CN <0.5 mg/L), NHM stop discharging from the Polishing Pond and dose the pond with hydrogen peroxide. Water is not discharged from the Polishing Pond again until the water quality meets government requirements.

Wildlife observation monitoring has shown that maintaining a WAD cyanide concentration of 50 mg/L or less in open water is effective in preventing significant wildlife mortality. The monitoring is conducted by the Environmental Department Sampling Crew.

The operation does not use a heap leach process.

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Standard of Practice 4.5: **Implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.**

The operation is

☐ in full compliance with

☐ in substantial compliance with **Standard of Practice 4.5**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 4.5, requiring that the operation implement measures to protect fish and wildlife from direct or indirect discharges of cyanide process solutions to surface water.

NHM has a direct discharge to surface water and it is generally no greater than 0.5 mg/LWAD cyanide.

NHM has established an upper limit of 25 mg/L WAD cyanide for tailings pumped to the TSF. The tailings are detoxified using sodium metabisulphite at the process plant prior to being pumped to the TSF. Supernatant within the TSF is monitored for WAD cyanide before it is pumped into the polishing pond. If the supernatant is above 5 mg/L WAD cyanide, sodium hydroxide is added prior to the supernatant being discharged into the Polishing Pond.

Monitoring results for polishing pond monitoring point (S10PP) indicate that discharges to surface water have generally not exceeded 0.5 mg/L WAD cyanide. Seven events were recorded slightly above 0.5 mg/LWAD cyanide. With the exception of one event, all elevated sampling events were either followed by a resample later that day which returned a compliant result or the release was stopped until levels dropped to 0.5 mg/L WAD cyanide or below.

Section 5.7 of the *CERP* notes that any release of solution to the environment with a WAD Cyanide concentration of more than 0.5 mg/L will be regarded as an environmental emergency event that requires NHM to follow a set process, including raising the alarm, notifying the ERT Captain, taking samples and mitigating the release event. As with all incidents, an accompanying incident and investigation report following the event shall be documented. NHM could not produce evidence that it complied with these requirements, including incident investigation and reporting for each event.

As the operation did not comply with the CERP requirements for the elevated discharge events, NHM is now considered to be Non-Compliant with this Standard of Practice.

Sampling point S12KR within the Kobok River, is immediately downstream of an established mixing zone. At this point, NHM monitors free cyanide levels. A review of monitoring results for S12KR, from January 2011 to January 2015, showed free cyanide has been consistently recorded as being <0.05 mg/L which is greater than the compliance level of <0.022 mg/L. The detection limit of the laboratory or test does not appear to be appropriate.

Section 5.7 of the *CERP* notes that any releases of solution resulting in a free cyanide concentration of more than 0.022 mg/L measured below the mixing zone will be regarded as an environmental emergency event that requires NHM to follow a set process, including raising the alarm, notifying the ERT Captain, taking samples and mitigating the release event. As with all incidents, an accompanying incident and investigation report following the event shall be documented. NHM could not produce evidence that it complied with these requirements, including incident investigation and reporting for each event.

As the operation cannot show that free cyanide levels at S12KR are less than the compliance level of <0.022 mg/L, NHM is now considered to be Non-Compliant with this Standard of Practice.

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NHM does not have an indirect discharge to surface water. This was established through interviews with NHM environmental personnel and confirmed through monitoring photographs and site observations

Standard of Practice 4.6: **Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 4.6**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 4.6, requiring the operation implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater

NHM has implemented preventative maintenance and monitoring measures to manage seepage to protect the beneficial uses of the groundwater beneath and/or immediately down gradient of the operation.

Based on evidence observed and interviews conducted, the Auditor determined that a beneficial use has not been defined by a regulatory body. The Environmental Superintendent confirmed that villages nearby (Kobok and Beringin) do not extract or utilise the groundwater for drinking.

The Cyanide Code Champion stated that specific water management or other measures to manage seepage to protect the identified beneficial use are:

- TSF has an impermeable clay layer to stop seepage
- The Polishing Pond has an impermeable clay layer.

Free cyanide (at levels established by the applicable jurisdiction) in groundwater are at compliance point below or down gradient of the facility at or below levels that are protective of identified beneficial uses of groundwater.

A beneficial use has not been defined by a regulatory body. However, through the submittal of the monitoring results from groundwater bores to the Government via the AMDAL reports, and the Government's acceptance of those reports, it is understood that the monitoring bores are deemed to be compliance points.

The compliance groundwater bores are monitored for free cyanide, not WAD. The Indonesian standard for cyanide levels in surface and groundwater is 0.02 mg/L free cyanide. For the groundwater bores around the TSF and the process plant, monitoring results indicate that free cyanide is below 0.01 mg/L.

NHM does not use mill tailings as underground backfill.

Seepage from the operation has not caused cyanide concentrations of groundwater to rise above levels protective of beneficial use.

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Standard of Practice 4.7: **Provide spill prevention or containment measures for process tanks and pipelines.**

The operation is

☐ in full compliance with

☒ **in substantial compliance with** **Standard of Practice 4.7**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in SUBSTANTIAL COMPLIANCE with Standard of Practice 4.7 requiring that the operation provide spill prevention or containment measures for process tanks and pipelines.

Spill containment measures are provided for all cyanide unloading, storage, mixing and process solution tanks

During the Certification Audit, NHM identified three solution tanks and three leach tanks situated on ring beam foundations that did not provide spill prevention or containment beneath the tank floor. NHM engaged SGS to develop a risk based inspection (RBI) programme that specified an inspection programme that was to be adopted for its ring beam tanks. NHM advised that this programme would be adopted for all solution and leach tanks regardless of the tank foundation type. At the time of the Recertification Audit, the operation has not been able to demonstrate that the RBI programme has been adopted.

In addition to the RBI programme, NHM has installed a series of three groundwater monitoring bores around the plant as a check to confirm that the tanks are not leaking. The bores are monitored monthly and show free cyanide levels <0.01 mg/L for the duration of the Recertification Audit Period.

Additional investigations in early 2015 concluded that the tanks identified as having a ring beam foundation are, in fact, situated on a continuous concrete slab and consequently have appropriate spill containment. This was supported through drawings and supporting statements from an engineer at the time of the construction.

Although all process solution tanks are now confirmed as having appropriate containment measures; a RBI programme was developed but not followed for the duration of the Recertification Audit period. As the operation cannot show that the RBI programme was implemented, NHM is now considered to be Substantially Compliant with this Standard of Practice. In making this determination it was noted that:

- NHM had shown a good faith effort to comply by partly conducting preventative maintenance activities on the cyanide solution tanks as per the schedule defined in SAP.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as all the cyanide solution tanks are appropriately contained.

Secondary containments for cyanide unloading, storage, mixing and process tanks are sized to hold a volume greater than that of the largest tank within the containment and any piping draining back to the tank, and with additional capacity for the design storm event.

Significant containment improvements works were conducted during 2010 to ensure compliance with this standard of practice. The containment facilities, drainage channels and WPP have been designed to a 1:25 year storm event and evidence justifying the selection of the design storm event was observed.

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Procedures are not required to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in the secondary containment areas as no sumps pump to the environment or outside of the contained plant area.

The operation does not have cyanide process tanks without secondary containment and no sumps pump to the environment or outside of the contained plant area.

Spill prevention and containment measures are provided for all cyanide process solution pipelines to collect leaks and prevent releases to the environment.

All pipelines carrying cyanide solutions within the process plant area and between the process plant and TSF are contained within:

- Secondary containment areas
- Designated pipe containments draining to secondary containment areas
- Pipe in pipe for the TSF line or lines that are buried beneath road ways
- The catchment area for the WPP. Small sections of cyanide solution pipelines extending outside of containment areas within the plant transverse sealed areas that drain to the WPP.

Tailings are transferred to the TSF via a pipe in pipe arrangement. In addition to this, differential flow meters have been installed at the process plant and valve station near the TSF. The flow meters are linked to the DCS and in the event of a catastrophic line failure, the tailings pump is automatically tripped. The maximum volume released during such an event is 30 m^3.

The return water line conveys a solution strength of approximately 0.5mg/L WAD cyanide or less. The line is a single pipe that runs along an elevated berm adjacent the main access road. The elevated berm has a smaller berm running along the outside of the pipe to direct any release from the line towards the roadway. Culverts are present within the berm to manage stormwater collected on the road. Drainage from the road flows down the perimeter drainage channel before exiting the road through the berm via culverts. This stormwater generally flows into creek systems. Additionally the return water line:

- Is located along an elevated berm adjacent the main access road. The elevated berm has a smaller berm running along the outside of the pipe to direct any release from the line towards the roadway.
- Is subject to preventative maintenance. Preventative maintenance schedules have been established for the return water line.
- Is inspected every six hourly line by Mill Operators. Visual inspection of the line is improved through a fortnightly work order to clear vegetation that may grow and obscure the line. The pipeline inspection programme is complemented by other road users accessing the mine site along the main access road.
- Pipe in pipe. A minimum of 5 m of pipe-in-pipe has been placed on the uphill side of roadside culverts – such that leaks must travel for at least 5 m along the road (highly visible) before leaving the road containment.

The spill prevention and containment measures described above, coupled with the low cyanide strength in the return water line, is likely to result in a low risk to the environment.

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Areas where cyanide pipelines present a risk to surface water were evaluated during the Certification Audit Period for special protection needs. The Cyanide Code Champion advised that a bow-tie analysis was initially conducted for the TSF pipeline. The operation then used a modified Preliminary Hazard Analysis (PHA) approach for the preferred TSF pipeline option, with a focus on identifying sensitive receptors along the corridor.

Since this original assessment, additional protection measures have been added, including the installation of a pipe in pipe TSF line.

Cyanide tanks and pipelines appear to be constructed of materials compatible with cyanide and high pH conditions. During the Certification Audit Period, the Cyanide Code Champion advised that all material and fittings used in the Gosowong Extension Project were required to be new and conform to the Project Pipe Material Specification as well as other detailed design specification documents. No deviation was permitted without the written approval from the Engineering Superintendent.

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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 4.8 requiring that operations implement QA/QC procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

Quality control and quality assurance programs have been implemented during construction of new cyanide facilities and modifications to existing facilities, including during construction activities cited in the previous ICMC Certification Audit Reports and new cyanide facilities since the last Recertification Audit. Evidence was available for QA/QC programmes implemented in the form of Project Completion Reports and Project Files.

QA/QC programs that are documented have addressed the suitability of materials and adequacy of soil compaction for earthworks such as tank foundations and earthen liners, the installation of synthetic membrane liners used in ponds, and for construction of cyanide storage and process tanks.

The QA/QC programmes for the TSF Lift 3 have addressed the suitability of materials and adequacy of foundation materials. This was documented in the Project Completion Reports and Project Files.

QA/QC records have been retained for cyanide facilities. These were in the form of Project Completion Reports and Project Files containing QA/QC documentation.

Appropriately qualified personnel have reviewed cyanide facility construction and provided documentation that the facility has been built as proposed and approved records have been retained for cyanide facilities. These were in the form of Project Completion Reports and Project Files containing QA/QC documentation. All capital projects at the site are managed by the Ore Treatment Manager who is supported by the Maintenance Manager.

QA/QC documentation has been provided for the construction of new/modified cyanide facilities.

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Standard of Practice 4.9: **Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.**

☒ **in full compliance with**

The operation is ☐ in substantial compliance with **Standard of Practice 4.9**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 4.9 requiring that operations implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and groundwater quality.

The operation has written standard procedures for monitoring activities for wildlife, surface and groundwater quality, which were prepared by appropriately qualified persons within the operation's Environment Department. The procedures contain information on how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions and cyanide species to be analysed.

Comments are provided on the field monitoring datasheets to record sampling conditions (e.g. weather, livestock/wildlife activity, anthropogenic influences, etc.).

The operation does have a direct discharge to surface water, from the Polishing Pond to a creek. NHM does monitor for cyanide in discharges of process water to surface water as the process pond is monitored, along with the TSF and Polishing Pond. There are also a number of monitoring locations in different water systems surrounding the site.

The operation inspects for and records wildlife mortalities related to contact with and ingestion of cyanide on a daily basis, as required in the *Environment Monitoring Guideline at Tailing Dam (S6TS) and Polishing Pond (S10PP) Safe Work Practice*. A review of the Daily Environmental Report and photographs from the weekly wildlife monitoring indicated that the stipulate monitoring was being conducted.

Monitoring is undertaken at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner. The Polishing Pond is and wildlife monitoring being conducted twice a day, with the TSF monitored daily. The mixing zone point is monitored daily and the groundwater monitoring bores are monitored monthly.

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PRINCIPLE 5 – DECOMMISSIONING

Manage Cyanide Process Solutions and Waste Streams to Protect Human Health and the Environment

Standard 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 with

☒ **in substantial compliance wi**th **Standard of Practice 5.1**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in SUBSTANTIAL COMPLIANCE with Standard of Practice 5.1, requiring that a decommissioning plan is developed and implemented for effective closure of cyanide facilities to protect human health, wildlife and livestock.

NHM has developed a *Cyanide Facilities Decommissioning Plan* for Gosowong; however the level of detail within that plan is not sufficient to meet Code requirements.

The *Cyanide Facilities Decommissioning Plan* does not detail processes to decontaminate equipment, remove residual cyanide, control of surface or ground water during decommissioning works. Consequently NHM is considered to be in Substantial Compliance with this Standard of Practice.

A *Decommissioning Schedule* has been supplied identifying key decommissioning tasks on a monthly period.

The *Decommissioning Schedule* has been inserted as an Appendix within the *Cyanide Facilities Decommissioning Plan*, however the Plan does not appear to provide context for this schedule. Without adequate supporting documentation providing context to the provided *Decommissioning Schedule*, NHM is therefore considered to be in Substantial Compliance with this Standard of Practice.

The operation reviews its decommissioning procedures for cyanide facilities during the life of the operation and revises them as needed.

The *Cyanide Facility Decommissioning Plan* was last reviewed on 30 April 2014.

In making this determination it was noted that:

- NHM had shown a good faith effort to comply by having a *Cyanide Facilities Decommissioning Plan* and *Decommissioning Schedule*.
- The deficiency is readily correctable within one year.
- The deficiency does not represent an immediate risk to personnel or the environment as the operation is not in a closure phase.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 5.2, requiring that operation establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

NHM has developed an estimate of the cost to fully fund third party implementation of the cyanide-related decommissioning measures as identified in its *Cyanide Facility Decommissioning Plan*. The cost estimate was originally developed in 2013.

A decommissioning commercial quotation dated 13 January 2015 has been supplied by a third party contractor (P.T. Ithikhara). The quote details the following costs for each facility:

- Man power rates and estimated duration
- Consumable costs
- Equipment costs.

NHM has reviewed and updated the cost estimate within the last five years and when revisions to the plan are made that effect cyanide-related decommissioning activities. The most recent cost update was completed on 13 January 2015.

In Indonesian, a mine closure bond/guarantee is required to be lodged with the Department of Energy and Mineral Resource after the Mine Closure Plan (*Cyanide Facility Decommissioning Plan*) has been approved. The NHM Gosowong Mine Closure Plan (*Cyanide Facility Decommissioning Plan*) has been approved by the Department of Energy and Mineral Resource and NHM has paid the appropriate reclamation bond and mine closure bond.

NHM has not established a financial assurance mechanism independently.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 6.1 requiring an operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

NHM has developed 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. The procedures identify the hazards associated with each task and the steps required to complete it safely. These procedures are provided to relevant personnel, who are required to be assessed competent against each procedure before they can undertake them unsupervised.

The procedures provided require personnel to don appropriate PPE appropriate to the task and to conduct pre-work inspections (See, Stop, Control) prior to the commencement of a task.

The operation has procedures to review proposed process and operational changes and modifications for their potential impacts on worker health and safety, and incorporate the necessary worker protection measures.

As noted in Standard of Practice 4.1, the *Change Management* procedure outlines the principles and process for use within NHM to manage proposed temporary, permanent or emergency changes involving administrative, physical, operational or organisational modifications, alterations or substitutions to a system, a process, plant or equipment.

The purpose of this procedure is to define the processes and/or path to be followed when a change/modification is required. Initially, any proposed change/modification should entail a full scope of the change/modification for relevant Managerial review and approval. A change/modification can be originated/initiated by anyone who has identified a tangible reason for change or modification.

Once the scope has been derived, the change/modification is subject to a review of Safety by conducting a Risk Assessment. This is an iterative process that feeds back into the scope.

Following the assessment, the modification proceeds to an approval or review phase, where the responsible persons sign-off or agree on the implementation. This sign-off includes the concerned Department Manager, Environment Manager, OHS and Training Superintendent and the Deputy General Manager.

The operation does solicit and actively considers worker input in developing and evaluating health and safety procedures.

Newcrest has a policy of encouraging their workforce to comment and provide feedback on their systems, policies, procedures and work environment. This is achieved at Gosowong through toolbox meetings, safety committee meetings and department meetings.

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Developed procedures are emailed to NHM Managers for discussion and once approved for use, their contents are summarised into toolbox presentations which are delivered to the workforce and provide opportunities for feedback.

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.**

The operation is
- ☐ in full compliance with
- ☐ in substantial compliance with **Standard of Practice 6.2**
- ☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 6.2 requiring the operation operate and monitor cyanide facilities to protect worker health and safety and periodically evaluates the effectiveness of health and safety measures.

NHM has determined that a pH of 10.5 is appropriate for limiting the evolution of HCN gas during mixing and production activities.

The pH levels are monitored by an automated online monitor, controlled by NHM's mill control software package (Citect). The pH limits are set within this software package and if the system detects a drop in pH, the solution is automatically dosed with lime. The Cyanide Code Champion and Senior Metallurgist stated that due to the alkaline nature of the ore, very little lime addition is required.

In addition to the online monitoring, manual hourly monitoring of the leach tanks is undertaken by Process Technicians as a cross check.

Where the potential exists for significant cyanide exposure, the operation uses both fixed and personal monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas. Alarm levels are set and associated actions are prescribed to prevent worker exposure to cyanide in excess of 10 ppm on an instantaneous basis and 4.7 ppm continuously over an 8-hour period.

Due to the alkaline nature of the ore, the likelihood of cyanide bearing water dropping to pH levels that may result in the evolution of HCN gas is low. However, in order to further reduce the risk of worker exposure to HCN gas, NHM has personal monitors and has installed fixed HCN monitors in the following areas:

- Mixing tank
- Leach tanks
- Intensive leach reactors
- Detox tanks.

NHM has identified activities where the exposure to harmful concentrations of cyanide is possible. For such activities, NHM has operating procedures in place that state the PPE requirements.

Portable and fixed HCN monitors are maintained, tested and calibrated as per manufacturer requirements. All fixed monitors are calibrated annually by an external provider to the manufacturer's Service Manuals, Calibration Procedures and Quality Procedures Manual. One year's worth of calibration certificates were sighted by the Auditor. NHM conducts monthly on-site bump test and calibration checks on portable

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monitors and in addition these portable monitors are calibrated annually by an external provider; one year's worth of annual off-site calibration certificates were sighted by the Auditor.

Warning signs in English and Bahasa Indonesia have been placed where cyanide is used, advising workers that cyanide is present and the necessary suitable PPE that must be worn. No smoking signs are posted throughout the mill area. In addition, the Mill Plant Induction, which is given to all personnel required to work unescorted in the area, states these requirements.

Showers, low-pressure eyewash stations and dry-powder fire extinguishers are strategically located throughout the operation in the cyanide areas. The fire extinguishers are inspected monthly and the showers weekly. Records of fire extinguisher inspections are maintained by the Emergency Response Team (ERT). The Process department inspect the showers. Inspection records, as per the nominated frequencies, were sighted by the Auditor.

NHM's *Pipe Labelling* Procedure states that the following means to alert workers to the content of cyanide bearing tanks and pipes are used on-site:

- Labelling of cyanide tanks and lines (10%-30% NaCN) post Gosowong Extension Project with lilac labels, indicating the direction of flow (as per Australian Standard 1345 Identification of the contents of piping, conduits and ducts)
- Labelling of cyanide tanks and lines (10%-30% NaCN) pre Gosowong Extension Project with red and green labels, indicating the direction of flow
- Signs (in English and Bahasa) stating "Cyanide Present, Please treat all vessels and lines as though they may contain cyanide" installed in various areas throughout the mill.

Material Safety Data Sheets (MSDS), first aid procedures and informational materials on cyanide safety were available in the language of the workforce in areas where cyanide is managed. MSDS' are located in the mill control room, mixing area, inside the front gate and outside the crib room. These contain first aid procedures as well as cyanide safety information. They are in both English and Bahasa.

NHM has an *Incident Reporting And Investigation* procedure used for all incidents resulting in:

- Injury or illness
- Environmental impact
- Community impact
- Equipment damage/process loss
- A near miss.

A review of incident reports indicates the operation does not report all cyanide related incidents and hazards. Incident reporting and investigation is a core element of an effective management system. Based on this, NHM is considered to be Non-compliant with this Standard of Practice.

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Standard of Practice 6.3: **Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.**

The operation is

☐ in full compliance with

☐ in substantial compliance with **Standard of Practice 6.3**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 6.3 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

NHM has the necessary response and communication equipment readily available for use at cyanide unloading, storage and mixing locations. Safety showers are located throughout the mill. Communication on site is via CCTV, radio, mobile phones and landline.

Evidence was observed to show that NHM does inspect its first aid equipment regularly to ensure that it is available when needed, and materials are stored and/or tested as directed by their manufacturer.

NHM has five cyanokits:

- One in the portable cyanide exposure bag
- Four in storage (drug store).

Medical staff in the clinic inspect the cyanokits on the following frequencies:

- Daily for the portable cyanide exposure bag
- Monthly as part of a stock take for those kits in storage.

The medical staff also inspect the contents of the ambulances on a weekly basis.

Oxygen is inspected on a daily and monthly basis by medical staff (those located in the clinic and ambulance), whilst the ERT inspect oxygen at all other locations on a weekly basis.

The operation has developed specific written emergency response plans or procedures to respond to cyanide exposures.

The CERP has contains response information regarding exposures, that is utilised by the ERT. In addition, medical personnel have the *Treatment Procedure of Cyanide Contamination* procedure that describes the actions required of medical personnel responding to a cyanide exposure incident.

The operation does have its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide.

NHM has contracted ISOS to provide 24/7 medical coverage on site at the site clinic. The clinic is staffed with professional nurses and paramedic staff as well as a full time doctor. Equipment and capabilities at the clinic include a basic medical laboratory, x-ray machine, audiometer, and spirometer machine, defibrillator, oxygen, cyanokits and two ambulances. In addition, the ERT also has the capability to provide basic cyanide first aid (such as administering oxygen).

A procedure is in place to transport workers, if needed, to off-site facilities. This is managed by ISOS and all patients are accompanied by an ISOS medic.

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NHM has on-site capabilities to treat all cyanide exposures. As such, patients are unlikely to require transfer off site to other medical facilities. However, in the event that this is required, it is coordinated by ISOS.

NHM has not been able to demonstrate that the ICMC requirements for periodically conducting mock drills have been met for the duration of the Recertification Audit Period.

NHM only conducted a single cyanide transportation emergency drill (13 December 2014) for the duration of the Recertification Audit Period rather that the three scheduled. This drill involved the ERT responding to a cyanide transportation incident. Meeting minutes of the drill debriefing and evaluation session were kept.

The CERP states:

> *"Cyanide Emergency Response Training including mock drills shall be conducted annually to provide adequate skills to respond to a cyanide incident on-site and offsite".*

Based on this, NHM is considered to be Non-compliant with this Standard of Practice.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

NHM has developed a CERP that addresses potential accidental releases of cyanide. This Plan is dedicated to responding to cyanide emergencies. The CERP sits beneath the overarching *Emergency Management Plan* (EMP), which regulates the management of all emergencies involving the site at Gosowong, Manado office and Jakarta office and where NHM has legal, ethical or community responsibilities.

The CERP does consider the potential cyanide failure scenarios appropriate for its site-specific environmental and operating circumstances. The CERP outlines general responses to cyanide releases and also has specific response information, including flow diagrams for different scenarios.

The CERP does consider the physical and chemical form of cyanide (solid cyanide) for the transport route and the Port.

NHM, through their relationship with AGR and AGR's Transport Management Plan for Sodium Cyanide Product, are compliant with the requirement for planning a response to transportation-related emergencies, considering transportation route(s), physical and chemical form of the cyanide, transport method (e.g. rail, truck), the road or railway condition, and the transport vehicle design (e.g. single or double walled, top or bottom unloading). AGR remains responsible for the cyanide until it is delivered to NHM's Barnabas Port.

The CERP considers both on-site and off-site transportation (Barnabas Port to site boundary) emergencies. The information provided details the response actions of ERT personnel. Gosowong is only required to provide emergency response once it takes custody of the cyanide. This occurs at the Barnabas Port, where it is transported by road some 15.2 km to the site boundary.

The CERP does describe specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures.

Appendix A of the CERP outlines how the alarm for a cyanide emergency is raised internally. Appendix A then refers to the Evacuation Procedure for the evacuation of site personnel. For communication with the local community, the CERP directs the reader to Appendix B Cyanide Events Stakeholder Notification and Communication.

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Standard of Practice 7.2: **Involve site personnel and stakeholders in the planning process.**

The operation is
- ☒ **in full compliance with**
- ☐ in substantial compliance with **Standard of Practice 7.2**
- ☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 7.2 requiring an operation involve site personnel and stakeholders (including potentially affected communities) in the cyanide emergency response planning process.

The operation consulted with stakeholders in the initial development of the emergency response plan. Previously, NHM issued a newsletter (in English and Bahasa) to the workforce, local communities and government representatives that describes what cyanide is, what the Code is, what emergency response training has been undertaken and what NHM is doing to prevent incidents. The flyer contains contact information for various personnel working on Cyanide Management and encourages the reader to contact them if they have an issue or question regarding cyanide use at Gosowong.

The emergency response plan has had minor updates and amendments to reflect personnel changes to procedural modifications. The substantive aspects of the response plan have not changed. NHM has engaged their workforce through toolbox meetings, safety committee meetings and department meetings. In addition, NHM has held a community presentation regarding cyanide during which community members were invited to raise ask questions and raise concerns.

NHM has established self-sufficient emergency response capabilities on the island. As such, there are no outside responders (e.g. fire brigades) to consult in the cyanide emergency planning and response process.

There are no external stakeholders with a designated role in the CERP. As such, there is no need for consultation or communication outside of the operation.

Standard of Practice 7.3: **Designate appropriate personnel and commit necessary equipment and resources for emergency response.**

The operation is
- ☒ **in full compliance with**
- ☐ in substantial compliance with **Standard of Practice 7.3**
- ☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 7.3 requiring an operation designate appropriate personnel and commit necessary equipment and resources for emergency response.

The elements of the CERP and procedures do:

- Designate primary and alternate emergency response coordinators who have explicit authority to commit the resources necessary to implement the plan. The EMP designates the General Manager (GM) as the Emergency Management Team (EMT) Leader or a suitable/appointed Department Head as an alternate if the GM is unavailable.

  Identify emergency response teams. The Safety Superintendent maintains a list of the three, seven man ERT teams, including when each member is rostered on.

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- Require appropriate training for emergency responders. The CERP details the training requirements for medical personnel and EMT and ERT members.
- Include call-out procedures and 24-hour contact information for the coordinators and response team members. The CERP and EMP include emergency call-out procedures and contact information.

  Specify the duties and responsibilities of the coordinators and team members. Duties and responsibilities are outlined in Section 1.2 of the EMP for all EMT members and Section 1.4 of the CERP for the ERT members and ERT Captain.
- List emergency response equipment, including personal protection gear, available along transportation routes and/or on site. Section 3.3 of the CERP lists the equipment that should be available for emergency response
- Include procedures to inspect emergency response equipment to ensure its availability. During the first week of every month, the ERT develops the ERT equipment inspection schedules demonstrating the required frequencies. Interrogation of the daily and monthly inspection checklists suggests that these inspections are being carried out as stipulated.
- Describe the role of outside responders, medical facilities and communities in the emergency response procedures. Due to the lack of facilities and equipment on the island external to Gosowong, NHM has not designated any role for outside responders or communities in the event of an emergency. ISOS have been contracted to provide medical personnel and facilities on site. The facility is capable of treating and stabilising all cyanide exposures. Should personnel require evacuation, ISOS is responsible for recommending where the patient should be treated and organising medical attention in that facility.

Local outside responders and communities have not been allocated a role in the event of an emergency at Gosowong. All responses to incidents on site are handled internally.

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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 7.4 requiring the development of procedures for internal and external emergency notification and reporting.

NHM's emergency documentation includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency.

In the event of an emergency, personnel are instructed to raise the alarm via the emergency radio channel or the emergency phone number. These contact points are manned 24 hours a day by ERT members, who assess what facets of emergency response are required. The ERT Captain is then required to contact the Duty Safety Officer, who will in turn contact the EMT Leader (GM or appointed Department Head). A decision will then be made on whether the EMT requires activation. The EMT has personnel responsible for internal and external communication.

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The Emergency Management Plan includes procedures and contact information for notifying potentially affected communities in the event of a cyanide related incident.

Contact information for ISOS is contained within Section 5.2 of the Medical Evacuation Plan.

For communication with the local community, the CERP directs the reader to Appendix B Cyanide Events Stakeholder Notification and Communication.

Standard of Practice 7.5: **Incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.**

The operation is

☒ **in full compliance with**

☐ in substantial compliance with **Standard of Practice 7.5**

☐ not in compliance with

Summarise the basis for this Finding/Deficiencies Identified:
NHM is in FULL COMPLIANCE with Standard of Practice 7.5 requiring an operation to incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The NHM emergency response documentation does describe specific remediation measures for:

- Recovery or neutralisation of solutions and solids
- Decontamination of soils and other contaminated media
- Management and/or disposal of spill clean-up debris
- Provision of an alternate drinking water supply.

The CERP prohibits the use of chemicals to treat cyanide that has been released into surface water. :

The CERP allows the use of sodium hypochlorite to neutralise spills to soil. However, it prohibits the use of this chemical or other neutralising agents in surface drainage areas.

The CERP addresses the potential need for environmental monitoring to identify the extent and effects of a cyanide release. Section 6 of the CERP states that:

> *"Reactive environmental monitoring is performed to determine the extent and severity of contamination, where a release to the environment has occurred due to an emergency situation."*

All soil sampling is undertaken by personnel from an external laboratory accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories.

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Standard of Practice 7.6: **Periodically evaluate response procedures and capabilities and revise them as needed.**

The operation is
- ☐ in full compliance with
- ☐ in substantial compliance with **Standard of Practice 7.6**
- ☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 7.6 requiring an operation periodically evaluate response procedures and capabilities and revise them as needed.

A passage in the CERP requires it to be reviewed on an annual basis however this was not conducted The CERP document revision history demonstrates that the CERP was only reviewed once during the Recertification period. NHM has subsequently expressed that there was no change to the process and that the document still remained suitable to operations during this period. However sufficient evidence has not been supplied to confirm that NHM evaluates the cyanide related elements of its emergency response plan for adequacy on a regular basis.

NHM has not been able to demonstrate that the ICMC requirements for periodically conducting mock drills have been met for the duration of the Recertification Audit Period; therefore the operation is now considered to be Non-Compliant with this Standard of Practice.

The CERP has a requirement for review following its activation for a cyanide related emergency. There have been cyanide related incidents requiring the activation of the CERP (water quality exceedances) but the CERP has not been reviewed. NHM is now considered to be Non-Compliant with this Standard of Practice.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 8.1 requiring an operation to train workers to understand the hazards associated with cyanide use.

NHM does train all personnel who may encounter cyanide in cyanide hazard recognition. The site has elected to give all permanent employees Sodium Cyanide Safe Handling training. The training material covers cyanide topics.

Short term visitors do not receive Cyanide Awareness Training; however, they cannot enter cyanide areas, such as the mill, unescorted.

The Sodium Cyanide Safe Handling Guideline refresher is conducted annually.

Training records have been retained. The Auditor viewed certificates and attendance records.

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

Summarise the basis for this Finding/Deficiencies Identified:

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

The operations requires all mill and maintenance new starters to be provided with the procedures relevant to their job and paired with experienced, trained personnel for a three month period, where they learn on the job. The procedures contain step by step instructions on how to perform each task, as well as pertinent health, safety and environment information.

After three months, Shift Supervisors, who are suitably experienced, discuss each task, before assessing their competence. In addition, all personnel must undergo Sodium Cyanide Safe Handling Guideline training as part of their inductions. This is refreshed annually.

The training elements necessary for each job involving cyanide are identified in training material. New starters are teamed with experienced operators for three months to learn on the job.

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All employees are trained prior to working with cyanide. Employees are teamed with an experienced operator for three months to learn on the job. Personnel cannot complete a task alone until they have been assessed as competent in that task.

NHM's training system does require the evaluation of cyanide training effectiveness by testing and observation. Following a three month on the job training period with an experienced operator, new starters are assessed and observed against each relevant procedure by the Shift Supervisor. If deemed competent in a procedure by the Shift Supervisor, new starters can then work unaccompanied on that task. Shift Supervisors have the demonstrated experience to provide an in-house trainer role to new starters.

NHM retains records throughout an individual's employment documenting the training they receive. NHM formally assesses competence for activities in the mill for task training (milling and maintenance related).

Standard of Practice 8.3: **Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.**

The operation is

☐ in full compliance with

☐ in substantial compliance with **Standard of Practice 8.3**

☒ **not in compliance with**

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in NON COMPLIANCE with Standard of Practice 8.3 requiring that an operation trains workers and personnel to respond to worker exposures and environmental releases of cyanide.

Cyanide unloading, mixing, production and maintenance personnel are trained in the procedures to be followed if cyanide is released. Non-ERT members are not required to respond to cyanide incidents other than raising the alarm. The process for raising the alarm is covered in site wide and mill induction material, as well as being posted in the mill control room.

NHM has been unable to provide sufficient evidence to demonstrate that personnel, including unloading, mixing, production and maintenance workers, are trained in decontamination and first aid procedures and NHM is now considered Non-Compliant with this requirement.

It is noted that NHM does invite the Indonesian National Search and Rescue Body (BASARNAS) to provide training annually, but no records were available to confirm that training had been completed and was relevant to cyanide.

NHM has provided some evidence; however the provided material is not sufficient to demonstrate full compliance with the CERP training commitments or Code requirement that Emergency Response Coordinators and members of the Emergency Response Team are trained in the procedures included in the Emergency Response Plan regarding cyanide, including the use of necessary response equipment. NHM is now considered Non-Compliant with this requirement.

Due to the self-sufficient nature of the operations, NHM has not designated any role for outside responders or communities in the event of an emergency. All responses to incidents on site are handled internally.

NHM has provided some evidence; however the provided material is not sufficient to demonstrate full compliance with the CERP training commitments or Code requirement that refresher training for response to cyanide exposures and releases is conducted regularly. NHM is now considered Non-Compliant with this requirement.

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NHM has not been able to demonstrate compliance with the code requirement to conduct simulated cyanide emergency drills periodically for training purposes that cover both worker exposures and environmental releases. NHM is now considered Non-Compliant with this requirement.

The cyanide emergency drill that had been conducted by NHM, as part of the emergency response training did include consideration of training.

NHM uses cyanide training attendance sheets to document training undertaken, the name of trainer and trainee, the date, the topics covered and the how an understanding was demonstrated.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 9.1 requiring an operation to provide opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

Gosowong is located in Tabobo Village, District Kao, North Halmahera Regency, and North Maluku Province. The North Halmahera Regency contains 260 Villages.

NHM does provide opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

NHM has a Corporate Social Responsibility (CSR) Department, based at Gosowong, with responsibility for the development and implementation of a communications system, which incorporates stakeholder engagement with respect to cyanide. The CSR Department communicate directly with the community.

The CSR Team live within the surrounding communities; there are five subdistricts with two CSR members per subdistrict. Quarterly community meetings are held, which provide a platform for the local villages during which they can ask questions and raise concerns. A Cyanide Awareness Presentation was presented to the two community subdistricts closest to the Mine site on 26 January 2015.

Whilst local communities appear remote, mobile phone usage was witnessed within these communities. Gosowong also conducts social evaluations and allows scheduled community site visits to the mine.

The Newcrest website contains details of all its mine sites, of which Gosowong is included. A Gosowong Environmental Fact Sheet is available on the website, which includes ICMC information. Telephone and email contacts are provided on the website.

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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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 9.2 requiring an operation to initiate dialogue describing cyanide management procedures and responsively addressing identified concerns.

NHM has created opportunities for the operation to interact with stakeholders and provide them with information regarding cyanide management practices and procedures.

At an operational level, NHM has developed the following opportunities to communicate to internal and external stakeholders:

- All workers at NHM have been given Cyanide awareness training – Sodium Cyanide Safe Handling Guideline
- Gosowong intranet site
- Internet
- Quarterly Community Meetings.

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

Summarise the basis for this Finding/Deficiencies Identified:

NHM is in FULL COMPLIANCE with Standard of Practice 9.3 requiring an operation make appropriate operational and environmental information regarding cyanide to stakeholders.

NHM has developed written descriptions of how their activities are conducted and how cyanide is managed.

The Newcrest website contains details of all its mine sites, of which Gosowong is included. A Gosowong Environmental Fact Sheet is available on the website, which includes process and cyanide information.

The operation has disseminated information on cyanide in verbal form where a significant percentage of the local population is illiterate.

The CSR Team live within the surrounding communities; there are five subdistricts with two CSR members per subdistrict. Quarterly community meetings are held, which provide a platform for the local villages during which they can ask questions and raise concerns. A Cyanide Awareness Presentation was presented to the two community subdistricts closest to the Mine site on 26 January 2015.

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The operation has the mechanisms to make information publicly available on the cyanide release or exposure incidents, where applicable.

NHM has a Cyanide Spills and Community Notification Procedure, which details contacts of offsite stakeholders, such as the Head of local police stations, the Mines Department, Mayors and village leaders. The procedure is to ensure that all NHM off-site stakeholders are adequately notified of a cyanide spill event and are aware how to react.

NHM is required by law to report any spill to the Indonesian Mines Department and the local authorities. Information has to be approved by the Director of Operations at the Indonesian Mines Department before it is released to the public.

There have been no cyanide release emergencies during the Recertification audit Period that would have triggered reporting to the Indonesian Mines Department and the local authorities.

As part of quarterly environmental reporting to regulators, all incidents are reported. The Environmental Superintendent stated that these reports can be requested by the public for view; however this was unable to be confirmed.

Newcrest produces sustainability reports and this includes spills and incidents that occur at NHM. The Sustainability Report for Newcrest lists all company-wide incidents as a total figure. This report is available on the Newcrest website.

The CSR conducts quarterly community meetings with the local communities.

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APPENDIX A

Important Information

IMPORTANT INFORMATION RELATING TO THIS REPORT

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

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