

#### February 2009

# INTERNATIONAL CYANIDE MANAGEMENT CODE GOLD MINING CERTIFICATION AUDIT

# Newmont Asia Pacific Granites Gold Mine Certification Audit Summary Audit Report

#### Submitted to:

International Cyanide Management Institute (ICMI) 888 16th Street, NW - Suite 303 Washington, DC 20006 UNITED STATES OF AMERICA Newmont Asia Pacific Level 1 388 Hay Street SUBIACO WA 6008 AUSTRALIA

REPORT



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## **Record of Issue**

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# SUMMARY AUDIT REPORT FOR OPERATIONAL GOLD MINES

Name of Mine: Granites Gold Mine

Name of Mine Owner: Newmont Asia Pacific

Name of Mine Operator: Newmont Tanami Pty Ltd

Name of Responsible Manager: Francois Hardy, General Manager Operations

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#### LOCATION DETAIL AND DESCRIPTION OF OPERATION:

Founded in 1921 and publicly traded since 1925, Newmont Mining Corporation (Newmont) is headquartered in Denver, Colorado. The Company has approximately 34,000 employees and contractors, the majority of whom work at mine sites on five continents. Newmont operates core assets in North America, South America, Australia, Indonesia, and Ghana, with new mine projects currently being developed.

Newmont Tanami Pty Ltd operates the Tanami Gold Mine (Tanami) (formally the Granites Gold Mine) in the Tanami Desert of the Northern Territory (NT). The operations include a processing facility at The Granites, located 531 km north-west of Alice Springs, an underground mine at Dead Bullock Soak, approximately 39 km west of The Granites, and the Tanami mill, 43 km south-west of Groundrush. The Tanami mill is currently under care and maintenance. Current production comes from the high-grade Callie underground mine. The mine sold 417,601 ounces of gold in 2006 and reported 1.98 million ounces of gold reserves at year-end. Due to the remoteness of the area, the company maintains two camps on-site for 170 Newmont employees and 396 contractors, who work on a fly-in, fly-out schedule.

The major components of the processing plant are as follows:

- Coarse ore storage;
- Grinding circuit;
- Leaching circuit, comprising three large (1,500 m³) leach tanks and eight small (575 m³) leach and adsorption tanks;
- Caro's acid plant;
- Tailings thickener;
- Cyclones;
- Gravity and elution circuit;





- Acacia and Gekko intensive cyanide reactors;
- Goldroom and electrowinning circuit;
- Cyanide mixing and storage facility;
- Chemical storage and mixing; and
- Associate pumps and pipework.





# SUMMARY AUDIT REPORT AUDITORS FINDINGS

The Tanami Gold Mine is:

1		
l in full	compliance	with

The International

in substantial compliance with

**Cyanide Management** 

Code

not in compliance with

**Audit Company:** 

**Golder Associates** 

**Audit Team Leader:** 

Edward Clerk, CEnvP (112), RABQSA (020778)

Email:

eclerk@golder.com.au

#### Name and Signatures of Other Auditors:

Name	Position	Signature	Date
Edward Clerk	Lead Auditor and Technical Specialist	l.lhl	2 January 2009
Peter Willcocks	Independent Auditor	Millesets	2 January 2009
Russell Beazley	Auditing Support	R. Beagley	2 January 2009

#### **Dates of Audit:**

The Certification Audit was undertaken over five days (15 man-days) between 3 and 7 October 2008.

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.

**Granites Gold Mine** 

Name of Facility

Signature of Lead Auditor

24.2.00

IAN BARRIE MURIE 16 Emerald Terrace

West Perth Western Australia General Public Notary

February 2009

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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 manufacturer and procedures to limit exposure of t prevent releases of cyanide to the en	heir workforce to cyanide, and to
	⊠ in full compliance with	
The operation is	<ul><li>☐ in substantial compliance with</li><li>☐ not in compliance with</li></ul>	Standard of Practice 1.1

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami 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.

Tanami purchases its sodium cyanide from a cyanide producer certified as compliant under the Code pursuant to a Sodium Cyanide Contract.

The cyanide shipping documents provided no evidence to suggest that Tanami has received bulk delivery of cyanide reagent from any other producer.

Tanami Operations
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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.	
	oxtimes in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 2.1
	not in compliance with	
Summarise the basis for th	is Finding/Deficiencies Identified:	
Tanami is in FULL COMPLIA	NCE with Standard of Practice 2.1 The	text of the agreement does not

specifically detail all of the transportation responsibilities listed in Standard of Practice 2.1. However, by specific reference to the Code and to the ICMI Cyanide Transportation Audit Protocol those requirements are specified effectively.

Tanami purchases its sodium cyanide from a cyanide producer certified as compliant under the Code pursuant to a Sodium Cyanide Contract.

Recent cyanide shipping documents provide no evidence to suggest that Tanami has received bulk delivery of cyanide reagent under any transportation arrangements other than those contracted by the producer.

Standard of Practice 2.2:

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

☑ in full compliance with

The operation is ☐ in substantial compliance with

☐ not in compliance with

#### Summarise the basis for this Finding/Deficiencies Identified:

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

Tanami purchases its sodium cyanide solution from a cyanide producer certified as compliant under the Code pursuant to a contract. The contract requires the producer to transport cyanide to the site and demonstrate responsible cyanide management for the transport activities along the entire supply chain in accordance with the ICMC.

The producer has conducted code-equivalent, non-certification audits of the cyanide transportation activities between its production facility (Queensland) and the Tanami operation (Northern Territory). The transport of cyanide from production facility to Tanami is coordinated from the production facility and uses a combination of road and rail:

- Road:
  - Isa Freight Express, Mt Isa, Queensland and Northern Territory.
  - Toll Resources, Queensland.

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Signature of Lead Auditor

2 January 2009





#### Rail:

QR National, Queensland.

The independent code-equivalent, non-certification audits were limited to transportation activities utilised by the producer to supply gold mining operations that were signatories to the Code at the time of the audit. The producer's due diligence investigations of rail transporters and rail yards were reviewed by the transport auditor during the Code audit process to determine if it had reasonably evaluated these facilities and implemented, as practical, any necessary management measures.

The audit report concludes producer's cyanide transportation activities between its production facility (Queensland) and the Tanami operation (Northern Territory) demonstrate the implementation of programmes, practices and procedures consistent with ICMI's Cyanide Transportation Audit Protocol and were in Full Compliance with the Code. The audits were conducted in the last three years. Chain of custody records held at Tanami demonstrates that transportation arrangements are consistent with the supply chain as-audited.

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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.	
	oxtimes 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:

Tanami 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, storing and mixing cyanide have been designed and constructed using sound and accepted engineering practices for these facilities.

The unloading and storage areas are located approximately 40 m from the store and maintenance shed. No permanent surface water exists in the region. Sparge cyanide is unloaded on a concrete pad that can minimise seepage to the subsurface. The concrete pad is graded to drain preferentially into the cyanide storage bund. Boxed cyanide is kept on-site as an emergency stock to protect against sparge cyanide delivery problems during the wet season.

The cyanide unloading area is designed and constructed to contain and recover any leakage from the unloading tasks, by directing spillage to the Cyanide Storage Tank bund area which contains a sump pump to deliver any spillage or hose-down water to the processing plant. If required, soil remediation would be conducted according to cyanide spill cleanup procedures.

The two Cyanide Storage Tanks are protected from overfilling by high and high–high level alarms as well as a level indicator which displays in the mill control room and at the local control room used by spotters and truck drivers to monitor the level before, during and after cyanide unloading. Twice-daily checks are carried out on the levels in the cyanide storage tanks in conjunction with other routine safety checks of the area.

Cyanide storage tanks are located on a concrete pad that can minimise seepage to the subsurface.

The two Cyanide Storage Tanks are located outdoors and are vented to atmosphere at elevation. Solid sodium cyanide is stored on-site in IBCs secured within the sea containers used for delivery. A procedure has been established to ensure that sea containers are adequately ventilated to deal with any hazardous build-up of HCN gas. The containers are stored separately in a remote, built-up and locked store yard, resting on spacer blocks, which keep the containers and their contents above ground level. The containers provide an effective seal from wet weather. Reagent strength cyanide is stored in solution storage tanks inside a secured, fenced area where access is restricted to authorised Tanami personnel. Hydrochloric acid is stored in bulk separately from the bulk cyanide storage bund.

Tanami Operations
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Signature of Lead Auditor





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 ☐ not in compliance with	Standard of Practice 3.2

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami 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.

Solid sodium cyanide is delivered to Tanami in both isotainers and boxes. Standard operating procedures have been developed and are implemented to manage cyanide unloading and storage activities effectively and safely.

Isotainers are washed down to ensure they are free of cyanide contamination externally and are then returned to the sodium cyanide producer immediately after deliveries. The unloading procedure is described in a written procedure that requires the presence of a spotter at all times for the duration of the unloading, mixing and storage processes and sets out the personal protective equipment required to be used.

Boxed cyanide is handled by trained forklift drivers who follow procedures designed to prevent box damage during handling. After solution is made from boxed cyanide, used boxes are taken to a burn pit and burnt along with the used bags and liners. The procedures describe the valve and coupling operations required, the rinse and washdown procedures and the personal protective equipment required to be used by the operator and the spotter.

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#### **PRINCIPLE 4 – OPERATIONS**

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

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.	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 4.1
	not in compliance with	
Summarise the basis for this	Finding/Deficiencies Identified:	
management and operating sys	CE with Standard of Practice 4.1, requiring stems designed to protect human health a ection and preventive maintenance proced	nd the environment including
·	olemented management and operating sys Ith and the environment from cyanide exp	•
	he background design principles, regulato ssociated with cyanide and facilities.	ry requirements and safeguards
acility's water balance, when ir	nagement contingency procedures for situnspections and monitoring identify a deviate a temporary closure or cessation of the	tion from design or standard
	are structured to highlight hazards related t tasks safely and the most appropriate wo	
and facilities affected by corros	of inspection and preventive maintenance ion or other issues. Nominated inspection operations and maintenance personnel a	ns and maintenance tasks are
Major pumps have standby uni	ts available.	
	s exists to ensure that modifications to cya pproved by those with appropriate operati	
	ed to avoid cyanide release or exposure. Her main and potable water main for safety s	
Standard of Practice 4.2:	Introduce management and operating use, thereby limiting concentrations of	
	$oxed{\boxtimes}$ in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 4.2
	not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

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Signature of Lead Auditor





Tanami is in FULL COMPLIANCE with Standard of Practice 4.2, requiring that the operation introduce management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

The operation does conduct a program to determine appropriate cyanide addition rates in the plant and evaluate and adjust addition rates as necessary when ore types or processing practices change cyanide requirements.

Diagnostic records of metallurgical testwork exist for the ore type processed. Cyanide addition rates are adjusted based on a combination of daily bottle roll tests and monitoring both Process Plant gold recovery and a cyanide set point in final CIL tank 6A.

Once optimum cyanide concentrations have been established, the rate of cyanide addition to the Leach/CIL circuit is controlled through the use of an on-stream cyanide analyser and cross checked with manual titrations on leach tank1 and final CIL tank 6A.

Implement a comprehensive water ragainst unintentional releases.	management program to protect	
☑ in full compliance with		
in substantial compliance with	Standard of Practice 4.3	
not in compliance with		
	against unintentional releases.  ☑ in full compliance with ☐ in substantial compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

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

Tanami has developed a comprehensive, probabilistic water balance, which addresses all the elements detailed within the ICMI Auditor Guidance Notes.

The water balance does not address solution application rates specifically as this is assumed to be included in the overall rate of tailings application to the Tailings Storage Facility (TSF). The model uses actual tailings deposition rates obtained via a series of flow meters located at each of the deposition sites.

Precipitation intensity data are obtained from a Bureau of Meteorology's (BoM) weather station, approximately 40 km north of the operation. Evaporation is not included in the model. For the purposes of the Code, this has a positive impact on the prevention of overtopping because it leads to a conservative water volume estimate.

Based on topography considerations, undiverted rainfall from upgradient areas has been excluded as a consideration of the model for the in-pit facilities. GTD03 (paddock style) TSF has an upgradient cell that can overflow into a downgradient cell. The impact of this overflow is accounted for in the model.

Impacts of freezing and thawing are not relevant in the Northern Territory.

The model does not take into account power or other outages impacting the availability of pumped systems. Portable diesel pumps are used to pump return water out of the TSFs, of which the operation has several spare. Therefore, a power outage would not impact on Tanami's ability to remove water from the tailings facilities. Pump failures can be modelled by setting the return water value in the model to zero.

There are no surface water discharges from Tanami.

Existing operating procedures incorporate inspection and monitoring activities to manage the risk of overtopping the TSF and other impoundments.

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The TSFs and ponds are designed and operated with adequate freeboard exceeding the required available storage capacity determined to be necessary from water balance calculations. A review of the tailings operating manual and inspection logsheets supports this.

Weather forecasts are checked daily to ascertain the likelihood of storm events. Based on this likelihood, the model is run with the appropriate rainfall intensity for that storm. Rainfall intensity data is obtained from the BoM website when released on a biennial basis.

Standard of Practice 4.4:	of Practice 4.4: Implement measures to protect birds, other wildlife and live adverse effects of cyanide process solutions	
	oxtimes in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 4.4
	not in compliance with	
Summarise the basis for thi	s Finding/Deficiencies Identified:	
	NCE with Standard of Practice 4.4, require and livestock from adverse effects of cya	• .
mg/L. As such, there are no o	d plant, which is used to keep tailings dis pen waters at Tanami with WAD cyanide t required to implement measures to rest	levels in excess of 50 mg/L.
The operation conducts wildlit cyanide.	e observations daily at all operational op	en water bodies that may contain
The operation does not use a	heap leach process.	
Standard of Practice 4.5:	Implement measures to protect fish discharges of cyanide process solu	
	⊠ in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 4.5
	not in compliance with	
Summarise the basis for thi	s Finding/Deficiencies Identified:	
Tanami is in FULL COMPLIA	NCE with Standard of Practice 4.5, requi	ring the operation implement measures

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

The operation does not have any direct or indirect discharge into surface water bodies. The nearest surface

water body is an ephemeral lake system approximately 30 km to the south-west of the lease.



Standard of Practice 4.6:	Implement measures designed to ma facilities to protect the beneficial use	
	☐ 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:	
	ring the operation implement measures do beneficial uses of groundwater, is NOT A	
operational TSFs. Some of the	r monitoring bores upgradient and downg ese bores are also downgradient of the pla also has a seepage trench along the lengt	ant site. In addition to monitoring
groundwater quality limits impo	al beneficial uses of groundwater downgrased on the operation by the Northern Ter lwater at the nearest actual beneficial use t has occurred.	ritory Government. Tanami has
The operation does not use mil	ll tailings as backfill in its underground wo	rks.
Standard of Practice 4.7:	Provide spill prevention or containme and pipelines.	ent measures for process tanks
	☐ in full compliance with	
The operation is		Standard of Practice 4.7
	not in compliance with	
Summarise the basis for this	Finding/Deficiencies Identified:	
	COMPLIANCE with Standard of Practi ainment measures for process tanks and	
Bunding is provided for the cy contain spills.	vanide unloading, storage, mixing and pr	ocess solution tanks to prevent and
	tructed on ring beams. These tanks do n ank. The ICMC Guidance Notes state tha	
combination of monitoring in th	hat are not monitored for leakage within the e environment (e.g., in groundwater or the m in lieu of full and competent secondary	e unsaturated zone) and a risk-
Tanami have monitoring bores accepted standards.	downgradient of their leach and CIL tanks	s, with monitoring results within
and implement a RBI programm	Newmont have engaged an asset integritme at Tanami using the Engineering Equipuide to the Inspection, Maintenance and s 159".	oment and Materials Users
	l. l. l. l.	
Tanami Operations Name of Facility	Signature of Lead Auditor	2 January 2009 Date





Newmont has provided the consultant's proposal for the RBI programme (including scope of works and intended methodology), authorisation for expenditure and a project schedule. An initial site inspection has been conducted by the consultant and a risk workshop with Tanami and Newmont representatives was carried out on 16 December 2008.

The consultant believes that the RBI programme will be completed by mid March 2009.

The lack of a fully implemented RBI programme is considered to be substantially compliant with this SOP. The auditor believes a finding of substantial compliance is warranted because:

- The operation has made a good-faith effort to comply with the Code by engaging a consultant to devise and implement a RBI programme.
- The identified deficiencies can be readily corrected by implementing the scope of works and project schedule provided to Newmont by the consultant.
- The identified deficiencies do not present an immediate or substantial risk to employee or community safety, health or the environment. The operation of the tanks in their current mode does not pose a substantial risk to the environment, as indicated by the groundwater monitoring results.

For these reasons, the auditor deems Tanami to be substantially compliant with SOP 4.7.1. A corrective action plan has been developed by Tanami to address this SOP.

Secondary containments for cyanide unloading, storage, mixing and process tanks are generally 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. Bund volume was calculated to be 174 m<sup>3</sup> compared to the largest tank volume of 150 m<sup>3</sup>. The bund capacity of the Leach/CIL Tank area is insufficient to contain a tank rupture but an unlined overflow containment area is currently available for containment of any spill. This containment area is only used in emergencies.

Procedures are in place and being implemented to manage cyanide solution or cyanide-contaminated waters that are collected in the secondary containment areas. Concrete bund areas have sump pumps which are automatically activated to pump the spillage to nominated tanks. Inspection of the sump pumps is part of the operating and task training of Process Operators. Spills into the CIL/Leach containment pond will be cleaned up by the Emergency Response Team using approved cleanup procedures.

Secondary containment for the leach/CIL area is satisfied by an appropriately sized containment pond. Appropriate cyanide spill clean-up procedures are available. All large cyanide spills are to be handled by the Emergency Response Team. In addition, there is no surface water at risk from Tanami facilities and operations

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

A portion of the tailings line to the Quorn in-pit TSF is buried however it is only used for emergency purposes. Permeability testwork and risk analysis has deemed that a leak in the emergency pipeline is likely to report to the surface. No other pipeline areas have been identified as presenting a risk to surface water.

All other pipelines at the process facility are effectively contained within bund walls. Flow meters and differential pressure meters are installed on tailings slurry and return water pipelines that traverse open ground.

Tanami engaged engineers to undertake an assessment of materials of construction in 2008. The report concluded that materials used in the cyanide / high pH service are appropriate.

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**.** . . .



Standard of Practice 4.8:	Implement quality control/quality assurance procedures to confirm the cyanide facilities are constructed according to accepted engineering standards and specifications.	
	$oxed{\boxtimes}$ in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 4.8
	not in compliance with	
Summarise the basis for th	is Finding/Deficiencies Identified:	

Tanami 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.

Tanami has no documentation of the quality assurance and quality control programs implemented during construction of its Process Plant facilities and Cyanide Unloading and Storage facilities. In response to this a materials engineering consultant inspected the facility in November 2008 and issued a report the following month noting that no items were identified that would preclude the processing plant from continuing to function as currently operated.

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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	
Communica the basis for th	is Finding/Deficionaise Identified.	

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami 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. The procedures contain information, where appropriate, on how and where samples should be taken, sample preservation techniques, chain of custody procedures, shipping instructions, and cyanide species to be analysed.

In addition, the *Chain of Custody (Water Sampling)* and *Tailings External Lab Sample Process* procedures further outline chain of custody and shipping requirements. The procedure titled *Results Tracking Checklist* outlines the tracking and data entry requirements that are necessary for samples sent off-site for analysis.

The operation monitors WAD cyanide in groundwater up and downgradient of the site (including TSFs) through approximately 69 groundwater monitoring bores. There are no direct or indirect discharges to surface water.

Tanami's environmental personnel inspect for wildlife mortality on all waterbodies potentially containing cyanide on a daily basis. In addition, plant operators note any observed wildlife mortalities during their three hourly inspections of the process circuit. A review of the logsheets and field observations confirmed that this occurs.

Monitoring is conducted at frequencies adequate to characterise the medium being monitored and to identify changes in a timely manner.

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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 substantial compliance with	Standard of Practice 5.1
	not in compliance with	
Summarise the basis for this	Finding/Deficiencies Identified:	
	CE with Standard of Practice 5.1 requiring missioning of cyanide facilities to protect h	
The operation has developed a costs.	decommissioning plan detailing Tanami's	decommissioning procedures and
This plan includes an implemer	ntation schedule detailing activities prior to	, during and post-decommissioning.
The operation has undertaken and revise as necessary.	to annually review the procedures within the	ne plan (including cost estimates)
Standard of Practice 5.2:	Establish an assurance mechanism carelated decommissioning activities.	apable of fully funding cyanide
	⊠ 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:

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

The costs of decommissioning Tanami's operations were calculated by a consulting firm using third party equipment and labour rates. The cost estimate is based on the items detailed within the Decontamination and Decommissioning Plan.

The Northern Territory Government has established a security system, whereby prior to receiving authorisation to mine, proponents must guarantee payment of a nominated sum to the Government to pay for any costs that the authorities may incur in preventing, minimising or rectifying environmental harm to the environment on that lease. Tanami has issued the Government a bank guarantee, the value of which exceeds the estimated cost of decommissioning. Therefore, there is no requirement for the operation or its parent company to further self-insure or obtain a further guarantee.

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Signature of Lead Auditor





#### PRINCIPLE 6 - WORKER SAFETY

Protect Workers' Health and Safe	ty from Exposure to Cyanide
----------------------------------	-----------------------------

<b>Protect Workers' Health</b>	and Safety from Exposure to Cy	anide
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:	
	CE with Standard of Practice 6.1 requiring d take measures as necessary to eliminat	
•	n excess of forty plans, procedures, forms sks in the processing and TSFs areas rela	
The procedures require, where necessary, the use of personal protective equipment (PPE) and address prework inspections. All employees and contractors working on the site are required to undertake SafeCheck prior to undertaking any task. SafeCheck is a Point of Work Risk Assessment process that provides personnel performing tasks and activities with a tool for identifying and controlling hazards prior to commencing work. SafeCheck can act as a trigger for a Job Hazard Analysis (JHA), which is a more rigorous form of hazard identification and risk assessment. Training on the SafeCheck process is provided during Induction training and all contractors and employees are issued with SafeCheck pocket book detailing the procedure, risk assessment matrix and record sheets.		
The operation has a change management procedure to allow process and operational changes and modifications to be reviewed for their potential impacts on worker health and safety, and incorporate the necessary worker protection.		
The operation formally solicits and actively considers worker input in developing and evaluating health and safety procedures. This is done through the site document control system, daily positive attitude safety system (PASS) meetings and weekly toolbox meetings.		
Standard of Practice 6.2:	Operate and monitor cyanide facilities safety and periodically evaluate the efmeasures.	
	in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 6.2
not in compliance with		

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami is in FULL COMPLIANCE with Standard of Practice 6.2 requiring an operation operates and monitors cyanide facilities to protect worker health and safety and periodically evaluates the effectiveness of health and safety measures.

The operation has determined that a pH of between 10.0 and 10.3 is appropriate for limiting the evolution of HCN gas during mixing and production activities.

Tanami Operations Name of Facility

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A Process Plant risk assessment was conducted in September 2008 to identify areas or activities that have the potential to have elevated HCN levels (>10 ppm). The use of personnel monitors is not required by all persons working within the process area. Rather, an HCH monitor is worn by the Process Tank Operator who records HCN levels on the Tanks and Thickening Circuit Daily Log Sheet every two hours.

The risk assessment identified the requirement to install fixed monitors at Acacia and Gecko intensive leach reactors, the elution area, and restrict access to the leach feed screen and tails screen areas with gates and signs stating "no access without gas detection". These were installed in December 2008.

The operation has identified areas and activities where workers may be exposed to cyanide in excess of 10 ppm and require use of PPE in these areas or when performing these activities. Potentially high HCN gas areas are sign posted and activities where workers may be exposed to high HCN have procedures detailing PPE requirements.

HCN monitoring equipment is maintained, tested and calibrated as directed by the manufacturer, and records retained for at least one year.

Warning signs have been placed where cyanide is used, advising workers that cyanide is present. No eating and no smoking signs are located at all key access areas to the process plant. Due to the extreme high temperatures and the need for employees to remain hydrated, Tanami has developed local arrangements for safe water consumption

Showers, low-pressure eyewash stations and dry-powder fire extinguishers were located at strategic locations throughout the operation in the cyanide areas, and are maintained, inspected and tested on a regular basis.

Tanks and piping containing cyanide at concentrations that pose a threat to worker health and safety (i.e., >15 mg/L WAD) were adequately labelled, along with high strength solution tanks.

MSDSs, first aid procedures and informational materials on cyanide safety were available in the language (English) of the workforce and are available in areas where cyanide is managed.

Tanami has developed and implemented an Incident Reporting and Investigation Procedure capable of investigating and evaluating cyanide exposure incidents to determine if the programmes and procedures are adequate to protect worker health and safety or need revising.

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Standard of Practice 6.3:	Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.	
	☐ in full compliance with	
The operation is	$oxed{\boxtimes}$ in substantial compliance with	Standard of Practice 6.3
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami is in SUBSTANTIAL 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.

The operation has the necessary equipment to respond in the event of a worker's exposure to cyanide, including water, oxygen, Oxyvivas, antidote kits, radios, telephones and an alarm system.

The operation inspects its First Aid equipment weekly and monthly to ensure that it is available when needed, and materials such as cyanide antidotes are stored and/or tested as directed by their manufacturer and replaced on a regular schedule.

The operation has developed specific written emergency response plans and procedures to respond to cyanide exposures. The nursing staff maintains administration protocols and flow charts describing the treatment and evacuation procedures. Evacuations are coordinated through the Newmont Rapid Response System.

The operation does have its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide. All operators within the process plant are required to have First Aid and Oxyviva training and this is reflected in the training matrix. There are two a fully equipped Medical Centres servicing the process plant area and mining, staffed by back-to-back Occupational Health Advisors (registered nurses). Due to the isolated nature of the mine site, the on-site medical staff are qualified to administer the cyanide antidote under instruction from the Director of Medical Operations (DMO).

The operation has liaised with the medical staff at the Alice Springs Hospital and the Royal Flying Doctor Service (RFDS) to inform them that they use cyanide and therefore the potential of a cyanide incident. Direct contact has been made with the Hospital which has a thorough understanding of the emergency response needs of the Tanami. The operation considers that Alice Springs Hospital and the RFDS have the capability to care for cyanide casualties.

The operation is in the process of making formalised arrangements with the local RFDS so that this provider is aware of the potential need to treat patients for cyanide exposure. A Memorandum of Understanding is currently being assessed by lawyers from both parties before being signed.

The level of consultation with the RFDS is considered to be substantially compliant with this SOP. The auditor believes a finding of substantial compliance is warranted because:

- The operation has made a good-faith effort to comply with the Code by liaising with the Alice Springs Hospital on the treatment of cyanide exposure and beginning the engagement process with the RFDS.
- The identified deficiencies can be readily corrected by signing the Memorandum of Understanding currently under assessment.
- The identified deficiencies do not present an immediate or substantial risk to employee or community safety, health or the environment as the RFDS has been advised by other Code compliance mine sites in Australia of the potential to treat cyanide casualties.

Mock emergency drills are conducted periodically to test response procedures for various emergency scenarios, and lessons learned from the drills are incorporated into response planning via debriefs. The Emergency Response Team (ERT) meets every Monday and Thursday evening to discuss amongst other

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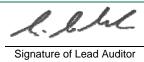
Signature of Lead Auditor





items, emergency response procedures. Every Sunday practical training activities are conducted such as rope exercises, hazardous materials training, etc. One Sunday each month an evacuation is held involving the mobilisation of the ERT. Every quarter, a full scale mock drill is conducted.

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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 releases.	nse plans for potential cyanide
	oxtimes 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:

Tanami is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation prepare detailed emergency response plans for potential cyanide releases.

At a corporate level Newmont engaged EMQ, an emergency response consulting company, to develop and implement a Rapid Response System (RRS) for all Newmont operations. The RRS aims to mitigate and prevent the escalation of adverse consequences in the event that existing risk management controls fail. When an incident or issue occurs a decision is made by the Site Emergency Controller whether to implement the RRS.

To complement the RRS, Tanami has developed and implemented a site specific Emergency Response Plan (ERP). The ERP covers all operations including mining and processing at the operation and describes emergency response operations at the site level that are not already covered by the Newmont RRS.

The ERP references the relevant Tanami emergency response procedures against each of the potential cyanide failure scenarios listed in SOP 7.1.2.

Planning for the response to transport related emergencies has been limited to on-site emergencies and transport incidents on the access road which is approximately 1.6 km in length. All cyanide emergencies response procedures related to cyanide were developed using a Code certified sodium cyanide producer's Emergency Response Guide – Sodium Cyanide Granites. This guide details information on the physical and chemical form of the cyanide, method of transport, the condition of the road or railway, and the design of the transport vehicle.

The ERP and work instructions describe specific response actions (as appropriate for the anticipated emergency situations) such as clearing site personnel from the area of exposure, use of cyanide antidotes and First Aid measures. Section 6.1 to 6.3 of the ERP details the comprehensive procedures to be initially followed in the event of an emergency, whilst cyanide emergency response work instructions describe specific ERT response actions for the identified scenarios.

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Signature of Lead Auditor





The operation is   in substantial compliance with   Standard of Practice 7.2   Inot in compliance with   Standard of Practice 7.2   Inot in compliance with   Standard of Practice 7.2   Inot in compliance with   Standard of Practice 7.2, requiring an operation involve site personnel and stakeholders in the planning process.  The Emergency Response Coordinator developed the ERP with input from the ERT. In addition, the operation formally solicits, and actively considers worker input in developing and evaluating health and safety procedures through its department safety meetings.  No potentially affected communities are located along the access road and surrounding the plant site area. The nearest permanent community is located 55 km north west of the lease. Therefore, the operation deems its workforce to be the main group at risk from an on-site cyanide emergency. The ERP does not anticipate the involvement of external assistance with cyanide emergencies but includes a number of entities that have a potential role in an emergency. Of these entities, the sodium cyanide producer and the RFDS have been involved in the cyanide emergency planning and response process.  The ERP review and revision process solicits and incorporate feedback from internal stakeholders. In addition, the DMO, RFDS and the sodium cyanide producer were included in a recent debrief following an emergency exercise.  Standard of Practice 7.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.    In full compliance with	Star	ndard of Practice 7.2:	Involve site personnel and stakehold	ders in the planning process.
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Tanami Operations 2 January 2009	f)		equipment, including personal protection	gear, available along transportation
Z January 2009	g)	include procedures to insp	pect emergency response equipment to	ensure its availability; and





h) describe the role of outside responders, medical facilities and communities in the emergency response procedures.

Tanami does not anticipate the involvement of external assistance with cyanide emergencies but the ERP does include a number of entities as having a potential role in an emergency.

A mock cyanide emergency drill conducted in June 2008 involved a multiple casualty cyanide spill during unloading. The mill and administration areas were evacuated. The scenario involved interaction with DMO, RFDS and the sodium cyanide producer via telephone. These entities were involved in debrief following completion of the mock drill.

Standard of Practice 7.4:	Develop procedures for internal and external emergency notification and reporting.	
	oxtimes in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 7.4
	not in compliance with	
Summarise the basis for thi	s Finding/Deficiencies Identified:	
Tanami is in FULL COMPLIAN internal and external emergen	NCE with Standard of Practice 7.4 requir	ing the development of procedures fo
•	lures and contact information for notifying and medical facilities of the cyanide emerg	
No potentially affected commu	unities are located along the access road	and surrounding the plant site area.
No media communication duti	es are specified within the ERP as it is n	nanaged through the RRS.
Standard of Practice 7.5:	Incorporate in response plans and elements that account for the additional treatment chemicals.	
	oxtimes in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 7.5
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami is in FULL COMPLIANCE with Standard of Practice 7.5, requiring an operation to incorporate remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals in response plans.

The ERP and associated work instructions describe specific remediation measures as appropriate for the likely cyanide release scenarios, such as:

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

Tanami Operations
Name of Facility

Signature of Lead Auditor

2 January 2009





Despite no surface water being within the vicinity of likely spill areas, the ERP prohibits the use of chemicals, such as sodium hypochlorite, ferrous sulphate and hydrogen peroxide to treat cyanide that has been released into surface water.

The decontamination of soils and associated environmental monitoring is undertaken in accordance with the sodium cyanide producer's Emergency Response Guide. The Emergency Response Guide clearly describes the soil decontamination and residual cyanide testing process.

Standard of Practice 7.6:	Periodically evaluate response procedures and capabilities a them as needed.	
	oxtimes in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 7.6
	not in compliance with	

#### Summarise the basis for this Finding/Deficiencies Identified:

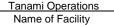
Tanami is in FULL COMPLIANCE with Standard of Practice 7.6 requiring an operation periodically evaluate response procedures and capabilities and revise them as needed.

The operation does review and evaluate the cyanide related elements of its ERP for adequacy on a regular basis. Cyanide specific emergency response work instructions contain a statement that they are to be reviewed following cyanide related emergencies and drills.

An annual activity planner developed and maintained by the Emergency Response Coordinator details the weekly and monthly training plan. The ERT meets every Monday and Thursday evening to discuss amongst other items, emergency response procedures. Every Sunday practical training activities are conducted such as rope exercises, hazardous materials training, etc. One Sunday each month an evacuation is held involving the mobilisation of the ERT. Every guarter, a full scale mock drill is conducted.

The cyanide related components of the ERP are reviewed following mock drills and actual emergencies.

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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:	rain workers to understand the nazards associated with cyanide use.	
	oxtimes 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:	
Tanami is in FULL COMPLIANG understand the hazards associa	CE with Standard of Practice 8.1 requiring ated with cyanide use.	g an operation train workers to
The operation does train all per	sonnel who may encounter cyanide in cy	anide hazard recognition.
Personnel who may encounter through an external provider.	cyanide complete the cyanide awareness	s and refresher training annually
	e containing records of completed training nt sheets which are kept in each persons	
Standard of Practice 8.2:	Train appropriate personnel to operate systems and procedures that protect and the environment.	
	$oxed{\boxtimes}$ in full compliance with	
The operation is	in substantial compliance with	Standard of Practice 8.2
	not in compliance with	
	CE with Standard of Practice 8.2 requiring according to systems and procedures that.	
production and maintenance, w unplanned cyanide releases. T	perform their normal production tasks, in with minimum risk to worker health and sa fraining includes inductions, cyanide awar ous Qualification Processing Certificate II	fety and in a manner that prevents reness and task-specific training as
The training elements necessary for jobs involving cyanide are clearly stated in each training module. The training modules observed were detailed and clearly required assessment in the elements necessary for each job involving cyanide. The Assessment Instrument for each module was in a table format and detailed:		
■ Task steps, oral/written qu	Task steps, oral/written questions and assessor guidelines.	
Training package relevant for each task step.		
Performance criteria for each task step.		
Date of competency or da	Date of competency or date deemed not yet competent for each task step.	
Assessor's comments.		
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Tanami Operations	1.10	<u>2 January 2009</u>

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All trainers and assessors are appropriately qualified and employees are trained prior to working with cyanide.

Cyanide awareness refresher training is conducted annually by the certified producer whose personnel come to site to conduct the cyanide awareness training/refresher training that includes principles of working safely with cyanide as well as hazard awareness.

The operation evaluates the effectiveness of cyanide training by testing, observation or other means. The Processing Department have dedicated training and assessment resources to train workers to perform their normal production.

Records are retained throughout an individual's employment documenting the training they receive. The records do include the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials.

Standard of Practice 8.3:	Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.		
	oxtimes in full compliance with		
The operation is	in substantial compliance with	Standard of Practice 8.3	
	not in compliance with		

#### Summarise the basis for this Finding/Deficiencies Identified:

Tanami is in FULL COMPLIANCE with Standard of Practice 8.3 requiring an operation train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

All cyanide unloading, mixing and production personnel are trained in the procedures to be followed if cyanide is released. Prior to commencing work at the processing plant, new starters and contractors have to complete a general induction and an area specific process department induction, which includes the procedures to be followed if cyanide is released.

The training modules observed were detailed and clearly required assessment in the elements necessary for jobs involving cyanide including procedures to be followed if cyanide is released.

Site ERT personnel, including unloading, mixing, production and maintenance workers, are trained in decontamination and First Aid procedures and they have taken part in the cyanide emergency drill to test and improve their response skills. An annual activity planner developed and maintained by the Emergency Response Coordinator details the weekly and monthly training plan. One Sunday each month an evacuation is held involving the mobilisation of the ERT. Every quarter, a full scale mock drill is conducted. Training records are maintained.

A Mock drill was conducted in June 2008. The scenario entailed an on-site cyanide spillage occurring whilst the hazardous material was transferred from a contractor's vehicle to site storage facilities. The scenario required the ERT responding to two fatalities, multiple injuries and environmental issues caused by the spilled cyanide. Site facilities were also evacuated so as to test their in-house procedures. Actions to improve emergency training arrangements were identified as part of the review of the drill.

The ERP notes that individuals with roles and responsibilities within the ERP are required to ensure that they are familiar with their roles and participate in training. External parties who may become involved in emergency response are made aware of their roles, particularly through their involvement in drills. The mandatory and recommended training requirements are specified in the ERT training matrix for the site.

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#### **PRINCIPLE 9 – DIALOGUE**

Engage in Public Consu	Itation and Disclosure	
Standard of Practice 9.1:	Provide stakeholders the opportunity concern.	to communicate issues of
	$oxed{\boxtimes}$ 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:	
Tanami is in FULL COMPLIANG the opportunity to communicate	CE with Standard of Practice 9.1 requiring e issues of concern.	an operation provide stakeholders
	e opportunity for stakeholders to communic is done at both an operational and corpora	
At a corporate level, Newmont website for questions to be pos	have established an email address ( <u>esrgro</u> ed concerning cyanide.	oup@newmont.com) on their
indigenous traditional owners we may have an impact on the trad	liaise directly with the Central Land Coun with regards to any issues on-site, including ditional owners. Likewise, traditional owners of CLC, who will in turn communicate those	g those pertaining to cyanide, that ers can raise any concerns
indigenous elders to discuss pr	Department gave a presentation on 16 O oposed expansions. This presentation incurring this presentation for attendees to ask	cluded a cyanide component.
Relations Departments provide	nthly newsletter produced by the Tanami I d information on the ICMC audit schedule wished to find out more about the audit.	
	n to new starters and contractors, the visitent of cyanide on-site. Inductees are invite ons.	
Standard of Practice 9.2:	Initiate dialogue describing cyanide m responsively address identified conce	
	$oxed{\boxtimes}$ 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:	
	CE with Standard of Practice 9.2 requiring nt procedures and responsively address ic	
the mill induction) to create opp	utilise site inductions, newsletters and cy- portunities for the operation to communical g cyanide management practices and proc	e with the workforce and provide

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Tanami has also presented a series of segments on local Warlpiri radio. Some of these segments pertain to cyanide use and management on-site. This local radio station is broadcast into all Warlpiri communities (indigenous traditional land owners) in both English and the local language.

Newmont has a website (<a href="www.beyondthemine.com">www.beyondthemine.com</a>) that outlines the cyanide management procedures at its sites, including Tanami. There is a contact email on this website, which allows stakeholders to make further enquires regarding cyanide use by Newmont.

Standard of Practice 9.3:	Make appropriate operational and environmental information regarding cyanide available to stakeholders.		
	oxtimes 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:

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

Newmont has developed a website that contains pages regarding cyanide management practices and procedures. Cyanide information has also been distributed to by the operation at meetings with indigenous traditional owners of the land occupied by Tanami. Employees and contractors are engaged through inductions.

Tanami has presented several radio segments on local Warlpiri radio in order to disseminate information regarding the operation (including cyanide) to the illiterate members of the population. In addition, Tanami has given a presentation to community elders to explain proposed expansion projects. This presentation included information regarding cyanide. Delivery of the material was assisted by Warlpiri employees.

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

Tanami has safety and environment incident reporting and investigation procedures that ensure unplanned cyanide exposures and releases are investigated and reported by Tanami. The procedures detail reporting requirements for individual incident categories according to incident severity. Records of all incidents are maintained on-site.

Tanami report all environmental and health/safety incidents yearly as part of the mining management plan required by the NT *Mining Management Act 2001*. Under the NT *Information Act 2008*, the public may apply to this information.

In addition to reporting via regulatory avenues, Newmont posts statistics for all their operations regarding the five questions within this Standard of Practice on their Beyond the Mine website. These statistics can be found within the "Management of Cyanide at Newmont" page of the website.

Outcomes and lessons learned on environmental and health/safety incidents are posted on various noticeboards throughout the site, in accordance with the operations noticeboard management procedure.

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# **Report Signature Page**

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# **APPENDIX A**

**Limitations** 



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