MWH

BUILDING A BETTER WORLD

Coyote Gold Mine – Stage 2, Bald Hill

2014-2015 Annual Compliance Assessment Report

Ministerial Statement No. 749

Prepared for Tanami Gold NL

17 April 2015

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QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Steph Birch	Melissa Younger

Role	Name	Date
PREPARED BY	Melissa Younger	08/04/2015
CHECKED BY	Sarah Osborne	10/04/2015
REVIEWED BY	David Jasper	16/04/2015
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REVISION SCHEDULE

Rev No	Date	Description	Prepared by	Checked by	Reviewed by	Approved by
0.1	27/3/15	Draft	MY	SO	SO	
1.0	17/4/15	Final	MY	SO	DJ	DJ

CORPORATE ENDORSEMENT

Tanami Gold NL (TGNL) submits this Compliance Assessment Report in accordance with section 4-1 of Ministerial Statement No 749 (the Statement) issued on 20 September 2007 under Part IV of the *Environmental Protection Act 1986.*

I hereby certify that to the best of my knowledge the information within this Compliance Assessment Report is true and correct.

17/04/2015

Brett Montgomery, Director

Date

Executive Summary

MWH Australia Pty Ltd (MWH) was engaged by Tanami Gold NL (TGNL) to prepare a Ministerial Statement Compliance Assessment Report (CAR) for the Stage 2 Coyote Gold Mine Project to comply with Condition 4, of Ministerial Statement No. 749 (the Statement). Condition 4-1 requires TGNL to submit an annual compliance report detailing the previous twelve month period. The assessment review period for this CAR is 2 March 2014 – 1 March 2015. The CAR has been prepared in accordance with Office of Environmental Protection's (OEPA's) *Post Assessment Guideline No. 3 Preparing a Compliance Assessment Report* (August 2012).

The Coyote Gold Project (CGP) (the Project) is owned and operated by TGNL. It is located in the Tanami Desert, approximately 20 kilometres (km) west of the Western Australian (WA) and Northern Territory (NT) border, and 280 km southeast of Halls Creek.

The Project consists of the Coyote and Bald Hill Project areas. The Project was developed in two stages; Stage 1 was the development of the open pits at Coyote, and subsequent underground operation, while Stage 2 was the development of Bald Hill, located 35 km north of the Coyote Project.

Bald Hill is comprised of two small open cut pits (Kookaburra and Sandpiper), one rehabilitated pit (Osprey), a WRL, low grade and mineralised waste stockpiles, ROM pads and evaporation dam, a haul road to Coyote and basic mining support infrastructure. This Compliance Assessment Report (CAR) is relevant to the Stage 2 Bald Hill Project only.

Ministerial Statement No. 749 was issued on 20 September 2007 subject to a number of environmental management conditions and commitments. Failure to comply with these conditions is an offence under the *Environmental Protection Act 1986* (EP Act).

A representative from MWH visited the Coyote Gold Project on 21st to 22nd March 2015, for the purpose of gathering information and data from Tanami to assess compliance with environmental conditions set in the Statement. Findings indicate the following:

- compliant with conditions relating to proposal implementation and the proponent M1-1, M2-1, M2-2, M3-1 and M3-2;
- compliant with compliance reporting and compliance report format M4-1, M4-2;
- compliant with MS4.3-1, MS4-3.2, MS4-3.3, MS4-3.4, MS4-3.5, MS4-3.6, MS4-3.7, MS4-3.8;
- compliant with MS4-4, MS5-1, MS7-1 and MS7-2,
- not compliant with the conditions relating to the revision of the wildlife management plan M5-2; and
- not compliant with Condition M5-3 that requires monthly fauna reports to be submitted to the EPA until requirements of Condition 7-2 have been fulfilled. Monthly reports were not submitted to the

EPA during the assessment period as the Project was in care and maintenance and fauna deaths and injuries were not reported internally. The Mine Closure Plan has partially been implemented onsite, however the Minister for the Environment has not determined that decommissioning responsibilities have been fulfilled therefore Condition 5-3 is still active.

Tanami Gold NL

Coyote Gold Mine – Stage 2, Bald Hill

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1 Introduction

The Coyote Gold Project (CGP) (the Project) is owned and operated by Tanami Gold NL (TGNL). It is located in the Tanami Desert, approximately 20 kilometres (km) west of the Western Australian (WA) and Northern Territory (NT) border, and 280 km southeast of Halls Creek (**Figure 1-1**).

The Project consists of the Coyote and Bald Hill Project areas. The Project was developed in two stages; Stage 1 was the development of the open pits at Coyote, and subsequent underground operation, while Stage 2 was the development of Bald Hill, located 35 km north of the Coyote Project. No processing was carried out at Bald Hill, all the ore generated from mining at Bald Hill was hauled approximately 35 km south to Coyote.

This Compliance Assessment Report (CAR) is relevant to the Stage 2 Bald Hill Project only (**Figure 1-2**). The CAR has been prepared by MWH Australia Pty Ltd (MWH) to satisfy Ministerial Condition 4 of Ministerial Statement No. 749. Condition 4-1 requires TGNL to submit an annual compliance report detailing the previous twelve month period. The assessment review period for this CAR is 2 March 2014 – 1 March 2015. The CAR has been prepared in accordance with Office of Environmental Protection's (OEPA's) *Post Assessment Guideline No. 3 Preparing a Compliance Assessment Report* (August 2012).

A representative from MWH carried out a site visit on the 21st and 22nd March 2015 for the purpose of gathering information and data from Tanami to assess compliance with environmental conditions set out in the Statement. Information and data reviewed for compilation of the CAR was provided by the following persons:

- Max Viskovich (Registered Manager);
- Michael Thomson (Consultant Geologist); and
- Gillian McBain (Land Manager).

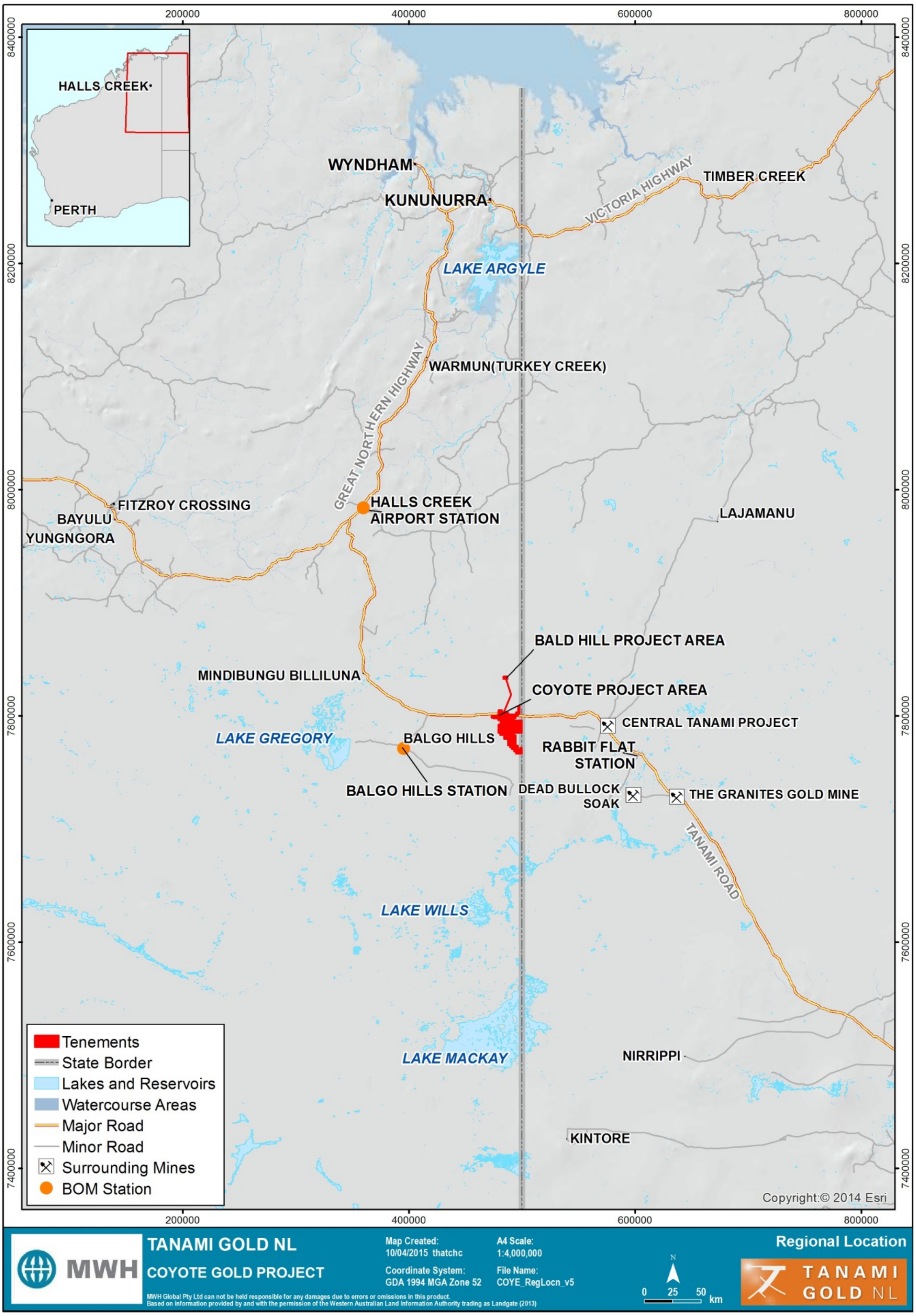


Figure 1-1: Regional Location of the Coyote Gold Project – Stage 2 Bald Hill

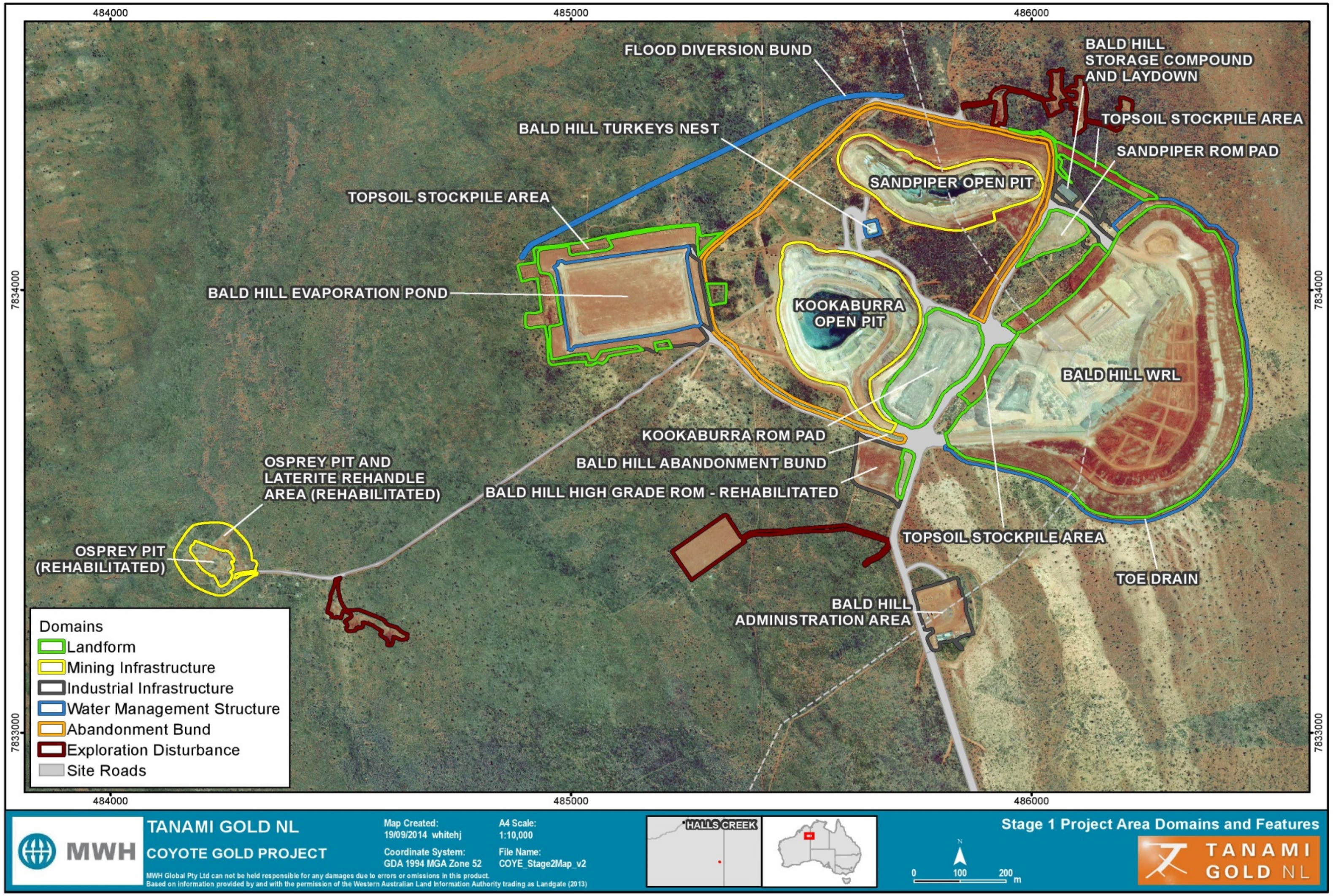


Figure 1-2: Layout of Stage 2 Bald Hill

2 Implementation Status

Stage 2 mining operations commenced in March 2008 with the development of the Kookaburra and Sandpiper Pits. The Project went into care and maintenance in April 2013 and remained in care and maintenance during the assessment period.

2.1 Significant Changes to the Project

Mining of Bald Hill commenced in March 2008. The operation was suspended in May 2008 as re-modelling of the orebody was required. In September 2009 an optimisation study of the ore body at Bald Hill commenced; in 2010 a variation to the original proposal was sought via a Section 45C application under the *Environmental Protection Act* 1986 (WA) (EP Act) and an amended Mining Proposal; operations recommenced in late 2010.

An application under Section 45C of the EP Act was approved by the Environmental Protection Authority (EPA) on 28 September 2011 to increase mine life, ore mined and waste rock volumes, deepening of the Kookaburra pit, expansion of the waste rock landform (WRL), and an increase to pit and land disturbance areas. The Key Characteristic Table was updated to reflect the changes to the proposal as identified in Attachment 1 to Ministerial Statement 749. Open cut mining ceased at Kookaburra and Sandpiper in 2011.

In November 2012 approval was obtained to develop the Osprey Satellite Pit. The EPA issued Attachment 2 to Ministerial Statement 749, and updated the Key Characteristic Table. The approved changes included approval to develop the Osprey Satellite Pit. Other approved changes include:

- increase total amount of ore mined to 515,000 tonnes;
- disturbance area of Osprey pit approximately 0.43 hectares;
- add final depth of Osprey pit to 9 metres; and
- water supply for project from existing open pits.

Mining was carried out in November and December 2012 forming a shallow pit to a total depth of approximately 5 metres (m). Operations were suspended in December 2012 due to the wet season and rehabilitation work was subsequently conducted with the open pit backfilled with lateritic waste to leave a gentle depression.

Bald Hill is currently comprised of two small open cut pits (Kookaburra and Sandpiper), one rehabilitated pit (Osprey), a WRL, low grade and mineralised waste stockpiles, ROM pads and evaporation dam, a haul road to Coyote and basic mining support infrastructure.

No mining activities have been undertaken during the assessment period as the Project has been in care and maintenance since April 2013.

2.2 Status of the Wildlife Management Plan

Under the conditions set for operations, the Wildlife Management Plan (Tanami Gold NL 2007) was implemented during the operational phase.

The Wildlife Management Plan details the following information:

- details of threatened, priority and other fauna of significance known or potentially inhabiting the area;
- perceived risks to wildlife associated with operation of the haul road; and
- programs and strategies in place or planned by Tanami to manage and minimise the risks to wildlife associated with this development.

The Project was under care and maintenance during the assessment period and the haul road was not used. This removes the direct threat of harm posed to wildlife from collisions with haul trucks and mining equipment in the Project area. During care and maintenance there is a low risk of harm to wildlife from occasional light vehicle movement on the haul road. No fauna deaths were reported during the assessment period and monthly reporting was not carried out.

No reviews or changes to the Wildlife Management Plan during the assessment period.

2.3 Status of the Mine Closure Plan

A Mine Closure Plan (MCP) (MWH 2014a) was prepared in accordance with the Department of Mines and Petroleum (DMP) and EPA joint *Guidelines for Preparing Mine Closure Plans* (2011). The Mine Closure Plan was submitted to the DMP on 14 March 2014 (**Appendix A**). At the time of preparing this Compliance Assessment Report, the MCP had not been reviewed by the DMP.

A closure implementation scheduled was developed for Tanami and included in the Mine Closure Plan. Specific tasks detailed in the closure schedule were transferred into a care and maintenance schedule to assist the onsite care and maintenance personnel with management tasks. During the assessment period the following tasks were completed:

- Ecosystem Function Analysis of rehabilitation and local analogues;
- determine seed stores available onsite; and
- monitored rehabilitated areas for erosion as a result of rainfall runoff and wind.

3 Statement of Compliance

Compliance has been assessed based on a desktop review of information supplied by Tanami as well as interviews with various Tanami personnel.

Compliance status terminology of the report follows the *Post Assessment Guidelines for Preparing an Audit Table* (OEPA, 2012). Non-compliance is where implementation of the proposal has not been carried out in accordance with the requirements of the audit element.

The Department of Environment Regulation (DER) conducted an environmental inspection of the Project in June 2014 focusing on compliance with Licence to Operate (L8111/2005/2). Ten non-compliances were noted (**Appendix B**). Tanami have rectified seven of these non-compliances and the remaining will be rectified within the second quarter of 2015 and with groundwater future monitoring events.

4 Details of Declared Compliance Status

The audit table for Ministerial Statement No. 749 was provided to MWH by the OEPA on 20 March 2015. The tables have been completed following a review of information provided by Tanami and a site inspection in March 2014 (**Table 4-1**).

Compliance during the assessment period has been assessed against the key characteristics table details in Attachment 2 of Statement 749. The EPA has approved changes to the proposal under Section 45C of the EP Act and issued updated key characteristics table for the Statement. Compliance for the assessment period has also been assessed against the key characteristic table (**Table 4-2**).

4.1 Compliance with Ministerial Statement 749

Based on the information provided by Tanami this compliance assessment found that the Project is:

- compliant with conditions relating to proposal implementation and the proponent M1-1, M2-1, M2-2, M3-1 and M3-2;
- compliant with compliance reporting and compliance report format M4-1, M4-2;
- compliant with MS4.3-1, MS4-3.2, MS4-3.3, MS4-3.4, MS4-3.5, MS4-3.6, MS4-3.7, MS4-3.8;
- compliant with MS4-4, MS5-1, MS7-1 and MS7-2,
- not compliant with the conditions relating to the revision of the wildlife management plan M5-2; and
- not compliant with Condition M5-3 that requires monthly fauna reports to be submitted to the EPA until requirements of Condition 7-2 have been fulfilled. Monthly reports were not submitted to the EPA during the assessment period as the Project was in care and maintenance and fauna deaths and injuries were not reported internally. The Mine Closure Plan has partially been implemented

onsite, however the Minister for the Environment has not determined that decommissioning responsibilities have been fulfilled therefore Condition 5-3 is still active.

Table 4-1: Ministerial Statement No. 749 Audit Table

AUDIT TABLE

Statement Compliance Section

Government of **Western Australia**
Office of the **Environmental Protection Authority**

PROJECT: Coyote Gold Mine Stage 2. Approximately 80 km southeast of Halls Creek Tanami Desert, Shire of Halls Creek.

Statement 749.

Note:

- Phases that apply in this table = **Pre-Construction, Construction, Operation, Decommissioning, Overall (several phases)**
- This audit table is a summary and timetable of conditions and commitments applying to this project. Refer to the Minister's Statement for full detail/precise wording of individual elements.
- Code prefixes: M = Minister's condition; P = Proponent's commitment; A = Audit specification; N = Procedure.
- Abbreviations: CAR = Compliance Assessment Report; CEO = Chief Executive Officer of OEPA; DEC = Department of Environment and Conservation; DER = Department of Environment Regulation; DIA = Department of Indigenous Affairs; DMP = Department of Mining and Petroleum; DoH = Department of Health; DoW = Department of Water, EPA = Environmental Protection Authority, Minister for Env = Minister for the Environment; OEPA = Office of the Environmental Protection Authority.
- Compliance Status: C = Compliant, CLD = Completed, NC = Non – compliant, NR = Not Required at this stage. Please note the terms NA = Not Audited and VR = Verification Required are only for OEPA use. IP = In Process may only be used by the proponent in circumstances outlined in Section 2.8 of the *Post Assessment Guideline for Preparing an Audit Table*.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
749:M1.1	Implementation	The proponent shall implement the proposal as documented and described in Schedule 1 of the statement subject to the conditions and procedures of the statement	Schedule 1 of the Ministerial Statement and the Environmental Protection Statement (EPS) for Stage 2 of the Coyote Gold Project provide direction for the methods of implementation of the proposal.	AER. TGNL Quarterly Reports.	Overall	Commenced March 2008	**Completed**	
749:M2.1	Nominated proponent	The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal	TGNL is the company responsible for implementation of the proposal.	AER. TGNL Quarterly Reports.	Overall		**Compliant**	Tanami Gold NL is the proponent.
749:M2.2	Contact details	The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change	Notification will be provided in writing if required.	AER. TGNL Quarterly Reports.	Overall	Within 30 days of change of contact details	**Completed**	No changes to the proponent.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
749:M3.1	Time limit of Approval	The proposal must be substantially commenced within 5 years of the date of publication of the Ministerial Statement	Implementation will be as stated in the EPS.	AER, TGNL Quarterly Reports	Overall		**Completed**	Project commenced in 2008.
749:M3.2	Evidence of commencement	The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of the statement	The Coyote Gold Project Annual Environmental Report will provide details of commencement of the proposal.	AER. TGNL Quarterly Reports.	Overall	Prior to 20 September 2012.	**Completed**	
749:M4.1	Compliance reporting	The proponent shall submit to the CEO an annual environmental compliance report relating to the previous twelve-month period, the first report to be submitted within 15 months after the commencement of ground disturbing activities and thereafter annually, unless required by the CEO to report more frequently	Two documents are prepared annually by TGNL: 1) Annual Environmental Report 2) Environmental Compliance Audit.	AER. TGNL Quarterly Reports.	Overall	By end April each year.	**Compliant**	Annual Environmental Report was submitted to the Department of Environment Regulation in April 2015 (**Appendix C**)
749:M4.2	Compliance reporting format	The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO	This audit program forms the basis of the compliance report and lists the elements of required compliance.	Annual Environmental Compliance Audit,	Overall	By end April each year.	**Compliant**	This CAR satisfies the reporting requirement and covers the period 2 March 2014 to 1 March 2015. The Audit table was provided by the OEPA on 20 March 2015.
749:M4.3:1	Compliance reporting content - endorsement	The environmental compliance reports shall be endorsed by signature of the proponents Executive Chairman or a person, approved in writing by the CEO, delegated to sign on behalf of the proponents Executive Chairman.	Signed by TGNL Chairman and Managing Director.	AER	Overall		**Compliant**	This CAR has been signed by the Director of Tanami Gold.
749:M4.3:2	Compliance reporting content - statement of compliance	The annual environmental compliance reports shall state whether the proponent has complied with each condition and procedure stated in the Ministerial Statement.	The introduction to this audit program provides an overview of the level of compliance. The audit table provides details of implementation to achieve compliance.	AER	Overall	By end April each year.	**Compliant**	This CAR satisfies this condition.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
749:M4.3:3	Compliance reporting content - verifiable evidence	The annual environmental compliance reports shall provide verifiable evidence of compliance with each condition and procedure contained in the Ministerial Statement	This audit program aims to provide the evidence required to verify compliance. Evidence can include photographs, procedures, memos, and training manuals.	Photographs, analytical information, monitoring results etc. contained in various documents referenced in the AER.	Overall	By end April each year.	**Compliant**	Provided in appendices.
749:M4.3:4	Compliance reporting content - compliance with key actions of management plans	The annual environmental compliance reports shall state whether the proponent has complied with each key action contained in any environmental management plan or program required by the Ministerial Statement	The degree of compliance with requirements of: 1) Wildlife Management Plan. 2) Decommissioning and Closure Plan is included in the audit program.	Photographs, analytical information, monitoring results etc. contained in various documents referenced in the AER.	Overall	By end April each year.	**Compliant**	This CAR satisfies this condition.
749:M4.3:5	Compliance reporting content - verifiable evidence of compliance with management	The annual environmental compliance reports shall provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by the Ministerial Statement	Evidence of conformance with the key actions of the management plans will be included in the audits.	Photographs, analytical information, monitoring results etc. contained in various documents referenced in the AER.	Overall	By end April each year.	**Compliant**	Provided in appendices.
749:M4.3:6	Compliance reporting content - identification of non-compliances	The annual environmental compliance reports shall identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance.	Any non-compliance with the required conditions will be identified in the audit and discussed in detail in the compliance report.	Photographs, analytical information, monitoring results etc. contained in various documents referenced in the AER.	Overall	By end April each year.	**Compliant**	This CAR satisfies this condition.
749:M4.3:7	Compliance reporting content - review of effectiveness of corrective actions	The annual environmental compliance reports shall review the effectiveness of all corrective and preventative actions taken.	Monitoring will be undertaken to determine the effectiveness of all corrective or preventative actions implemented. The success of any such actions will be discussed in the compliance audit report.	Photographs, analytical information, monitoring results etc. contained in various documents referenced in the AER.	Overall	By end April each year.	**Compliant**	
749:M4.3:8	Compliance reporting content - implementation of the proposal	The annual environmental compliance reports shall describe the state of implementation of the proposal	Details of the state of implementation of the proposal will be provided in the compliance report and AER.	Progress is discussed in the AER and quarterly reports.	Overall	By end April each year.	**Compliant**	This CAR satisfies this condition.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
749:M4.4	Public availability of compliance reports	The environmental compliance reports are to be made publicly available in a manner approved by the CEO.	Carry out the following: 1. Make the documents available on the proponent's website for the life of the project unless otherwise approved by the Department of Environment and Conservation, and ensure it is easily accessible from the home page. Documents will be made available to the public upon request, including any previous annual documents; 2. All documents required to be made publicly available must be made publicly available as previously stated within 2 weeks from submission of the documents to DEC. 3. 14 days from the date of making documents publicly available proponents shall provide evidence to the Proposal Implementation Monitoring Section to confirm lodgement on website has been completed.	Letter to DEC advising that report has been made publicly available.	Overall	Following advice from DEC	**Compliant**	The 2013-2014 CAR is available on the Tanami website. Once approved by the OEPA, this CAR will be made available on the Tanami website.
749:M5.1	Implementation of Wildlife Management Plan		Ground disturbing activities cannot commence until the proponent implements the WMP contained within the proponents Environmental Protection Statement submitted for the proposal and released on 30 July 2007	Provide evidence of implementation of the WMP.	Monitoring data and other information reported in the AER and other reports referenced in the Compliance Audit Report.	Operation	**Compliant**	The Wildlife Management Plan was implemented during ground disturbing activities in previous years. No active mining or activities in the Project area during the assessment period.
749:M5.2	Revision of Wildlife Management Plan	The proponent shall review and revise the Wildlife Management Plan during the life of the project as required by the CEO	Conduct regular review and update the document as necessary	Progress will be discussed in the AER.	Overall	As required.	**Not Compliant**	The Wildlife Management Plan (2007) was not reviewed during the assessment period. The Project was in care and maintenance during the assessment period and the

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
								Mine Closure Plan was submitted to the DMP in March 2014.
749:M5.3	Road deaths reports	The proponent shall report monthly from the commencement of ground-disturbing activities to the CEO, any road deaths or injuries of priority fauna along the haul road and around the mine site. The report shall include: 1. The number and species of priority fauna killed; 2. The number and species of priority fauna injured; 3. The speed of the vehicle at the time of the incident; 4. The Time and date of incidents; and 5. Management actions taken to mitigate/reduce the death and injury of fauna. Reporting shall conclude when the requirements of condition 7-2 have been fulfilled.	Conduct daily inspections of the haul road during ore haulage and all staff to report any road deaths of injuries of fauna along the haul road and around the mine site to the Mine Superintendent.	Monitoring data and other information reported in the AER and other reports referenced in the Compliance Audit Report.	Operation	Monthly, until the requirements of condition 7-2 has been fulfilled.	**Not Compliant**	No ore haulage during the assessment period as the Project was in care and maintenance. Monthly reporting was not carried out.
749:M5.4	Haul road speed limits	The proponent shall impose speed limits of 40 kilometres per hour for all vehicles in Mulgara (*Dasycercus cristicauda*) habitat areas, which shall be appropriately signed.	Control vehicle speed. Install speed limit signage on roads within Mulgara habitat areas.	Annual Haul Road Monitoring Report. References in the AER.	Operation	By end April each year.	**Superseded**	
749:M6.1	Haul truck GPS monitoring	The proponent shall only permit haul trucks which are fitted with and use Global Positioning System (GPS) devices along the haul road specified in schedule 1. The GPS tracking devices are to provide the following information in a form which is auditable: 1.A continuous update on the location and speed of each haul truck during ore transporting activities; and 2.Demonstrate that each haul truck is adhering to the specified speed limits for the haul road. The objective of the use of	Install GPS devices on all haul trucks.	Annual Haul Road Monitoring Report. References in the AER.	Operation	By end April each year.	**Not required**	

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		GPS tracking devices is to manage vehicle speeds at levels which minimise fauna road kills or injuries on haul roads. These objectives are reinforced by conditions 5-2 and 5-3.						
749:M6.2	GPS log		The proponent shall maintain a log of data recorded by the GPS devices of each haul truck in a manner approved by the CEO. GPS monitoring will conclude when the proponent informs the CEO that hauling activities have ceased.	GPS monitoring and recording.	Annual Haul Road Monitoring Report. References in the AER.	Operation	**Not required**	No haul truck activity during the assessment period.
749:M7.1	Implementation of Decommissioning and Closure Plan	The proponent shall implement the DCP contained within the proponents Environmental Protection Statement submitted for the proposal and released on 30 July 2007. The DCP shall contain provision for update and review.	Provide evidence of implementation of the DCP.	Monitoring data and photographs included with the AER.	Overall	On completion of operations.	**Compliant**	The Mine Closure Plan is required to be reviewed every three years in accordance with the *Mining Act 1978.* The MCP was submitted to the DMP in March 2014, a review of the document will be required in 2017.
749:M7.2	Post closure responsibilities	The proponent shall implement the Decommissioning and Closure Plan referred to in condition 7-1 until such time as the Minister for the Environment determines, on advice of the CEO, that the proponents decommissioning responsibilities have been fulfilled.	Implementation of the DCP.	Monitoring data and photographs included with the AER.	Decommissioning	On completion of operations.	**Compliant**	The Project is under care and maintenance. There is a section in the Mine Closure Plan that details the tasks that will be undertaken when the Project in placed on care and maintenance. A number of these tasks have been commenced. Further detail is provided in **section 4.2**.
749:M7.3	Availability of Decommissioning and Closure Plan	The proponent shall make the DCP referred to in condition 7-1 publicly available in a manner approved by the CEO	Carry out the following: 1. Make the documents available on the proponent's website for the life of the project unless otherwise approved by the Department of	Letter to DEC advising that report has been made publicly available.	Overall	As required.	**Not required at this stage**	A copy of the Mine Closure Plan is not available on the company website as the DMP have not reviewed the

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			Environment and Conservation, and ensure it is easily accessible from the home page. Documents will be made available to the public upon request, including any previous annual documents; 2. All documents required to be made publicly available must be made publicly available as previously stated within 2 weeks from submission of the documents to DEC. 3. 14 days from the date of making documents publicly available proponents shall provide evidence to the Proposal Implementation Monitoring Section to confirm lodgement on website has been completed.					document. Once the DMP have reviewed the document and provided formal feedback the MCP will be made available eon the Tanami Gold website.

Table 4-2: Compliance with Key Characteristics (Attachment 2)

Element	Approval Proposal	Compliance Status
Life of Project	25 Months	Compliant
Total amount of ore mined	Approximately 515,000 tonnes	Compliant 476,960 tonnes
Pit Area	Sandpiper – approximately 6.1 hectares Kookaburra – approximately 7.3 hectares Osprey – approximately 0.43 hectares	Sandpiper open pit and surrounds - 5.68 hectares* Kookaburra open pit and surrounds – 7.6 hectares* Osprey pit - backfilled
Final Depth	Sandpiper – approximately 50 metres Kookaburra – approximately 95 metres Osprey – approximately 9 metres	Compliant Sandpiper – 34 m Kookaburra – 93 m Osprey – has been backfilled
Depth to Water Table	19 – 20 metres	No dewatering activities during assessment period, under care and maintenance
Pit Dewatering	1,600 kL per day	Nil during assessment period, under care and maintenance
Total Area of Disturbance	Not more than 120 hectares	Compliant. 116.99 hectares (including pit areas).
Total Area Rehabilitated	Total area of disturbance less the pit area for Sandpiper and Kookaburra	In progress. 34.82 ha have been rehabilitated*. No rehabilitation carried out during assessment period.
Solid Waste Rock Materials	4.35 million cubic metres	Compliant

Element	Approval Proposal	Compliance Status
		3,952,771 tonnes (1,677,142 BCM)
Water Supply	Existing Open Pits	No dewatering activities during assessment period, under care and maintenance
Power Generation	Mobile generators	Fuel tanks removed, under care and maintenance
Sewerage	Biological treatment units	Under care and maintenance

*Pit disturbance area has not changed since 2013/2014 AER reporting period. Data obtained from DMP Environmental Assessment and Regulatory System 2.

4.2 Conformance with Commitments in the Decommissioning and Closure Plan

There is a section in the Mine Closure Plan that details the tasks that will be undertaken when the Project in placed on care and maintenance. An assessment of conformance with these tasks is shown in **Table 4-3**.

4.3 Conformance with Commitments in the Wildlife Management Plan

An assessment of conformance with commitments detailed in the Wildlife Management Plan is provided in **Table 4-4**.

Table 4-3: Assessment of Conformance with Commitments in the Mine Closure Plan

Commitment	Status	Comment
Environmental audit to ascertain high priority tasks.	Non conformance	A specific audit to ascertain high priority care and maintenance tasks has not been completed.
Development of a detailed care and maintenance plan in consultation with the DMP to include: • Monitoring schedule (geo-technical, geo-chemical or high risk areas, groundwater and in-pit monitoring, erosion and rehabilitation monitoring) • Program to address high priority tasks and ensure that appropriate risk mitigation measures are in place; • Be based on the MCP; • Consideration of safety obligations required under sections 42 and 88 of the *Mines Safety Inspection Act 1994* relating to mine suspension or abandoned.	Partial conformance	• A Care and Maintained task schedule was developed. • Rehabilitation monitoring of the Bald Hill WRL was carried out in September 2014. • Groundwater was not monitored at the Bald Hill area as the pumps at the Kookaburra pit and sample location KBB-B1 were not active during the assessment period therefore a sample could not be collected.
Costs will be allocated for two caretaker/supervisor roles and two maintenance personnel responsible for site contacts and statutory requirements, maintenance and general security activities and to allow for run-up of major equipment and to maintain access to the underground workings.	Conformed	Care and maintenance personnel were onsite during the assessment period.

Table 4-4: Assessment of Conformance with Commitments in the Wildlife Management Plan

Aspect	Commitment	Status
Awareness of environmental issues	Environmental induction for all personnel. Environmental handbook provided to all personnel.	Not applicable. No active mining or haulage during the assessment period. No new personnel in Project area.
Groundwater	Groundwater quality on completion of the project will be of similar quality to baseline analysis results. Groundwater will be analysed for the presence of hydrocarbons on a 3 monthly basis. Total petroleum hydrocarbons (TPH) will be 0mg/L.	Non-conformance. The bores at Sandpiper and Kookaburra pits were not active and were not able to be sampled during the assessment period.
	Analysis results interpreted and corrective action implemented if necessary.	Non-conformance. No samples obtained during the assessment period.
Surface water	Visual assessments will be conducted following rainfall events to determine the impact of the mining operation on natural surface water movements in the area.	Not applicable as there were no mining activities during the assessment period.
	Monitoring will be conducted at fixed points to assess the health of vegetation prior to, during and following the operation.	Conformed. Vegetation was monitored in September 2014.
Threatened Fauna	Inspections of the sand dune habitat will be conducted daily during ore haulage campaigns to record Mulgara activity. The location and frequency of	Not applicable. No ore haulage during the assessment period.

	activity will be used in comparison to previously collected information to assess the impact of haul road activity.	
	Sightings of threatened fauna will be recorded and inspections of the haul road will be conducted periodically for signs of threatened fauna activity. Frequency of sightings over time will be used in assessing the impact of the haul road.	Non-conformance. No inspections of the haul road for threatened fauna activity. The haul road is only used occasionally by light vehicles.
	Road kills to be reported and recorded.	Non-conformance. Road kills were not reported during the assessment period.
	Daily inspection of haul road for presence of threatened fauna activity during haulage operations. Pitfall trapping in sand dune habitat. Periodic fauna surveys of the surrounding area.	Not applicable. No ore haulage during the assessment period.
Fauna Diversity	Fauna monitoring will continue using the pitfall traps installed in 2006. Data collected will be used as a comparison to the information collected prior to construction and operation of the haul road to assess the impact on small fauna in the area.	Not applicable.
Flora diversity and vegetation health	Photographic vegetation monitoring sites will be established in undisturbed vegetation along the haul road route and around the mine site. Data will be collected prior to commencement of operations and then at 6 monthly intervals. An assessment of the health of the vegetation will be made at these times and compared to the data originally collected.	Not applicable. The Wildlife Management Plan requires that data is collected from the monitoring sites during operation.

	Monitoring sites will be established in selected rehabilitated areas on completion of the operation. Data collected from the original sites will be used as a method of assessing the success of rehabilitation.	Conformed. Selected rehabilitation areas were monitored in September 2014. Refer to **Section 6.1**.
Weeds	The haul road and mine site will be inspected regularly for the presence of weeds with the location of any being recorded. Weed eradication will be carried out as required and follow up inspections will be conducted to determine success. Weed spraying conducted if required.	Non-conformance. No weed monitoring during the assessment period.
Feral animal species.	Site personnel will be required to report sightings of feral animals along the haul road route and within the mining area. Sightings will be recorded in a register.	Not applicable. The haul road route has not used by haul trucks in the assessment period.
	Trapping of cats will be undertaken periodically.	Non-conformance. No trapping undertaken.
Vehicle speed limits.	Vehicle drivers will be required to observe a speed limit of 40km/hr while passing through sand dune habitat. Signage will be placed at either end of this point to alert drivers.	Not applicable. No haulage during assessment period. Haulage ceased in December 2012.
Dust suppression.	The haul road will be watered twice daily while ore haulage is in progress and as required at other times.	Not applicable. No haulage during assessment period.

5 Supporting / Verifiable Documentation

Documentation provided by Tanami Gold reviewed as part of this compliance assessment includes:

- DER Environmental Licence;
- Mine Closure Plan (MWH 2014a);
- site plans;
- email correspondence;
- Wildlife Management Plan (Tanami Gold NL 2007);
- Rehabilitation Monitoring of Coyote and Bald Hill Waste Rock Landforms, 2014 (MWH 2014b).

6 Environmental Monitoring

6.1 Flora and Vegetation Monitoring

Ecosystem Function Analysis (EFA) was conducted on all previously-established monitoring sites at Bald Hill in September 2014. The monitoring also included the assessment of six transects on the Bald Hill WRL and ten existing photo monitoring sites were assessed (**Figure 6-1**). Five analogue transects were installed between the Coyote Project and the Bald Hill Project to represent desirable attributes for the final rehabilitation.

The Bald Hill WRL was rehabilitated in 2012 with the two lifts of the southern aspect battered down and topsoil applied to the batters prior to the area being contour ripped. The surface flat was divided into cells using bunding and topsoil applied, however, there is no evidence that the topsoil was ripped and mixed in with the surface waste rock.

Photo monitoring points were established in 2012 and were reassessed in 2014. These sites are located on undisturbed areas of the Bald Hill WRL. The purpose of the photo monitoring is to document any changes over time which may occur as a result of mining activities. Findings indicate no mining related disturbance (**Appendix D**).

A summary of findings of the EFA and rehabilitation monitoring is as follows:

- the rehabilitation transects on the Bald Hill WRL had landscape function indices which were lower than the analogue transects, particularly the stability index;
- shrubs dominated the sloping rehabilitation sites, whereas Triodia spp. dominated the sloping analogue transects;
- the vegetation composition of the flat rehabilitation transects had a vegetation composition that was more representative of the flat analogue transects, being dominated by perennial grasses and acacias;

- the rehabilitation on the Bald Hill WRL had cover well below the corresponding analogues;
- the sloping rehabilitation on the WRL had a high proportion of erosion features including rills and gullies;
- native fauna tracks and scats were observed on the WRL.

Figure 6-1: Transect and Photo Point Locations monitored in 2014

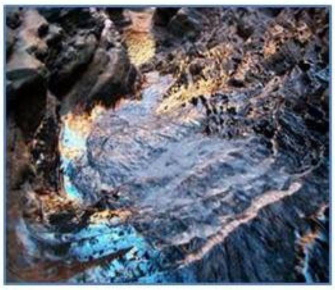
7 References

MWH Australia Pty Ltd (MWH) (2014) Coyote Gold Project, Mineral Field 80: Coyote and Bald Hill Mine Closure Plan, 14 March 2014.

MWH Australia Pty Ltd (MWH) (2014b) Coyote Gold Mine Rehabilitation Monitoring of Coyote and Bald Hill Waste Rock Landforms, 2014, December 2014.

Tanami Gold NL (2007) Coyote Project – *Stage 2 Wildlife Management Plan,* Revised May 2007. Prepared by Ecotec (WA) Pty Ltd, 2007.

Appendix A Mine Closure Plan



Tanami Gold NL

Coyote Gold Project

Mineral Field 80

Coyote and Bald Hill Mine Closure Plan

14th March 2014

Brett Montgomery
Tanami Gold NL
Level 4, 50 Colin Street,
WEST PERTH 6005

Coyote and Bald Hill Mine Closure Plan

Distribution:

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Department of Mines and Petroleum	2 hard copies (electronic copy contained within)	Demelza Dravenieks

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Checklist

Q No	Mine Closure Plan (MCP) checklist	Y/N NA	Page No.	Comments
1	**Has the Checklist been endorsed by a senior representative within the tenement holder/operating company? (See bottom of Checklist.)**	Y	NA	Following Checklist
2	How many copies were submitted to DMP? (See Appendix C for requirements)	2 hard copies (electronic copy contained within)		
	Cover Page, Table of Contents			
3	Does the cover page include; • Project Title • Company Name • Contact Details (including telephone numbers and email addresses) • Document ID and version number • Date of submission (needs to match the date of this checklist)	Y	NA	Cover Page
4	Has a Table of Contents been provided?	Y	NA	Table of Contents
	Scope and Project Summary			
5	State why is the MCP is submitted (as part of a Mining Proposal or a reviewed MCP or to fulfil other legal requirements)	Y	1 - 3	Section 1: Scope and Purpose
6	Does the project summary include; • Land ownership details; • Location of the project; • Comprehensive site plan(s); • Background information on the history and status of the project.	Y	4 - 11	Section 2: Project Summary
	Legal Obligations and Commitments			
7	Has a consolidated summary or register of closure obligations and commitments been included?	Y	12 - 13	Section 3: Identification of Closure Obligations and Commitments Appendix A
	Data Collection and Analysis			
8	Has information relevant to mine closure been collected for each domain or feature (including pre-mining baseline studies, environmental and other data)?	Y	14 – 44 45 - 102	Section 4: Collection and Analysis of Closure Data Section 5: Analysis of Data
9	Has a gap analysis been conducted to determine if further information is required in relation to closure of each domain or feature?	Y	14 – 44 45 - 102	Section 4: Collection and Analysis of Closure Data Section 5: Analysis of Data
	Stakeholder Consultation			
10	Have all stakeholders involved in closure been identified?	Y	103 - 104	Section 6: Stakeholder Identification

Q No	Mine Closure Plan (MCP) checklist	Y/N NA	Page No.	Comments
11	Has a summary or register of stakeholder consultation been provided, with details as to who has been consulted and the outcomes?	Y	103 - 104	Section 6: Stakeholder Identification Appendix B
	Final land use(s) and Closure Objectives			
12	Does the MCP include agreed post mining land use(s), closure objectives and conceptual landform design diagram?	Y	105 - 106	Section 7: Post Mining Land Use and Closure Objectives
13	Does the MCP identify all potential (or pre-existing) environmental legacies, which may restrict the post mining land use (including contaminated sites)?	NA	NA	NA
	Identification and Management of Closure Issues			
14	Does the MCP identify all key issues impacting mine closure objectives and outcomes?	Y	107 - 109	Section 8: Identification and Management of Closure Risks
15	Does the MCP include proposed management or mitigation options to deal with these issues?	Y	107 - 109	Section 8: Identification and Management of Closure Risks
16	Have the process, methodology, and rationale been provided to justify identification and management of the issues?	Y	107 - 109	Section 8: Identification and Management of Closure Risks
	Closure Criteria			
17	Does the MCP include an appropriate set of specific closure criteria and/ closure performance indicators?	Y	110 - 116	Section 9: Development of Completion Criteria
	Closure Financial Provisioning			
18	Does the MCP include costing methodology, assumptions and financial provision to resource closure implementation and monitoring?	Y	117	Section 10: Financial Provisioning for Closure
19	Does the MCP include a process for regular review of the financial provision?	Y	134	Section 14: Management of Information and Data
	Closure Implementation			
20	Does the reviewed MCP include a summary of closure implementation strategies and activities for the proposed operations or for the whole site?	Y	118 - 131	Section 11: Closure Implementation
21	Does the MCP include a closure work program for each domain or feature?	Y	118 - 131	Section 11: Closure Implementation
22	Have site layout plans been provided to clearly show each type of disturbance?	Y	NA	Figures 1 to 31 throughout report
23	Does the MCP contain a schedule of research and trial activities?	Y	118 - 131	Section 11: Closure Implementation
24	Does the MCP contain a schedule of progressive rehabilitation activities?	Y	118 - 131	Section 11: Closure Implementation
25	Does the MCP include details of how unexpected closure and care and maintenance) will be handled?	Y	133	Section 13: Temporary or

Q No	Mine Closure Plan (MCP) checklist	Y/N NA	Page No.	Comments
				Unexpected Closure
26	Does the MCP contain a schedule of decommissioning activities?	Y	118 - 131	Section 11: Closure Implementation
27	Does the MCP contain a schedule of closure performance monitoring and maintenance activities?	Y	132	Section 12: Closure Monitoring and Maintenance
	Closure Monitoring and Maintenance			
28	Does the MCP contain a framework, including methodology, quality control and remedial strategy for closure performance monitoring including post-closure monitoring and maintenance?	Y	132	Section 12: Closure Monitoring and Maintenance
	Closure Information and Data Management			
29	Does the mine closure plan contain a description of management strategies including systems, and processes for the retention of mine records?	Y	134	Section 14: Management of Information and Data
30	Confidentiality	NA	NA	NA

Corporate Endorsement:

"I hereby certify that to the best of my knowledge, the information within this Mine Closure Plan and checklist is true and correct and addresses all the requirements of the Draft Guidelines for Preparing Mine Closure Plans approved by the Director General of Mines.

Name: BRETT MONTGOMERY **Signed**:

Position: DIRECTOR **Date**: 14/3/2014

Summary of Closure Commitments

Tanami Gold NL commit to undertaking the following closure commitments:

1. Undertake the research, investigations and trials presented in this mine closure plan over the next three years.

2. Design and construct landforms to effectively manage water from the top surface and down slopes to reduce erosion.

3. Undertake Ecosystem Function Analysis (EFA) which includes Landscape Function Analysis (LFA), or an appropriate equivalent method, which incorporates the selection of appropriate analogues to assist in the development of quantitative completion criteria.

4. Ongoing stakeholder consultation with key stakeholders will be undertaken to determine any infrastructure to remain post closure, in particular, roads, airstrip, and water bores.

5. Prepare an inventory of all available suitable rehabilitation materials, including material type and volumes to prioritise the use of available topsoil and other rehabilitation materials.

6. Adequate financial provisions will be available for closure, based on realistic estimations of closure costs.

7. Integrate closure tasks and associated costs (such as landform remediation works) into future mining plans as far as practical.

8. Tanami Gold NL will consider the potential to harvest topsoil/ laterite material from roads and/ or the firebreak to augment topsoil application of the TSF and Coyote WRL, where shortfalls to the proposed 100 mm coverage are identified.

9. Subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions.

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APPENDIX B: Stakeholder Consultation Register

APPENDIX C: Flora Observed in the Coyote Project Area. August 2004 to August 2006

APPENDIX D: Fauna Observed in the Coyote Project Area. August 2004 to August 2006

APPENDIX E: Fauna Codes and Terms Used to Describe Conservation Significance Status

APPENDIX F: Completion Criteria that apply to the Features of each Domain

APPENDIX G: Closure Implementation Schedule

APPENDIX H: Coyote Gold Project Risk Assessment

APPENDIX I: Closure Cost Assumption Report

APPENDIX J: Department of Industry and Resources letter 12th December 2006

APPENDIX K: Department of Minerals and Petroleum Inspection Report 26th March 2010

APPENDIX L: Tanami Gold NL reply to Department of Minerals and Petroleum Inspection 18th April 2010

APPENDIX M: Halls Creek Shire Letter of Support 13th February 2012

ACRONYMS AND ABBREVIATIONS

%	Percent
AER	Annual Environmental Report
AHD	Australian Height Datum
AMD	acid mine drainage
ARI	average recurrence interval
BCM	bank cubic meters
BoM	Bureau of Meteorology
CALM	Department of Conservation and Land Management
CGP	Coyote Gold Project
cm	Centimetre
m^3	cubic metres
DEC	Department of Environment and Conservation
DER	Department of Environment Regulation
DPaW	Department of Parks and Wildlife
DIA	Department of Indigenous Affairs
DMP	Department of Mines and Petroleum
DoIR	Department of Industry and Resources (former mining regulator, current regulator DMP)
DoW	Department of Water
EP	Evaporation Pond
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
g/t	grams per tonne
ha	Hectares
HDPE	High Density Polyethylene
IVI	importance value index
kg	Kilograms
kL	Kilolitres
km	Kilometres
L	Litre
LCR	legal compliance register
LoM	life of mine
MCP	Mine Closure Plan

mg/L	milligrams per Litre
mm	millimetres
m	Metres
ML	Megalitres
MB	monitoring bores
MMDD	Maximum Modified Dry Density
MW	megawatts
Mtpa	million tonnes per annum
µm	Microns
NOI	Notice of Intent
NMD	neutral mine drainage
OES	Outback Ecology Services
pH	degree of alkalinity/ acidity
ppm	parts per million
PVC	Polyvinyl chloride
mRL	metres relative level to Australian Height Datum
RO	reverse osmosis
ROM	Run-Of-Mine
TGNL	Tanami Gold NL
TSF	tailings storage facility
t	Tonnes
TDS	total dissolved solids
TN	total nitrogen
tpa	tonnes per annum
t/m^3	tonnes per cubic metre
t/h	tonnes per hour
WA	Western Australia
WRL	Waste Rock Landform

DEFINITIONS

Aspect – Critical elements of closure that need to be considered.

Care and Maintenance – Phase following temporary or unexpected cessation of mining operations where infrastructure remains intact and the site continues to be managed. All mining operations suspended, site being maintained and monitored.

Closure – A whole-of-mine-life process, which typically culminates in tenement relinquishment, including decommissioning and rehabilitation.

Closure Objective – Outcome based long term goal for closure, relating to each aspect based on the post mining land use.

Completion – The goal of mine closure. A completed mine has reached a state where mining lease ownership can be relinquished and responsibility accepted by the next land user (DTIR 2006a).

Completion Criteria – Qualitative or quantitative standards of performance used to measure the success of meeting the closure objectives.

Decommissioning – A process that begins, near or at, the cessation of mineral production and ends with removal of all unwanted infrastructure and services.

Disturbed - Area where vegetation has been cleared and/or topsoil (surface cover) removed.

Disturbance Type - A feature created during mining or exploration activity, e.g. waste rock landforms, haul roads, access roads, ROM, plant site, tailings storage facility, borrow pits, drill pads, stockpiles, office blocks, accommodation village, etc.

Domain - A group of features (landforms or infrastructure) with similar rehabilitation and closure requirements.

Legal Compliance Register – A register of all legally binding conditions and commitments relevant to rehabilitation and closure at a given mine site.

Life of Mine – Expected duration of mining and processing operations.

Performance Indicators – states how closure criteria will be measured.

Post mining land use – Term used to describe a land use that occurs after the cessation of mining operations.

Quantitative Standard – Sets a standard or numerical value at which point a criterion is considered to be achieved.

Rehabilitation – The return of disturbed land to a stable, productive and/or self-sustaining condition, consistent with the post mining land use.

Relinquishment – A state when agreed closure criteria have been met, government "sign-off" achieved, all obligations under the Mining Act removed and bonds retired, and responsibility accepted by the next land users or manager (DITR 2006a).

Revegetation – Establishment of self-sustaining vegetation cover after earthworks have been completed, consistent with the post mining land use.

1. SCOPE AND PURPOSE

The following Mine Closure Plan (MCP) has been developed for the Coyote Gold Project (CGP) which is composed of the Coyote Project Area (Coyote) and the Bald Hill Project Area (Bald Hill) on behalf of Tanami Gold NL (TGNL). In 2011 amendments to the *Mining Act 1978* require all existing projects to prepare a MCP in accordance with the Department of Mines and Petroleum (DMP) and Environmental Protection Authority (EPA) joint *Guidelines for Preparing Mine Closure Plans* (2011). Furthermore the DMP requires all sites in Western Australia (WA) to submit a MCP with any new Mining Proposal or unless otherwise stipulated as a tenement condition.

TGNL received notification from the DMP that MCPs were due for Coyote and Bald Hill and subsequently submitted separate Decommissioning and Closure Plans (DCPs) for Coyote (TGNL 2012a) and Bald Hill (TGNL 2012b) in April 2012. In June 2013 (Bald Hill) and August 2013 (Coyote) TGNL received letters from the DMP requesting additional information to meet the requirements of the *Guidelines for Preparing Mine Closure Plans*. This MCP combines the Coyote and Bald Hill into one document, addressing the DMP comments on both the Coyote and Bald Hill DCPs.

As a component of the revision, the domains and features of Coyote and Bald Hill have been re-assessed based on a site assessment (in November 2013), aerial imagery (Coyote 2010) (Bald Hill 2012) and site survey data.

This MCP has been prepared in accordance with:

- the *Guidelines for Preparing Mine Closure Plans* (DMP and Environmental Protection Authority (EPA) 2011);
- the *Principles of the Strategic Framework for Mine Closure* (ANZMEC and MCA 2000);
- the *Mine Closure and Completion Handbook* (Department of Industry, Tourism and Resources 2006);
- *Mine Safety and Inspection Regulations 1995*; and
- Outback Ecology Services' broad experience in mine closure planning for proposed, operational and closed mines.

Planning for mine closure and rehabilitation needs to be undertaken in an effective and progressive manner in order to prevent and minimise adverse long term environmental, social and economic impacts. Effective and progressive mine closure planning is a prerequisite for the creation of safe, stable and non-polluting landforms suitable for the agreed post mining land use. Planning for mine closure needs to be incorporated into the Project's design and construction and be conducted as a life-of-mine (LoM) process. In general, mine closure works aim to:

- minimise the footprint of operations upon closure;
- determine the optimum strategies for effective closure and rehabilitation of the mine site;
- progressively rehabilitate disturbed areas during the mine life; and

- monitor the site during operations and upon completion of rehabilitation activities to demonstrate compliance with closure objectives.

The following MCP comprises the following core components:

- project summary;
- identification of closure obligations and commitments;
- environmental data;
- analysis of data;
- stakeholder consultation;
- post mining land use and closure objectives;
- identification of closure issues;
- completion criteria;
- financial provisioning; and
- closure implementation (detailing the progressive rehabilitation and closure tasks and post closure monitoring and maintenance framework).

The CGP tenements are held by Tanami Exploration NL, a wholly owned subsidiary of TGNL and are outlined in **Table 1**.

Table 1: Project tenements

Lease	Description of Disturbance	Grant Date	Expiry Date	Area (ha)
M80/559	Coyote Mine Site	15/9/2005	26/9/2026	996.30
M80/560	Rehabilitated Exploration Camp	15/9/2005	26/9/2026	997.05
M80/561	Exploration	15/9/2005	26/9/2026	987.80
M80/562	Exploration	24/11/2005	1/12/2026	990.80
M80/563	Bald Hill Open Pits & WRL	24/11/2005	1/12/2026	977.40
M80/564	Exploration / Haul Road	24/11/2005	1/12/2026	989.30
L80/45	Haul Road Coyote to Bald Hill	17/2/2006	16/2/2027	655.00
L80/46	Airstrip	11/2/2005	10/2/2026	88.35
L80/49	Exploration Camp Bore	27/1/2006	26/1/2027	24.99
L80/51	Exploration Camp (rehabilitated)	17/2/2006	16/2/2027	400.00
E80/1481	Exploration	5/10/1993	4/10/2013	7,440.00
E80/1483		16/4/1992	15/4/2014	4,650.00
E80/1677		15/3/1994	14/3/2014	9,920.00
E80/1679		15/3/1994	14/3/2014	5,580.00
E80/1737		22/3/1994	21/3/2014	8,680.00
E80/1905		6/9/1994	5/9/2014	11,780.00
E80/2036		17/2/1995	16/2/2014	2,480.00
E80/2133		11/8/2004	10/8/2014	3,720.00
E80/3238		29/12/2004	28/12/2013	1,240.00
E80/3378		20/2/2006	19/2/2014	930.00
E80/3388		15/5/2006	14/5/2015	10,850.00
E80/3389		15/5/2006	14/5/2015	10,850.00
E80/3665		19/10/2007	18/10/2017	5,270.00
E80/3845		8/4/2008	7/4/2018	930.00
E80/3846		8/4/2008	7/4/2018	620.00
E80/3847		8/4/2008	7/4/2018	1,240.00
E80/4006		20/11/2008	19/11/2013	27,900.00
E80/4305		16/6/2010	15/6/2015	10,540.00
E80/4306		17/9/2010	16/9/2015	13,020.00
E80/4307		17/9/2010	16/9/2015	27,280.00

2. PROJECT SUMMARY

The CGP is owned and operated by TGNL; it is located in the Tanami Desert, approximately 20 kilometres (km) west of the Western Australian (WA) and Northern Territory (NT) border, and 280 km southeast of Halls Creek (**Figure 1**). The Balgo Hills community is the nearest settlement, located approximately 80 km west by road along the Tanami Highway.

The CGP consists of the Coyote and Bald Hill Project areas. The Coyote Project is accessed via the Tanami Highway (from either Halls Creek or Alice Springs), while Bald Hill is accessed via a haul road from Coyote. The CGP was developed in two stages; Stage 1 was the development of the open pits at Coyote, and subsequent underground operation, while Stage 2 was the development of Bald Hill, (previously referred to as the Larranganni Gold Project). No processing is carried out at Bald Hill, all the ore generated from mining at Bald Hill is hauled approximately 35 km south to Coyote.

Mining commenced at Coyote on M80/559 (**Figure 2**), following approval of a Notice of Intent (NOI) in February 2006, however, was suspended in October 2006 following problems with the gold recovery process. The original processing operation incorporated lined Leach Vats; complications with commissioning the leaching process resulted in the Leach Vats being decommissioned in December 2006. The Coyote treatment plant was subsequently redesigned to utilise conventional Carbon In Pulp (CIP) processing.

Following a period of continuous rain, the Coyote Open Pit flooded on the 17th of January 2007 (after the bund wall was breached by accumulated surface water runoff). Approval to dewater 600,000 cubic metres (m^3) of water out of the pit by discharging directly to the environment was sought from the Department of Environment and Conservation (DEC); and approved on the 21st February 2007 (TGNL 2007a, 2008b). Mining was not able to recommence until March 2007, when dewatering was complete. Mining of Coyote Open Pit was completed in late 2007.

Coyote currently consists of an open pit (originally mined as four separate pits), an underground mining operation, a processing plant, tailings storage facility (TSF), waste rock landform (WRL), Run-of-Mine (ROM) Pad, an evaporation dam, leach vats and mine support infrastructure. The original accommodation facility, located approximately 8 km west of the mine site, has been decommissioned and the majority of this area rehabilitated. The current accommodation village, located approximately 1 km northeast of the mine site, includes a sewage treatment facility, and was completed in March 2008.

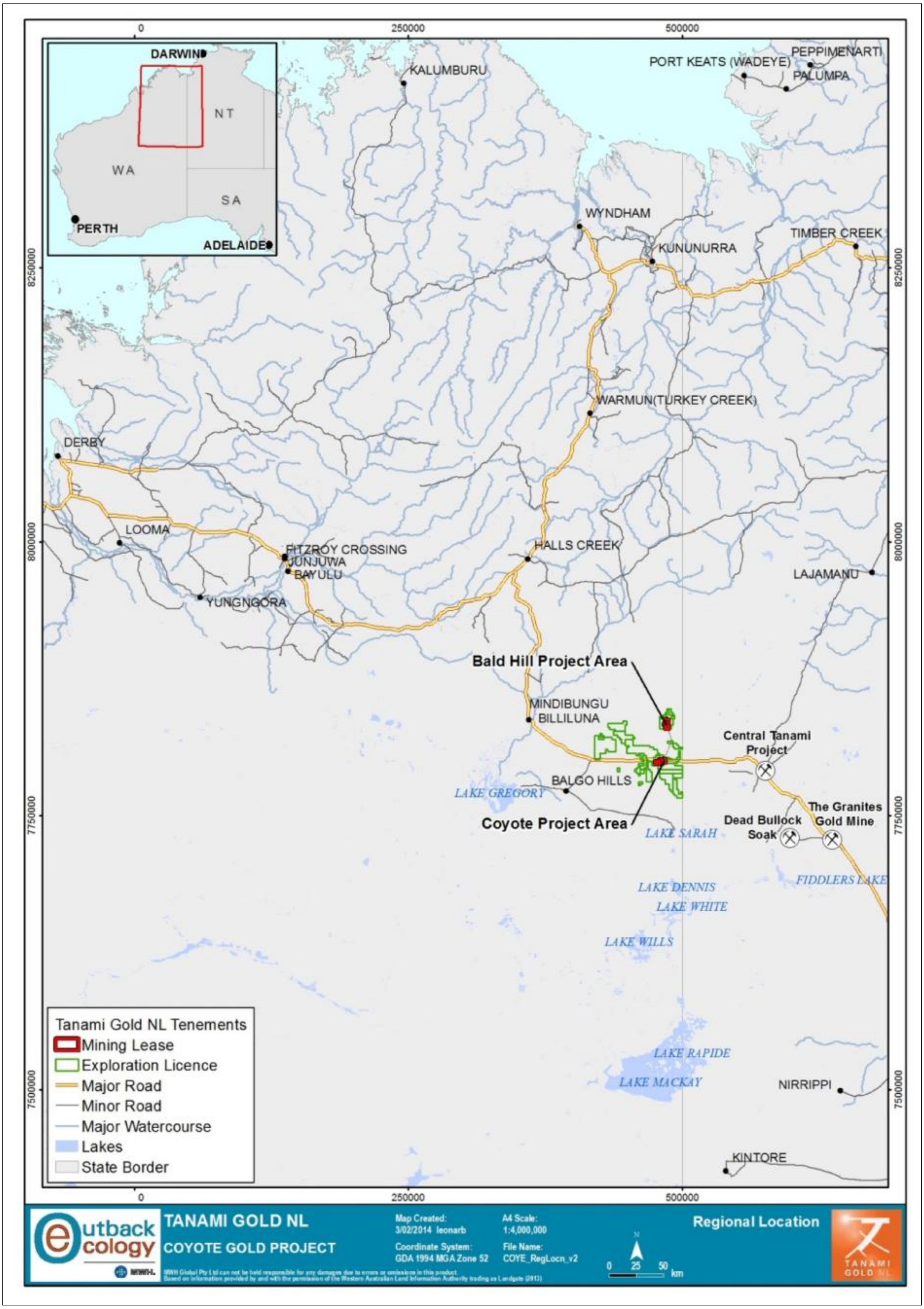

Figure 1: Regional location of the Coyote Gold Project

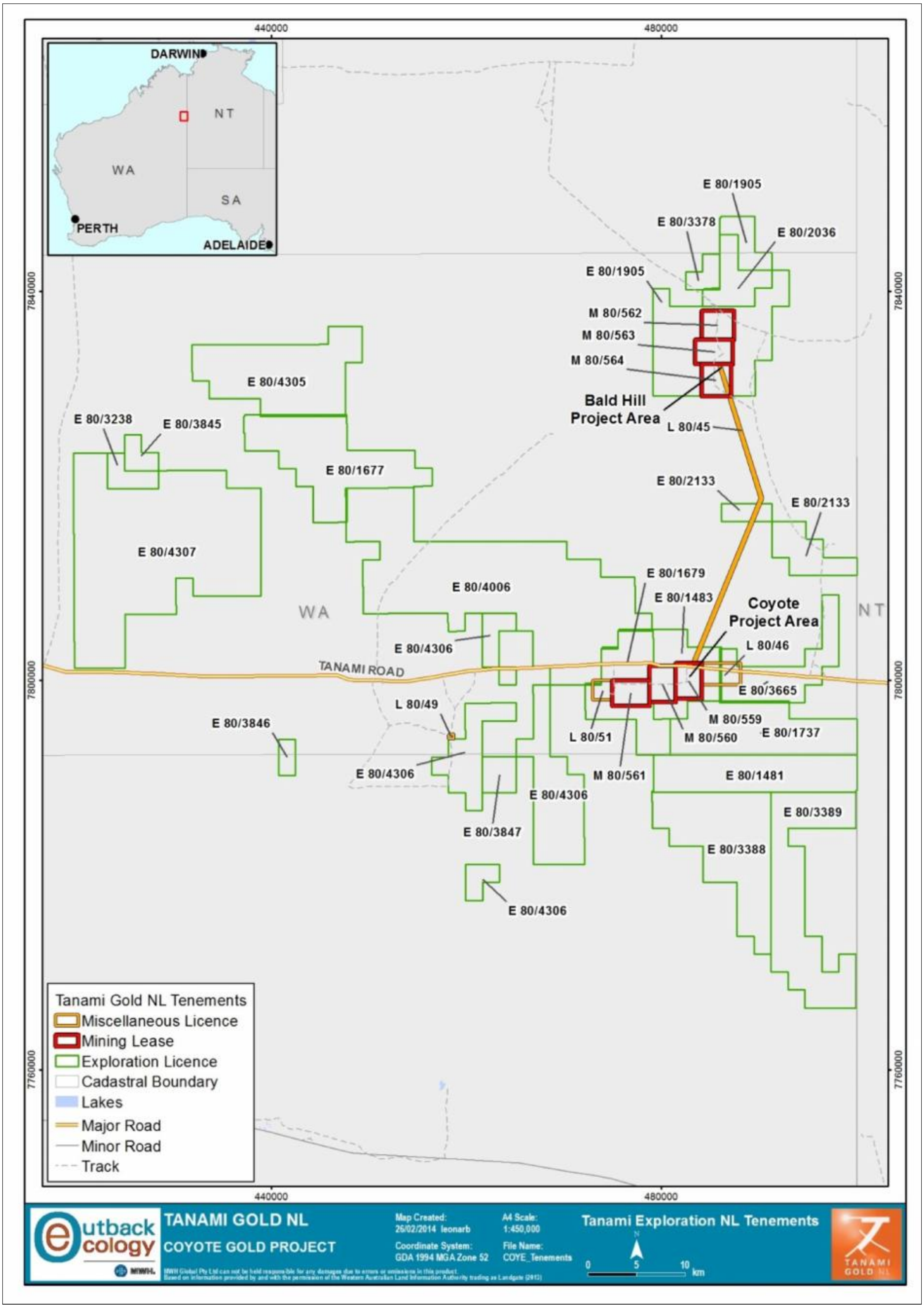

Figure 2: Tanami Exploration NL tenements comprising the Coyote Gold Project

In January 2008 underground mining commenced at Coyote with construction of a portal and decline into the Coyote Open Pit. The Coyote underground mining operation is currently in care and maintenance, while drilling (from both the surface and underground) improves reserves to extend the life of the operation. Current resources may extend the mine life three years with the discovery of the Kavanagh Lode at Coyote which has the potential to host between 700,000 and 800,000 tonnes (t) of ore at a grade range of between 10 to 15 grams per tonne (g/t) of gold (Au).

A Mining Proposal for Stage 2 of the Coyote Project was lodged with Department of Industry and Resources (DoIR) in August 2006. The proposal was referred to the Environmental Protection Authority (EPA), and deemed to require preparation of an Environmental Protection Statement (EPS). Notification of this requirement was received in early January 2007. A Draft EPS was lodged with the EPA Service Unit in February 2007 and comments were received in March, with the final EPS lodged in June 2007 and approved in July 2007.

Bald Hill is located on M80/563 approximately 35 km north of Coyote; the haul road linking the two sites is located on L80/45 and was constructed in 2009. Mining of Bald Hill commenced in March 2008 with development of open pits at the Kookaburra and Sandpiper deposits. The operation was suspended in May 2008 as re-modelling of the orebody was required. In September 2009 an optimisation study of the ore body at Bald Hill commenced; in 2010 a variation to the original proposal was sought via a Section 45C and an amended Mining Proposal; operations recommenced in late 2010. Further amendments to the mining plan were obtained in 2011, which allowed for an increased footprint to accommodate an additional ROM Pad and waste dump expansion. Open cut mining ceased at Kookaburra and Sandpiper in 2011.

In November 2012 approval was also obtained to develop the Osprey Satellite Pit. Mining was carried out in November and December 2012 forming a shallow pit to a total depth of approximately 5 m. Operations were suspended in December due to the wet season and rehabilitation work was subsequently conducted with the open pit backfilled with lateritic waste to leave a gentle depression.

Haulage operations will re-commence when Coyote re-opens as there remains 400,000 t of low grade ore stockpiled on the eastern side of the Bald Hill WRL. Current open pit resources have been mined out, although there is still a resource of approximately 600,000 t of ore at approximately 6 g/t remaining under the pits that has underground potential. Modifications to the mill at Coyote are required to process this resource, as there are metallurgical recovery issues related to grind of the slightly refractory ore.

Bald Hill is comprised of two small open pits (Kookaburra and Sandpiper), one rehabilitated pit (Osprey), a WRL, low-grade and mineralised waste stockpiles, ROM pads, an evaporation dam, a haul road to Coyote and basic mining support infrastructure.

The contact details for the CGP are as follows:

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Telephone: 08 9212 5999
Facsimile: 08 9212 5900

2.1. Domains and Features

To facilitate effective mine closure planning, the CGP has been divided into a number of physically distinct 'domains' and 'features'. The domains are comprised of features that have similar rehabilitation and closure requirements. The domains and features of the CGP are presented in **Table 2**, **Figure 3**, and **Figure 4**.

Table 2: Domains and Features of the Project

Domain	Feature
1.0 Landforms	Coyote WRL
	Coyote TSF
	Coyote ROM Pad
	Coyote Topsoil Stockpiles
	Bald Hill WRL
	Bald Hill ROM Pads and Stockpiles
	Bald Hill Topsoil Stockpiles
2.0 Industrial Infrastructure	Coyote Processing Plant
	Offices and Workshop, and Stores
	Power House, Fuel Storage and Refuelling bay
	Reverse Osmosis Plant
	Coreyard and Workshop
	Coyote Laydown
	Boneyard
	TSF Laydown
	Explosives Magazine
	Putrescible and Inert Landfills
	Bioremediation Area
	Sewage Treatment Facility
	Airstrip
	Accommodation Village
	Bald Hill Administration

Domain	Feature
	Bald Hill Storage Compound and Laydown
3.0 Mining Infrastructure	Coyote Open Pit
	Coyote Underground
	Sandpiper Open Pit
	Kookaburra Open Pit
	Osprey Pit and Laterite Re-handle Area
4.0 Water Management Structures	Evaporation and Raw Water Pond
	Leach Vats
	Water Treatment Ponds and Turkeys Nest
	Bald Hill Evaporation Dam
	Bald Hill Turkeys Nest
	Flood Diversion Drain and Bund
	Surface Water Sump
	Bald Hill Flood Protection and Abandonment Bund
5.0 Groundwater Infrastructure	Monitoring Bores
	Dewatering Bores and Pipelines
6.0 Roads	Site Roads
	Bald Hill Haul Road
7.0 Exploration	Drill pads, Sumps and Tracks
	Exploration Coreyard

Figure 3: The Coyote Project Area Domains and Features

Figure 4: Bald Hill Project Area Domains and Features

3. IDENTIFICATION OF CLOSURE OBLIGATIONS AND COMMITMENTS

The legal obligations relevant to rehabilitation and closure at the CGP have been identified based on records available at the time of completion of this report and are provided within the Closure and Rehabilitation Legal Compliance Register (LCR) (**Appendix A**).

A document register is provided within Appendix A, indicating which documents have been reviewed and incorporated into the current LCR. The majority of the legal compliance documentation was located and reviewed for requirements for rehabilitation and closure in compilation of this MCP. However, a small number of documents were unavailable and therefore remain a knowledge gap within this MCP.

This MCP overrides previous documents, detailing rehabilitation and closure (except where known commitments have been made as detailed in Appendix A). Amendments will be submitted, for any changes required under existing Mining Proposals and Notices of Intent (where these conditions are known).

The LCR (provided in Appendix A) includes all legally binding conditions and commitments and or legal obligations applicable under relevant State and Commonwealth legislation. The register also includes all available legally binding conditions included within individual tenement conditions, Mining Proposals, Notices of Intent (NOI's), Letters of Intent, Programmes of Work, Operating Licences, Ministerial Statements and commitments and all other legally binding documents relevant to the CGP.

This register has been used as a tool to assist with setting completion criteria for the CGP. Additionally, decommissioning and rehabilitation of the CGP will be conducted in accordance with the general provisions of the following key legislation, policy documents and related guidelines:

- all relevant legally binding conditions and commitments;
- *Mining Act 1978;*
- *Mines Safety and Inspection Act 1994;*
- Mines Safety and Inspection Regulations;
- *Contaminated Sites Act* 2003;
- Chamber of Minerals and Energy: Mine Closure Guidelines for Mineral Operations in Western Australia (2000);
- Department of Industry and Resources Environmental Notes: Care and Maintenance (2001);
- Department of Industry and Resources Guidelines: Mineral Exploration/Rehabilitation Activities (2007);
- Department of Industry, Tourism and Resources: Mine Closure and Completion (2006);
- Department of Industry, Tourism and Resources: Mine Rehabilitation (2006); and
- Water and Rivers Commission: Mine Void Water Resource Issues in Western Australia – Hydrogeological Record Series, Report No HG (2003).

The DMP was formerly the Department of Industry and Resources (DoIR).

The DEC was formerly the Department of Conservation and Land Management (CALM) and has since been separated into two new divisions, the Department of Parks and Wildlife (DPaW) and the Department of Environment Regulation (DER). The DPaW focuses on national and marine parks and nature conservation; the DER focuses on environmental regulation, approvals, appeal processes and pollution prevention.

Appendix A summarises the closure conditions endorsed for the CGP.

4. COLLECTION AND ANALYSIS OF DATA

4.1. Environmental Data

According to the Interim Biogeographic Regionalisation of Australia (IBRA), the CGP is located within the Tanami P1 Subregion of the Tanami Bioregion (Tanami) (**Figure 5**) which is described as follows (Graham 2001):

'*Mainly red Quaternary sandplains overlying Permian and Proterozoic strata that are exposed locally as hills and ranges. The sandplains support mixed shrub steppes of Hakea spp., desert bloodwoods, Acacia spp. and Grevillea spp. over soft spinifex (Triodia pungens) hummock grasslands. Wattle scrub over soft spinifex (T. pungens) hummock grass communities occur on the ranges. Alluvial and lacustrine calcareous deposits occur throughout. In the north they are associated with Sturt Creek drainage, and support ribbon grass (Chrysopogon spp.) and Flinders grass (Iseilema spp.) short-grasslands often as savannahs with river red gum. The climate is arid tropical with summer rain.*'

There are no Declared Rare or Priority Flora, threatened ecological communities or wetlands of significance in the Tanami. There is a lack of adequate data on the condition of the bioregion, as the Tanami is the least known of the Kimberley Bioregions. The Tanami has a ranking priority under the preliminary bioregional National Reserve System priorities of 1. There are no reserves within the component of the Tanami bioregion within Western Australia (Graham 2001).

The following section provides a summary of details on the physical and biological environment including:

- local climatic conditions;
- local environmental conditions – topography, geology and hydrogeology data;
- local and regional information on flora, fauna, ecological communities and their habitats;
- local water resources details – type, location, extent, hydrology, quality, quantity and environmental values (ecological and beneficial uses);
- soil and waste materials characterisation; and,
- other closure related information – ethnographic and / or archaeological survey findings.

This information provides a basis to develop completion criteria and performance indicators for closure monitoring and performance.

4.2. Land Use

Both the Coyote and Bald Hill Project areas overlie Unallocated Crown Land (UCL). No pastoral leases intersect the CGP tenements. Approximately 10 km south of Coyote lies a Red Book Reserve area recommended for conservation by the EPA of WA known as the 'Ranges of the Western Desert' (**Figure 6**). An additional Red Book Reserve known as 'Wolf Creek Crater' is located to the north of the CGP. Approximately 80 km north of the Project is a Proposed Nature Reserve (PNR) 219, known as the Gardner Range Area (TGNL 2007d).

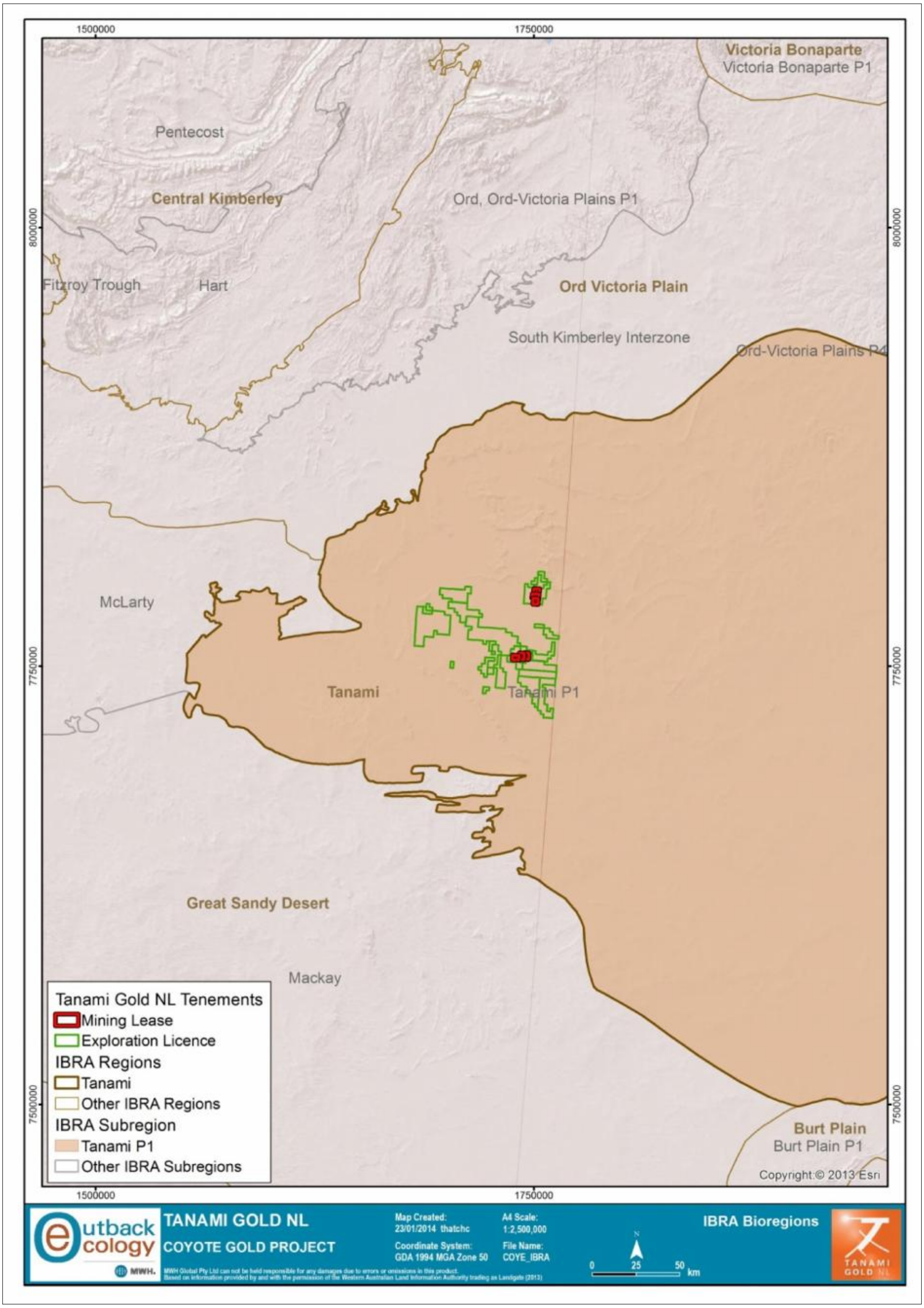

Figure 5: Location of the Coyote Gold Project within the Tanami P1 Subregion

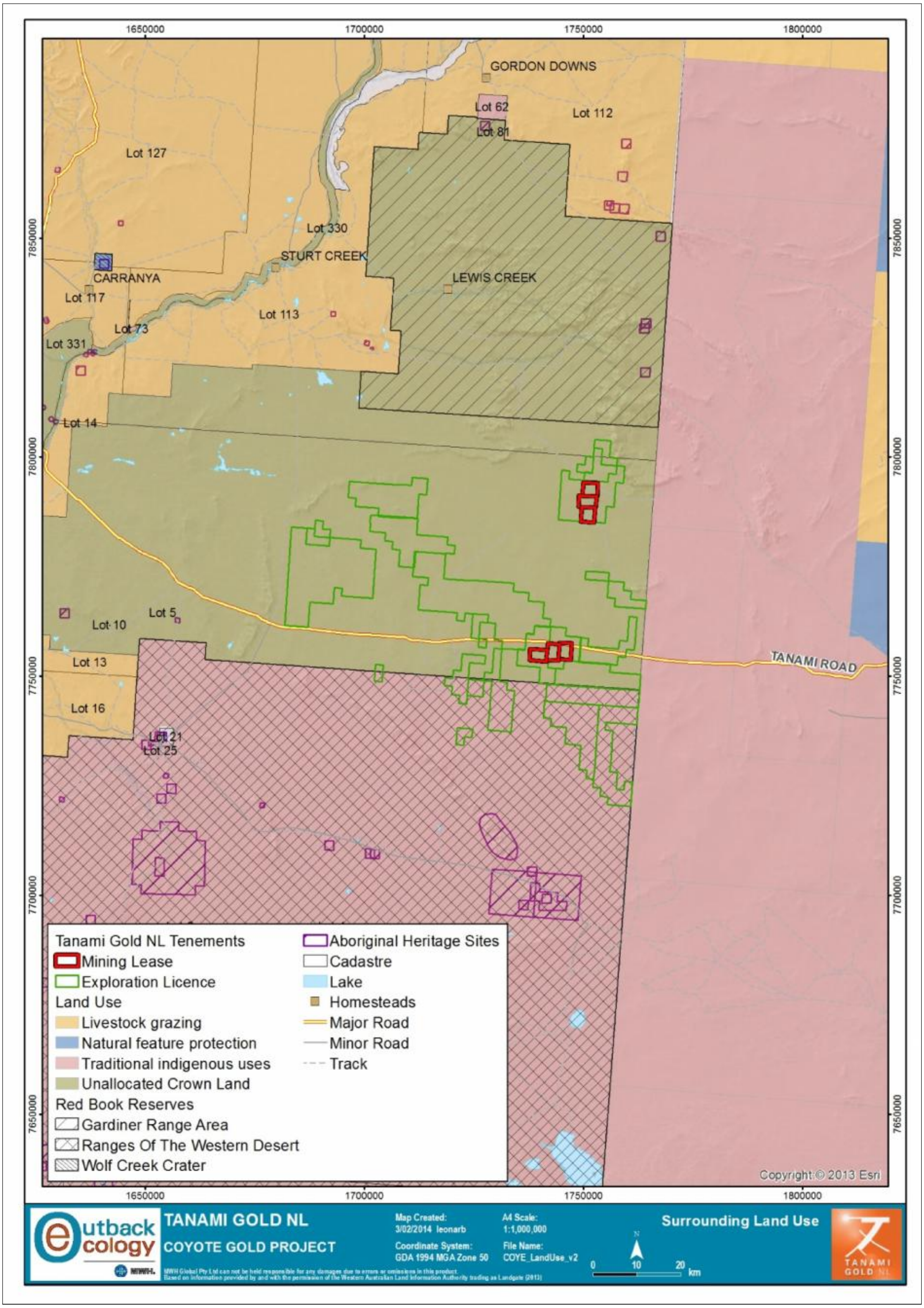

Figure 6: Land use over the Coyote Gold Project

4.3. Climate

The CGP area experiences a semi-arid and monsoonal climate, with approximately 90 percent (%) of rainfall occurring between November and April. The nearest Bureau of Meteorology (BoM) weather station, Balgo Hills (Station # 13007), is located approximately 97 km west of the CGP. Climatic data has been gathered here since 1940. The mean maximum temperature at Balgo Hills ranges from 38.7 degrees Celsius (°C) in December and January to 26°C in June (**Figure 7**). Mean minimum temperatures range from 25.2°C in January to 12.4°C in July. The annual mean rainfall is 355.5 millimetres (mm).

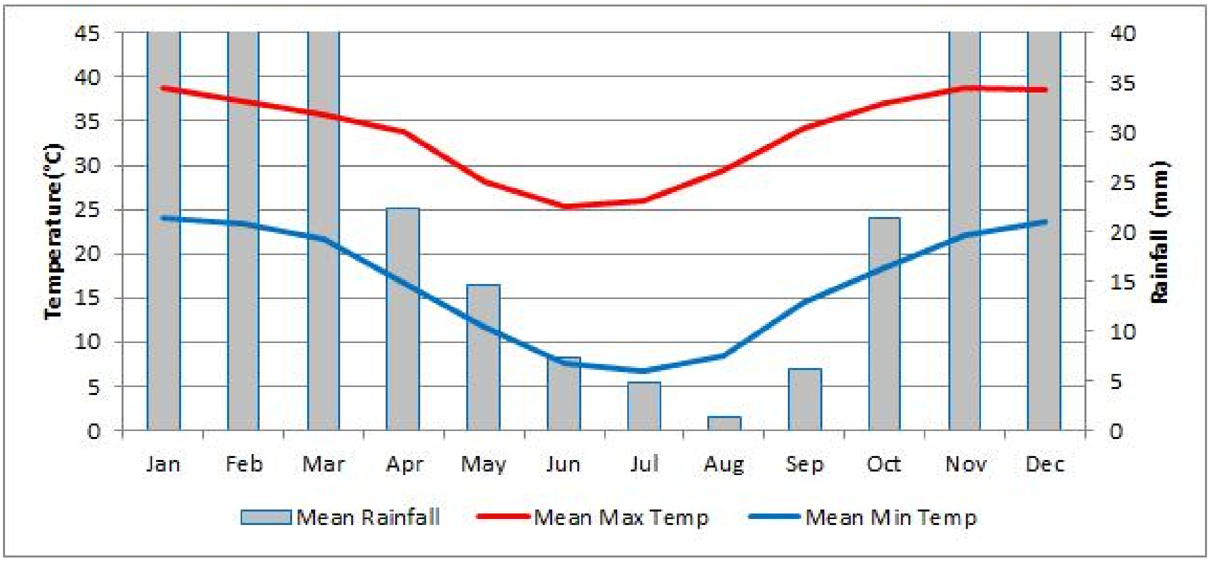

Figure 7: Balgo Hills mean rainfall (mm) and mean temperature (°C)

The second nearest BoM weather station; Rabbit Flat (Station # 015666) is located approximately 127 km southeast of the CGP in the Northern Territory, has been used to provide recent climate data with records obtained between 1996 to December 2013 (**Figure 8**). The Rabbit Flat mean annual rainfall is 485 mm. The hottest month at Rabbit Flat on average is January, with a mean maximum daily temperature of 38.8ºC, while the coolest month is June with a mean maximum daily temperature of 25.4ºC (BoM 2013). The daily maximum exceeds 40ºC on fifty-five days a year on average. Frosts rarely occur. Prevailing winds are from the southeast and summer storms usually occur from the northwest.

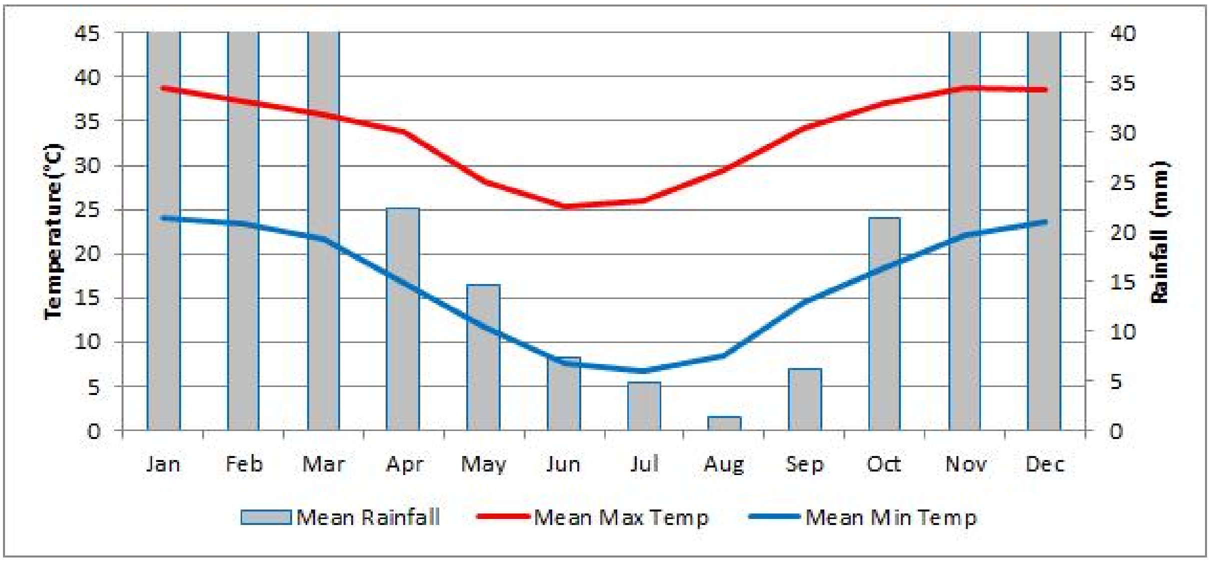

Figure 8: Rabbit Flat mean rainfall (mm) and mean temperature (°C)

4.3.1. Average Recurrence Interval

The Average Recurrence Interval (ARI) for Balgo Hills is presented in **Figure 9**. The rainfall intensity for Balgo Hills over a 72 hour period, 100 year event, is 4.00 mm per hour (mm/hr) or 288 mm. The rainfall intensity for Rabbit Flat over a 72 hour period, 100 year event is 4.74 mm/hr or 341.3 mm (**Figure 10**).

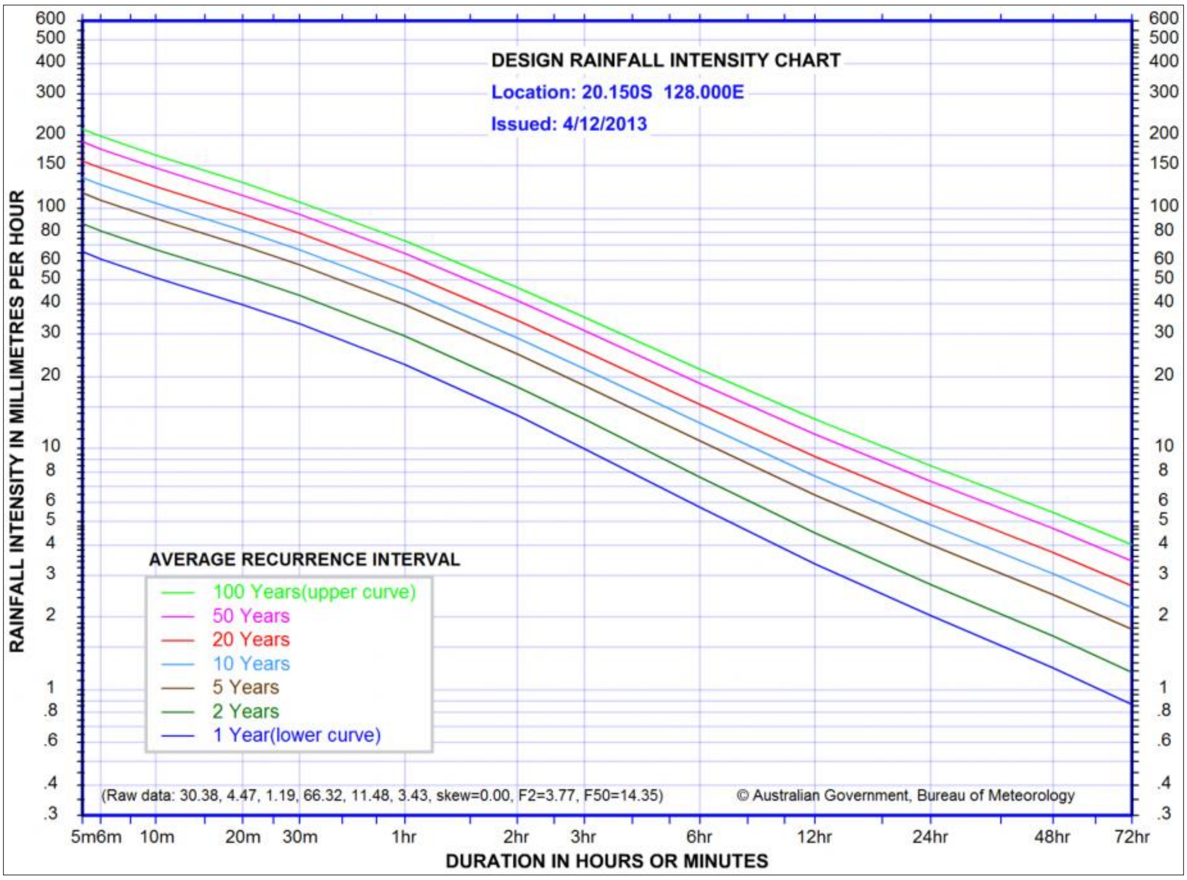

Figure 9: Balgo Hills Average Recurrence Interval Chart

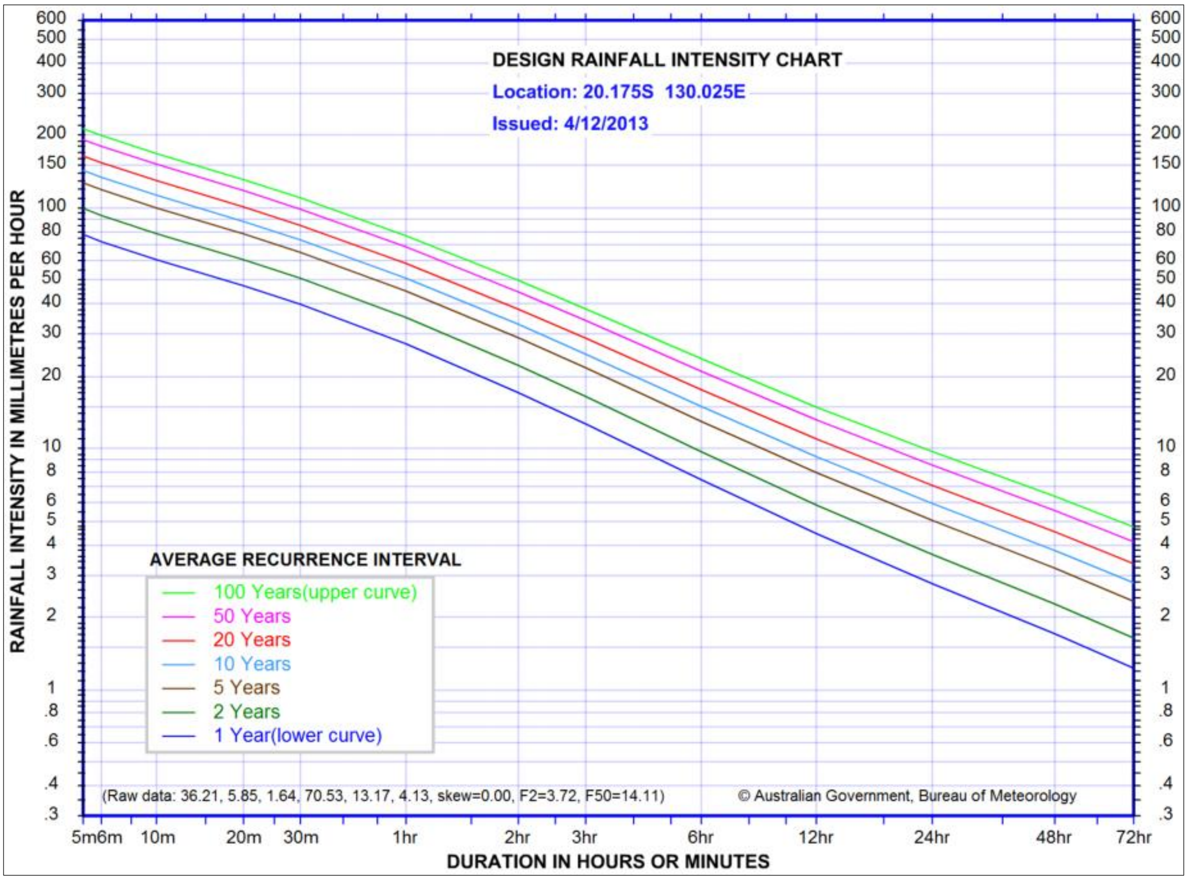

Figure 10: Rabbit Flat Average Recurrence Interval Chart

4.4. Geology

4.4.1. Regional Geology

Coyote and Bald Hill lie toward the western end of The Granites - Tanami Inlier, which is a highly deformed and metamorphosed Palaeoproterozoic block, approximately 250 km long and 100 km wide. Basement geology is rarely exposed and is composed of Archaean granites and gneisses (**Figure 11**). The basement was subjected to the Barramundi Orogeny prior to the deposition of the overlying sediments. Post-Barramundi rifting led to deposition of mafic volcanics, volcaniclastics and clastics and calc-silicates of the McFarlane Peak Group. This was succeeded by the deposition of the Tanami Group in a passive marine environment. These rocks include carbonaceous siltstone, minor banded ironstone and calc-silicates of the Dead Bullock Formation, which is conformably overlain by several thousand metres of turbiditic sandstones of the Killi-Killi Formation (URS 2004).

The sedimentary pile was later intruded by doleritic sills, prior to and during the subsequent deformation of the Tanami Orogenic Event, a period of regional deformation and metamorphism across the Tanami Inlier. The Pargee Sandstone, comprising interbedded conglomerates, sands and minor silts, was deposited unconformably on the Tanami Group in a sub-basin created during the Tanami Orogenic Event. Local intra-continental rifting led to subaqueous and subaerial sedimentation and felsic to mafic volcanism forming the Mount Charles Formation, Mount Winnecke Group and the Nanny Goat Volcanics (URS 2004).

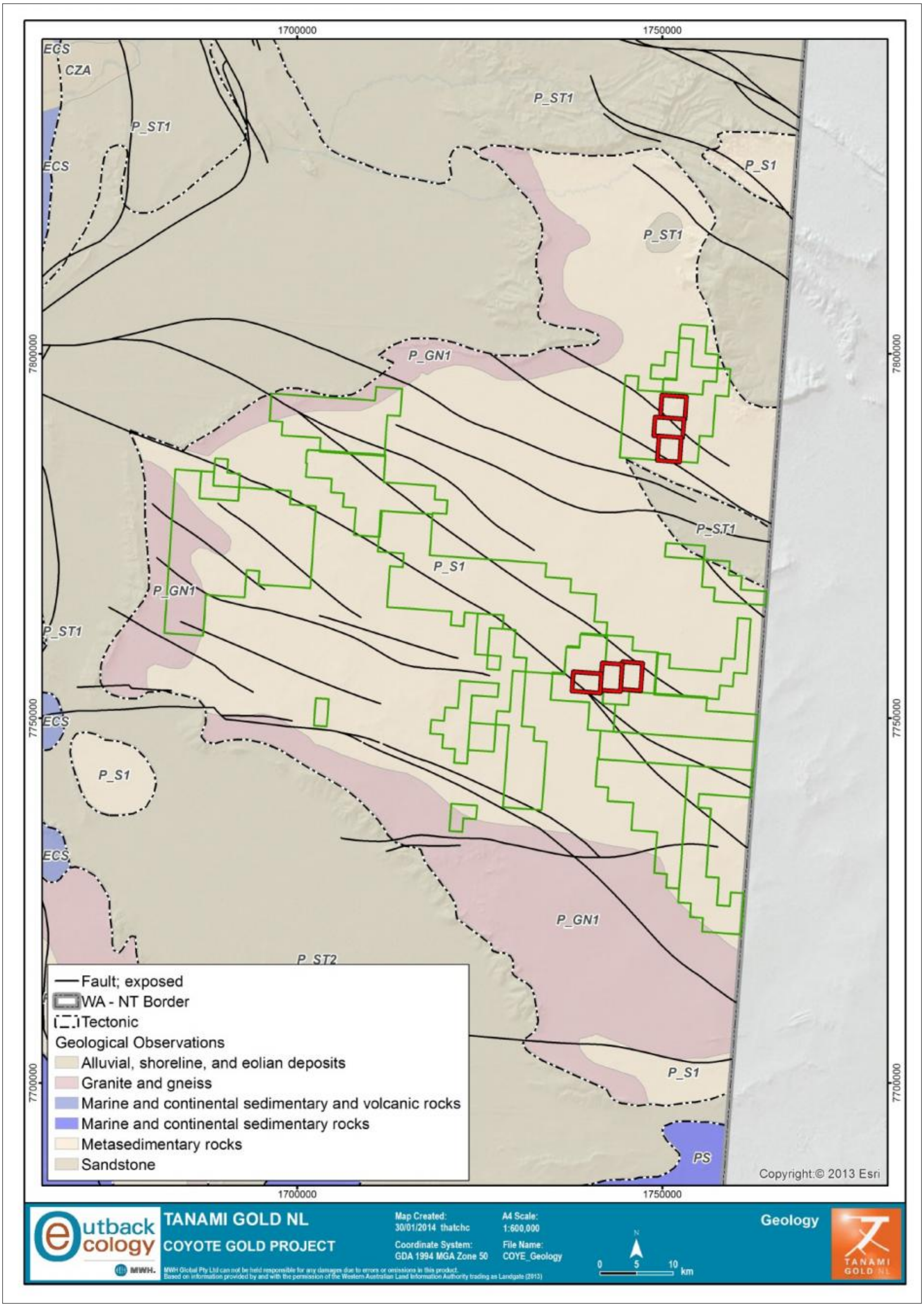

Figure 11: Regional geology

Three overlapping periods of granitic plutonism occurred at this time. The basement was then eroded and covered by Birrindudu Group sediments comprising the Gardner Sandstone, Talbot Well Formation and Coomarie Sandstone. The region has been cut by large west-north-westerly trending faults. These structures manifest themselves as large prominent quartz ridges or as drainages. Gold mineralisation in the Tanami is extensive. Locally some deposits favour certain lithologies, however, it is clear that gold mineralisation is lithologically indiscriminate and occurs in almost all rock types across the Tanami region (URS 2004). The region has been cut by large west-northwesterly trending faults. These structures manifest themselves as large prominent quartz ridges or as drainages.

4.4.2. Coyote Local Geology

The Coyote Deposit is hosted within folded turbidite clastic sediments of the Lower Proterozoic Killi Killi Beds. These sediments consist of dominantly well-sorted, coarse to very coarse greywackes, sandstones and siltstones, with variable but generally very weak carbonaceous content. A sub-marine fan setting, proximal to the sediment source was suggested, with sandstone thought to be deposited within sub-marine canyons eroding the clastic fan (URS 2004).

Substantial faulting and thrusting has occurred and gold orebodies occur in structurally prepared locations. At Coyote, the Killi Killi beds have been folded into an east-west trending westerly plunging (20° to 30°) overturned anticline. The southern limb is overturned and dips 70° to 90° whilst the northern limb dips between 30° and 50° (URS 2004). Quartz veining occurs in several different structural settings but the orebodies are generally associated with finely disseminated or coarsely crystallised arsenopyrite mineralisation with only traces of other sulphides or of carbonates (MBS 2004b).

Depth of oxidation at Coyote ranges from 160 to 200 m, decreasing rapidly in all directions away from the structurally complex mineralised zone. The deeply oxidised mineralised structure has been subjected to partial leaching as well as zones of supergene enrichment (KH Morgan 2009).

Parallel thrust faults that ramp through the bedding, such as the Gonzalez Thrust Zone, occur on both the south and north limbs but are more common on the south limb. Thicker (10 to 30 centimetres (cm)) parallel quartz veins form as a result of dilation associated with this thrusting. These veins are best developed between thick siltstone and greywacke/sandstone units (URS 2004). There are a number of sub-parallel thrusts on the south limb, each with differing amounts of displacement. The Coyote antiform is cut and block faulted by north - northwest trending faults and lesser northeast faults that offset the stratigraphy and axial plane. Quartz veining is often associated with the faulting and shearing (URS 2004).

The bedrock is deeply weathered in the top 80 to 100 m with associated partial depletion and supergene enrichment of gold within this zone. At greater depths the lower saprolite becomes more consistent before grading into weathered bedrock at an average of 180 m depth and then fresh rock, generally at 200 m. However traces of oxidation are recorded as deep as 300 m below surface along shear zones and in fractured ground (URS 2004).

4.4.3. Bald Hill Local Geology

The Kookaburra deposit is hosted within the Bald Hill sequence, comprising mainly mafic rocks with lesser beds of siltstone, graphitic shale and cherts from 2 m to 20 m width (**Figure 12**). The Bald Hill sequence occurs within inter-bedded coarse quartz sandstones and pelitic siltstones, and has been deformed by at least three phases of deformation, the most notable being large-scale tight chevron like folds. The sediment units have been altered to sericitic, biotite, carbonate schists with minor to moderate amounts of quartz veining (URS 2004). Cross cutting the stratigraphy is a vertical shear zone and quartz vein of 5 to15 m and strike length of 450 m (Kookaburra Quartz Vein).

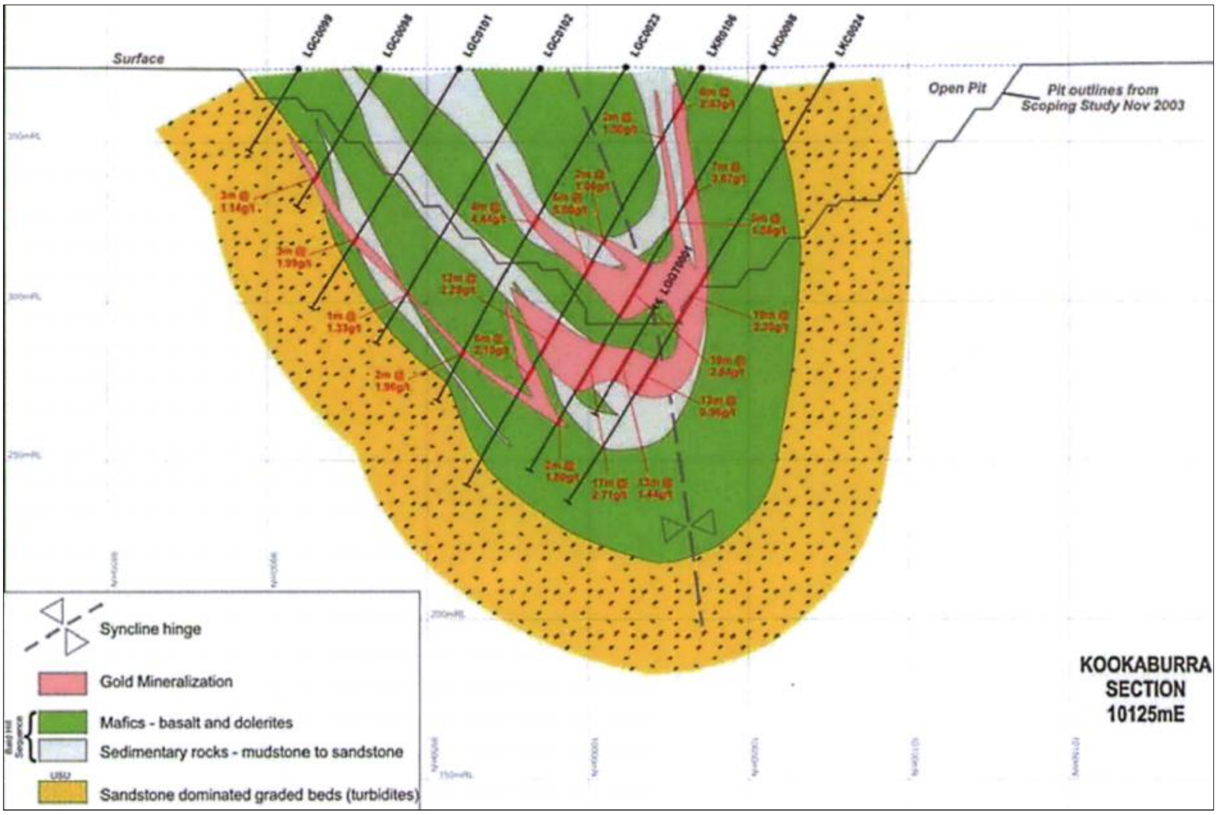

Figure 12: Kookaburra geological cross-section (TGNL 2006c)

Adjacent to the quartz veins the mafics have been altered and deformed to biotite schists. Elsewhere the mafics comprise relatively undeformed and altered dolerites and basalts, weathered to green nontronitic clays with a sharp interface to fresh rock at approximately 90 m vertical depth (URS 2004). Fifty metres to the northeast of the Kookaburra Quartz Vein is a parallel dextral slip fault. Displacement has not been accurately established from the drilling results but is considered likely to be of an order of 250 m northeast of the fault are sericitic fine-grained sediments and coarse quartz sandstones. These sediments are probably the fault displaced basal sandstone unit. Arsenopyrite is very closely associated with the gold mineralisation and both occur within the quartz veining. Disseminated pyrite is also present (URS 2004).

The Sandpiper Open Pit is located on the southern limb of an overturned southeast plunging anticline within the Bald Hill Formation, which comprises mafics, wackes, siltstones and cherts (**Figure 13**). Overlying the Bald Hill Formation are course quartz sandstones, siltstones and wackes of the Killi Killi Beds. Underlying the Bald Hill Formation are coarse quartz sandstones and wackes (URS 2004). In the immediate vicinity of Sandpiper, the Bald Hill Formation is dominated by medium grained mafics with varied alteration (silica, carbonate, chlorite) and deformation. Petrology suggests that they are dolerites. Minor narrow (<5 m wide) chert like units occur within these mafics (URS 2004). Weathering typically produces nontronic green clays in the case of the massive unaltered mafics or ferruginous chloritic clays in the case of the altered mafics, and varies in depth from 60 m to 95 m (URS 2004).

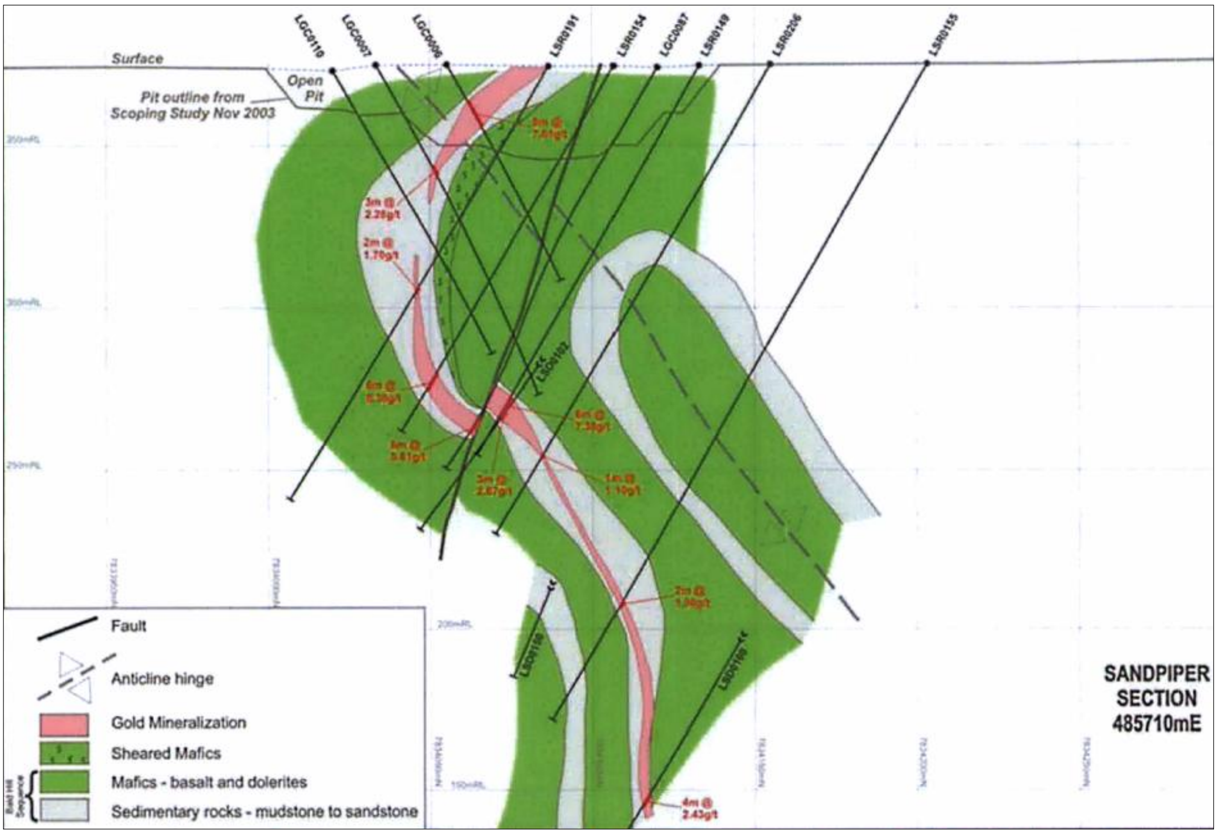

Figure 13: Sandpiper geological cross-section (TGNL 2006c)

All gold mineralisation at Sandpiper is contained within a wide geological/mineralisation envelope characterised by intense foliation, alteration of the mafics along with sulphide mineralisation (arsenopyrite) and quartz veining. Fresh samples are identified as chloritic schist, with weathered samples forming very platey, fissile chips. Quartz veining appears as massive veins up to 3 m wide and as stockworks (URS 2004).

The Osprey deposit is situated within folded quartz dolerite of the Lower Stubbins Formation. Primary mineralisation is related to axial planar shearing and associated quartz veining within an antiformal hinge zone. A zone of mineralised pisolitic laterite has developed directly above this primary mineralisation (TGNL 2012d).

4.5. Geomorphology

The CGP is in an area of highly subdued topography ranging in elevation from approximately 385 to 394 metres reduced level (mRL). It forms part of the Great Australian Plateau which has remained geologically stable and has been exposed to erosion and weathering since emergence from at least Cretaceous times and, as a consequence, has been subjected to a number of wet and dry climate cycles with leaching and mineral solution transport taking place during wet climates and mineral fixing and deposition within the regolith through dry cycles (KH Morgan 2009).

Landform in the Coyote region comprises low hills often with low escarpment faces exposing Lower Proterozoic bedrock. The intervening land is almost level and comprises deposition sheets of colluvial outwash from Lower Proterozoic bedrock rises and infill of palaeochannel systems that were formed during wetter climates in early to mid-Tertiary (KH Morgan 2009).

4.5.1. Land Systems and Soils

Land systems underlying the CGP tenure are outlined in **Table 3** and **Figure 14**. The majority of the CGP tenements including M80/559 underlie the Atlas Land System (AB29) of gently undulating plains. The Bald Hill Project Area and a central section of the haul road lies in Atlas Land System (BA5) characterised by Stony hills and ranges largely derived from sandstone with flanking sand plains.

Table 3: Land systems underlying the Project tenure

Land System	Description	Soil Type and Condition
Atlas System – AB29	Gently undulating plains	Gently undulating plains
Atlas System – BA5	Stony hills and ranges largely derived from sandstone and having flanking sand plains	Stony hills and ranges largely derived from sandstone and having flanking sand plains
Coolindie System	Red sandplains and gravelly plains supporting desert shrublands of acacias and eucalypts over soft spinifex.	N/A
Winnecke System	Low linear or rounded hills and associated valley floors and marginal sandplains, supporting soft spinifex hummock grasslands or sparse low snappygum woodlands with spinifex.	Elevated lateritic plain (sandy red earth surface horizon). Lateritized arenaceous sediments; Carpentarian sandstones (Gardiner Beds)

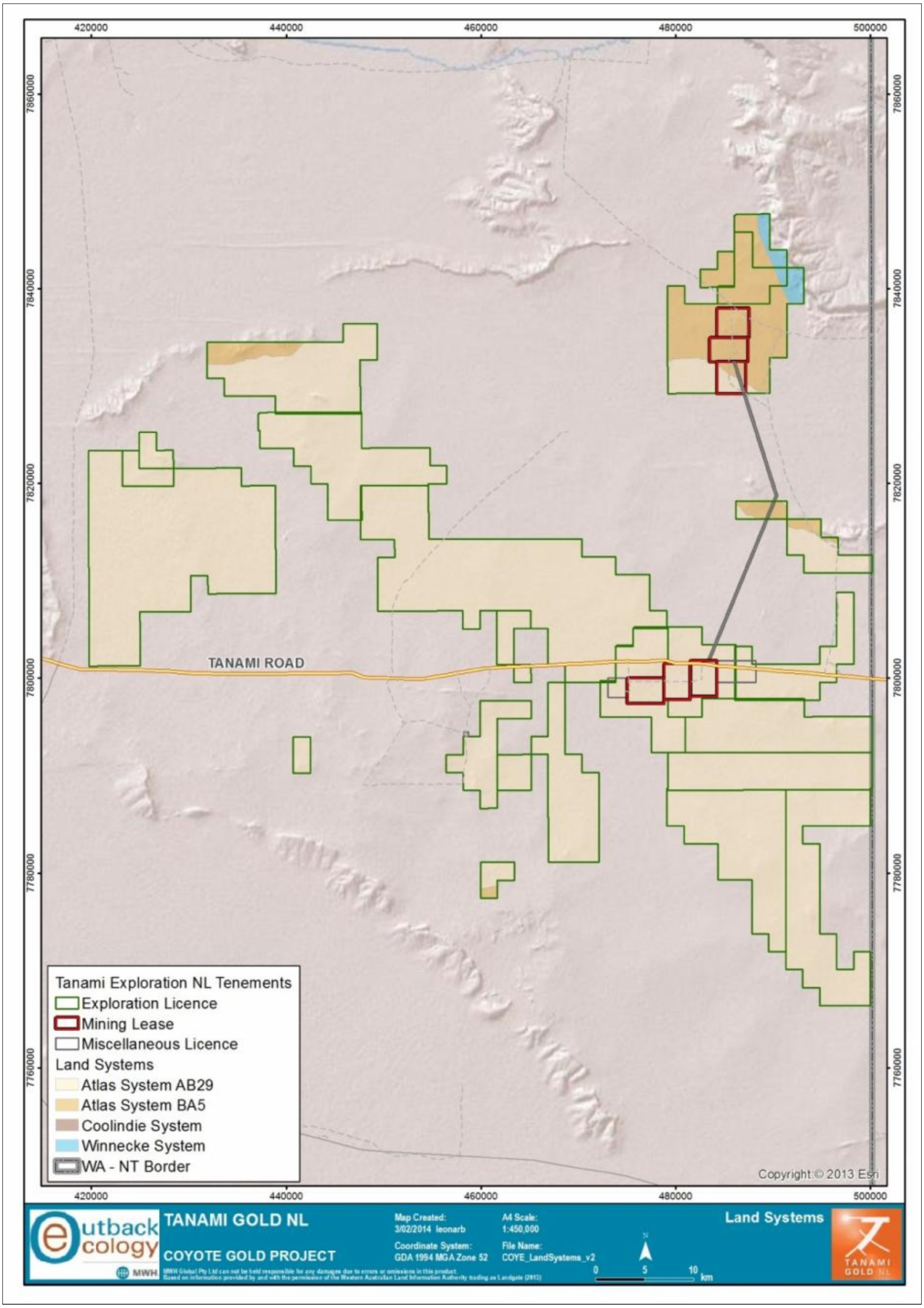

Figure 14: Land systems underlying project tenure

4.5.2. Soils

Three surface soil samples from previously undisturbed ground at Coyote were analysed by MBS (2004b); one within the pit over the orebody, one from within the pit distant to the ore, and one from the future site of the WRL. All soils are very slightly acidic, values for Iron (Fe), Manganese (Mn) and Nickel (Ni) are all extremely low and possibly deficient. The contents of Sodium Chloride (NaCl) and sulphate are extremely low and no salinity problems are foreseen (MBS 2004b).

Descriptions supplied plus examination indicate that surface soils (Zone A) are all 1 to 2 m thick, fine to medium grained polished but iron stained quartz sands with <25% of clay·size material. Organic content is low. There is a small but variable content of coarse sand to fine gravel, this being of iron-rich possibly lateritic origin. The sand grains show moderate to excellent rounding and are likely of transported aeolian origin. Overall, the soils will be porous.

All soils are deficient in copper, zinc and molybdenum; low in potassium, calcium and magnesium; and extremely deficient in both nitrogen and phosphorous. The boron values detected in the underlying rocks suggest that the soils are unlikely to have boron deficiency. The cation exchange capacity is low but adequate. The three soils are similar to one another and all are suitable for future use in rehabilitation (MBS 2004b). Soil samples are shown to be deficient in nutrients and trace elements, so it may be necessary to apply a commercial NPK fertiliser with trace elements at the time of rehabilitation (MBS 2004b).

A preliminary soil survey for the Coyote Project area was conducted by Keith Lindbeck and Associates from the 21st to 23rd July 2004 (TGNL 2005a). The soil survey was undertaken using hand dug pits and hand auger to a depth where resistance occurred, which was usually at the shallow ferruginous hardpan (ferricrete). In the sandplain soils, pits were dug using a spade and a soil auger used to obtain samples of the deeper sections of the profile (TGNL 2005a).

Ferric Petroferric Tenosol is the dominant soil type occurring in the area of the Coyote Project (TGNL 2005a). The variation between the soils on the lateritic rise and the aeolian sands over the deposit and under the CGP infrastructure areas is due to the sandplain soils having low levels of gravel (around 5%) with resistance also occurring at 80 cm. The soil has weak pedality, uniform loamy texture with some horizonation. The soil horizons were of medium texture (fine sandy loam), shallow and lacked coherence in the dry state (TGNL 2005a).

The soils contained in excess of 20% pisolitic gravel and an additional 10 to 20% stones. Gravel content increased with depth. Hardpan (ferricrete) was found around 80 cm below surface. This loam fine sandy texture had a loose (sandy) surface and contained between 82 to 86% sand fraction (<2.00 mm) and between 11 to 15% clay particles.

There are a number of sites where the profile is deep (down to +80 cm). It was recommended that this pisolitic material be stockpiled from areas to be disturbed and used for rehabilitation purposes. The soils were low in salinity (20 ųs/m) with an pH of 4.8 in the A1 horizon (acidic) increasing to a pH of 5.2 in the A2 horizon ($CaCl_2$). Total nitrogen content was 0.02% and total phosphorus 42 to 93 parts per million (ppm). Total organic matter is extremely low at 0.4% (TGNL 2005a, 2007b).

Topsoil and subsoil depths are variable at Bald Hill, with the Sandpiper and Kookaburra areas ranging from 0 to 800 mm. Topsoil containing organic material is typically a thin layer, approximately 100 mm in depth. The remaining subsoil is sandy loam to a depth of up to 800 mm in some areas (TGNL 2006c).

Based on the physical attributes, the subsurface profile at Coyote can be divided into three broad categories; transported overburden, oxide regolith waste rock, and transitional regolith waste rock (MBS 2004b). The transported overburden is subdivided into five zones (A to E). These are unconsolidated red Aeolian sand with fine ferruginous gravel (Zone A) grading into a zone of relatively coarse, occasionally cemented pisolithic detritus (Zone B), followed by grey or weakly mottled heavy, silty-sandy alluvial clay, with minor gravel (Zone C), grading into weakly mottled, indurated sandy material with a variable amount of gravel (Zone D), underlain by a lower zone of heavy, weakly mottled alluvial clay (Zone E) (MBS 2004b).

4.6. Surface Hydrology

4.6.1. Regional Hydrology

Surface hydrology of the Tanami Desert is characterised by iII-defined watercourses, pervious sandy topsoils and deep sands. Generally the flat terrain with sandy and highly permeable soils, leads to sheet flow, rather than the formation of watercourses. Following heavy rainfall events surface water flows follow paleo drainage channels. There is little evidence of surface runoff flows except where the soil surface has been disturbed, such as exploration grid lines and tracks. Such disturbance is typically prone to erosion. The CGP lies in the Sturt Creek catchment (**Figure 15**).

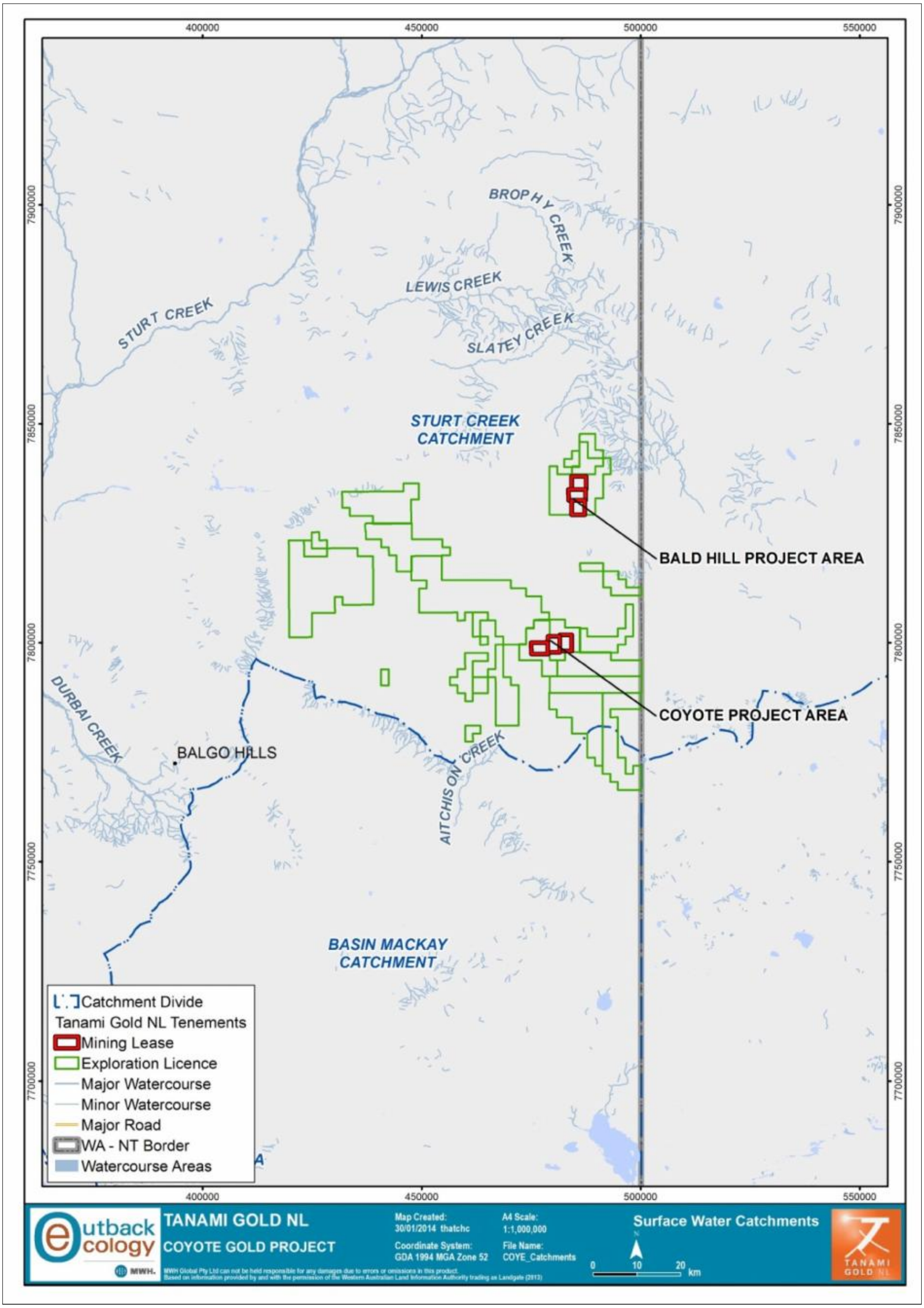

Figure 15: Regional Hydrology, rivers, lakes and catchment division

4.6.2. Local Hydrology

No permanent water bodies or significant waterways are found adjacent to the site. The nearest waterbody is Lake Gregory which is located 125 km west of the CGP. Coyote is located in the middle of a gently undulating plain with no organised drainage and scattered minor ephemeral clay pans and salt pans. An insignificant local southwest to northwest trending drainage depressions occurs 10 km west of Coyote. The nearest organised drainage is 23 km to the northwest where an internally draining palaeo-drainage channel drains west-northwest from Browns Range in the NT via a series of flood outs to ephemeral lakes and salt pans 27 km north-northwest of Coyote (TGNL 2013).

The CGP sits in a relative low point and receives surface inflows from the north, east and south. A rainfall event in January 2007 saw significant flow along the paleo-drainage channel to the south of Coyote. This drainage channel flows toward Coyote Open Pit from the south, then to turns to the west and flows toward the camp (**Figure 16**). This event resulted in what was at the time Coyote Pit 2/3 flooding (the Coyote Pits were later amalgamated) and the camp access road being rendered unusable. To prevent recurrence of this event a study of surface water movements in the area was commissioned, resulting in the construction of a flood diversion bund the southern side of the mine site, in May 2007 (TGNL 2007d).

The Sandpiper and Kookaburra deposits are located on a slight lateritic rise with runoff generally moving in a south-easterly direction. A fall of less than 2 m is apparent from the northern to the southern extent of the Bald Hill Project area.

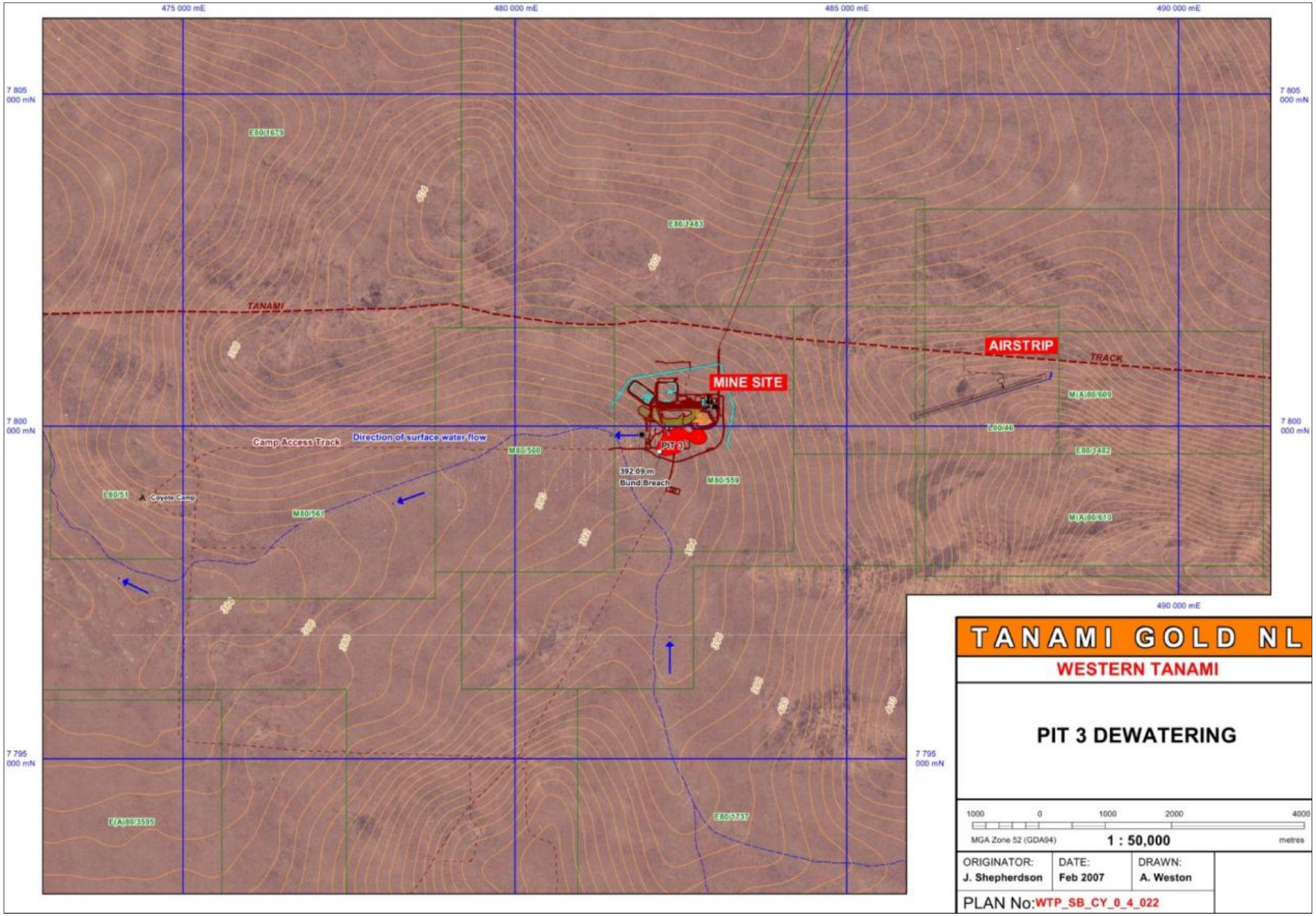

Figure 16: Surface water flow and topography of the Coyote mine site (TGNL 2007d)

4.7. Groundwater Hydrogeology

4.7.1. Regional Hydrogeology

Subsurface hydrology in the Tanami region is poorly understood due to limited studies. Regional groundwater through flow at Coyote is presumed to be towards the palaeochannel south of the Coyote deposit (TGNL 2005a). Shallow groundwater aquifers are relatively fresh but are seasonal, existing during and for a period after the wet season. Groundwater at depth is generally saline and is not suitable for irrigation or stock water. Potential aquifer zones identified included shear zones and quartz veins. These were often represented by poor core recovery and by numerous fractures and joints with iron staining on the joint surfaces. South of Coyote there is an east to west trending palaeodrainage containing calcrete and silcrete. Tertiary and Quaternary alluvial sediments overlie most of the CGP area to a depth of between 2 m and 20 m (URS 2004).

4.7.2. Coyote Local Hydrogeology

At Coyote groundwater has been abstracted from a narrow westward linear steeply dipping fault zone in oxidised and fractured Lower Proterozoic metasediments forming part of the Killi Killi Beds that hosts gold mineralisation (KH Morgan 2009). Groundwater at Coyote is a phreatic water system with water level being determined by direct recharge from rainfall and water balance provided by evaporation into the soil zone, evapotranspiration usage by vegetation and regional gradient flow westward to Sturt Creek. Regional flow gradients are extremely low in this region (KH Morgan 2009). Original standing water levels in production bores and observation piezometers, ranged from 10.49 metres (18/03/2006) in Coyote 2 bore to 17.38 metres (23/04/2006) in production bore CYPB09 (KH Morgan 2009).

A Dewatering Feasibility Investigation of the Coyote mining operation was conducted in 2004 as part of the preparation for the CGP (URS 2004). Groundwater in the Coyote area is moderately saline with total dissolved solids (TDS) in the order of 10,000 milligrams per Litre (mg/L). MBS (2004b) predicted that the maximum salinity of the groundwater resource is likely to be 27,000 mg/L and the TDS would increase with depth. Initially the salinity was observed to be seasonally variable and influenced by recharge during the wet season (MBS 2004b). Although levels of Arsenic (As) are sometimes present within the Coyote resource, testing and ongoing monitoring have demonstrated very low levels of the bioavailable soluble content As in groundwater. The key aspects of the conceptual hydrogeological model for the Coyote and Bald Hill deposits are outlined below (URS 2004):

- groundwater occurrence and flow within and adjacent to the deposit are controlled mainly by sub-vertical structures (faults, folds, shear zones) that form a fractured rock aquifer system. The general overview from the site investigations is that the ore deposits comprise permeable fractured rocks and adjacent areas comprise low permeability rocks. Away from these structures, the rocks appear to have a considerably lower permeability, with the exception of palaeochannel sediments to the south of the Coyote deposit;

- aquifers are formed within near vertical zones of fractured weathered and fresh rock and are likely to principally occur above 155 m depth. Below this depth the transmissivity of these fracture zones is expected to decrease as the fracture frequency is reduced and the structures close.

TGNL (2007d) reported that ‘the groundwater table in the Coyote area naturally lies at approximately 20 m below surface, however, is quite variable with the seasons. Groundwater aquifers in the area are poorly defined, although the Coyote Fault - a fractured rock aquifer, is the source of most water extracted during dewatering. A perched aquifer, lying on a dense clay layer at a depth of 3 to 6 m, exists in the Coyote area following the wet season. Groundwater appears to flow in a general north-easterly direction, however, is expected to be quite variable over the surrounding region.’

4.7.3. Coyote Groundwater Quality

The groundwater in the Coyote Project Area shows an increase in measured electrical conductivity (EC) with depth from airlift samples. At 48 m depth in bore CYMB2 (**Figure 17**) the recorded EC is 1,680 µS/cm, at 84 m depth it is 5,100 µS /cm and at 120 m depth it is 13,400 µS /cm. The groundwater from test pumping is saline and has a slightly alkaline pH. Salinity concentrations range from 6,700 to 10,000 mg/L TDS (gravimetric). The laboratory pH values were in the range 7.6 to 8.0. As the laboratory analyses were completed well after the samples were taken it is expected that the pH of the groundwater would be slightly higher than those values recorded in the laboratory. Field measurements of groundwater samples from the three bores at the time of construction all recorded a pH value of 8.1 (URS 2004).

The average baseline As concentrations in the groundwater around the Coyote Project Area was around 0.27 mg/L As, which was derived from two readings of 0.16 and 0.38 mg/L As in May 2006 from bores CYPB01 and CYPB04 (**Table 4**) (TGNL 2007a). However, later readings in monitoring bores CYMB02 and CYMB04 show seasonal variation between 0.005 and 0.81 mg/L As, likely as a result of dilution from rainfall infiltration (TGNL 2007a). Such seasonal fluctuation in TDS, pH and As was further identified during the 2008 reporting period (TGNL 2008a).

Further to the seasonal fluctuation in groundwater quality, it was noted that the bores CYMB02 and CYMB04 located adjacent to the pits were significantly different to the bores CYTSF1 and CYTSF02 located around 300 m to the north of TSF Cell One. It was noted that CYMB02 and CYMB04 displayed lower EC and TDS values as they are located within a remnant creek bed, while CYTSF1 and CYTSF02 are subject to less subsurface water flow, and hence show higher EC and TDS. This was attributed to differences in the aquifers rather than influence of mining activity (TGNL 2008).

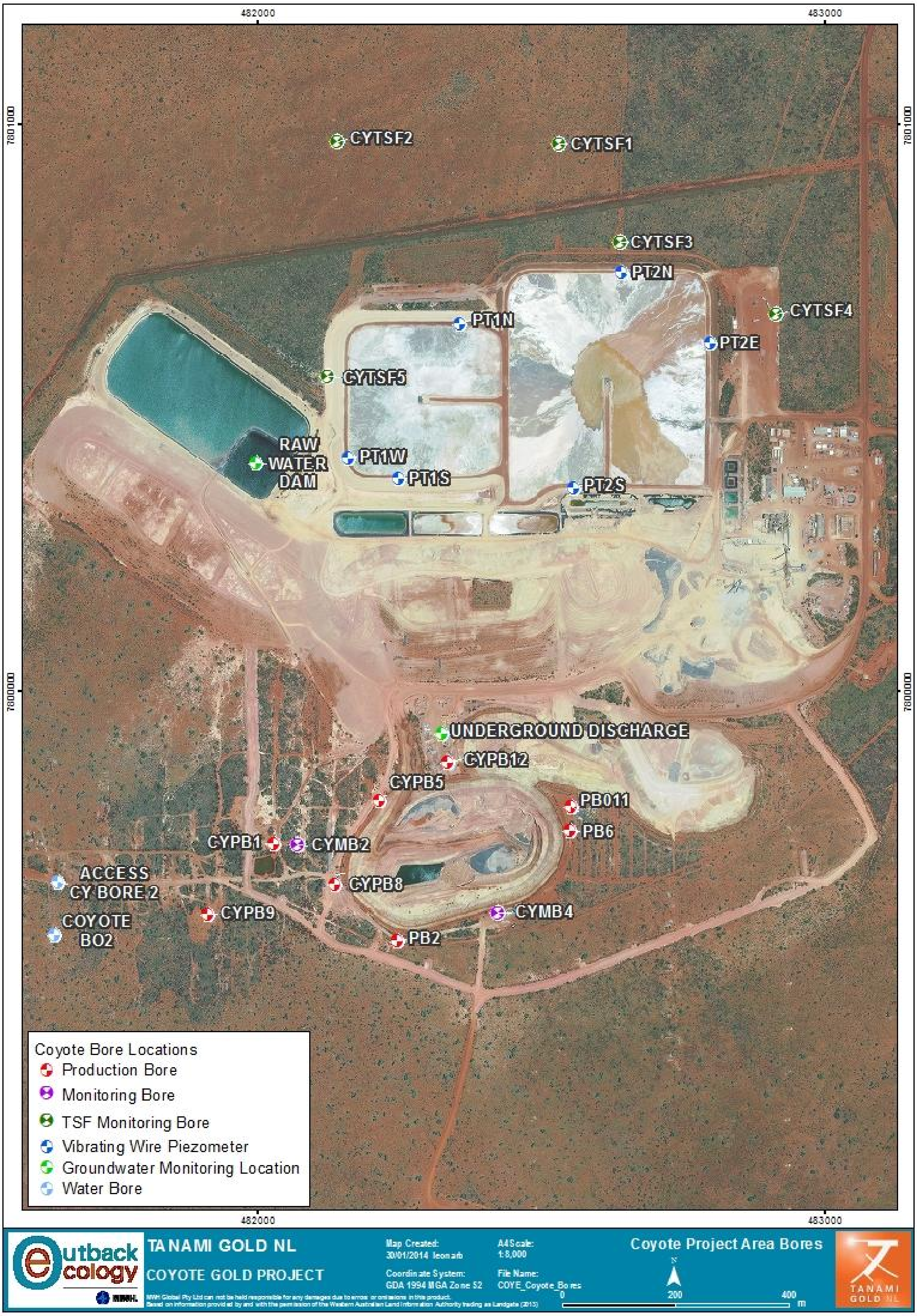

Figure 17: Coyote production and monitoring bores, and vibrating wire piezometer locations.

Table 4: Groundwater arsenic values, baseline and initial mining 2006 and 2007 (TGNL 2008a)

Month	Bore Identification					
	CYPB01	CYPB04	CYMB02	CYMB04	CYTSF01	CYTSF02
May 2006 (Baseline)	0.16	0.38	-	-	-	-
Oct 2006	-	-	0.72	N/A	< 0.001	N/A
Nov 2006	-	-	0.81	0.77	< 0.001	< 0.001
Dec 2006	-	-	0.005	0.1	< 0.001	< 0.001
Feb 2007	-	-	0.97	0.008	< 0.001	< 0.001
Apr 2007	-	-	0.66	< 0.001	< 0.001	< 0.001
May 2007	-	-	0.7	< 0.001	< 0.001	< 0.001
Jun 2007	-	-	0.59	0.002	< 0.001	0.001
Jul 2007	-	-	0.58	0.001	< 0.001	< 0.001
Aug 2007	-	-	0.77	0.002	0.001	0.001
Sep 2007	-	-	0.77	0.002	0.001	0.001
Oct 2007	-	-	0.33	0.002	0.001	0.001
Nov 2007	-	-	N/A	N/A	0.002	< 0.001

N/A – bores inaccessible at the time of sampling

During May and June 2004 five potential drill-sites were selected to intersect geological formations and structural features interpreted as possible aquifers (URS 2004). A Coyote test production bore (CYPB01) was installed through transported silts and clays to 13 m to where it intersected saprolite clays and weathered siltstone, (containing at times a large amount of fractured grey and clear quartz). The samples collected were moist from 37 m, and from 42 m a continuous airlift yield of 0.4 L/s was established. The flow rate increased gradually to 7 L/s at 120 m. The larger incremental increases in airlift yield occurred between 48 to 60 m and 108 to 114 m. The EC and pH of groundwater were measured whilst airlifting at a depth of 120 m, providing values of 11,100 µS/cm and 8.1 respectively (URS 2004).

Monitoring bore CYMB01 drilled through transported soils and clays to 9 m depth where it intersected saprolite clays and weathered siltstone, containing at times a large amount of fractured grey and clear quartz. The samples were moist at 31 m, and a continuous airlift yield of 0.8 L/s was established at 42 m. The flow rate increased gradually to 7 L/s at 117 m. The larger incremental increases in airlift yield occurred between 42 to 66 m, 78 to 96 m and 108 to 117 m. The EC values increased gradually from 4,300 µS/cm at 48 m; 10,000 µS/cm at 84 m; to 13,200 µS/cm at 114 m; the pH remained unchanged at 8.1 (URS 2004).

Monitoring bore CYMB02 (adjacent to CYPB1) was drilled through transported silts and clays to 14 m, where it intersected saprolite clays and weathered siltstone and minor sandstone, containing at times a large amount of fractured grey and clear quartz (URS 2004). Samples were moist from 28 m and a continuous airlift yield of 2.2 L/s was established at 48 m. The flow rate increased gradually to 7 L/s at 108 m. The larger incremental increases in airlift yield occurred between 42 to 54 m, 60 to 84 m and 102 to 108 m. The EC and pH of groundwater were measured whilst airlifting. EC values increased gradually from 1,680 µS/cm at 48 m; 3,400 µS/cm at 66 m; 6,600 µS/cm at 90 m; 10,000 µS/cm at 102 m to 13,400 µS/cm at 120 m, pH remained unchanged at 7.7 (URS 2004).

4.7.4. Bald Hill Local Hydrogeology

The aquifers in the Bald Hill Project Area appear to be discrete bodies, formed in fractured rock with the deposit. The groundwater in the Bald Hill Project Area is highly saline and has a slightly alkaline pH. Salinity concentrations range from 23,000 to 27,000 mg/L TDS (gravimetric) (**Table 5**) (URS 2004). The laboratory pH values were in the range 7.3 to 7.4. As the laboratory analyses were completed well after the samples were taken it is expected that the pH of the groundwater would be slightly higher than those measured. Field measurements of groundwater samples from the bores LPB1 and LMB1 at the time of construction gave values of pH within the range 7.7 to 7.9 and EC values of 29,000 to 30,000 µS/cm (URS 2004).

Test production bore LPB01 drilled through transported silts and clays to 4 m depth where it intersected saprolite clays and weathered dolerite and minor shale, containing a large amount of fractured grey and clear quartz within the depth intervals 33 to 47 m and 88 to 92 m (URS 2004). Samples were moist from 34 m and a continuous airlift yield of 0.7 L/s was established at 42 m. The flow rate increased gradually to 3 L/s at 120 m. The airlift yield increased from 0.7 L/s to 3 L/s between 90 to 114 m. The EC and pH of the groundwater were measured whilst airlifting, providing uniform values of 30,000 µS/cm and 7.7 respectively (URS 2004).

Monitoring bore LMB01 drilled through transported gravely silts to 3 m where it intersected saprolite clays and weathered siltstone and dolerite, containing only minor quartz. A continuous airlift yield of 0.4 L/s was established at 75 m. The flow rate increased gradually to 2 L/s at 118 m (URS 2004). The larger incremental increases in airlift yield occurred between 75 to 90 m, and 102 to 114 m. The EC and pH of the groundwater were measured whilst airlifting, providing uniform values of 29,000 µS/cm and 7.9 respectively (URS 2004).

Table 5: Summary of groundwater analysis of the Sandpiper and Kookaburra deposits prior to mining (TGNL 2007c)

Aspect	Units	LPB01	LMB01	KB
pH	pH units	7.3	7.4	7.3
EC @ 250^{0}C	µS/cm	41,000	41,000	36,000
TDS (calc. as Na CL)	mg/L	26,000	26,000	23,000
TDS (grav.) @ 1800C	mg/L	27,000	27,000	23,000
Total Alkalinity as CaCO3	mg/L	250	180	250
Iron, Fe (soluble)	mg/L	<0.05	<0.05	<0.05
Aluminium, Al	mg/L	0.2	0.2	<0.1
Sodium, Na	mg/L	5,700	6,000	5,600
Potassium, K	mg/L	140	140	140
Calcium, Ca	mg/L	1,000	1,100	940
Magnesium, Mg	mg/L	1,700	1,600	1,200
Chloride, Cl	mg/L	12,000	12000	13000

4.8. Flora and Vegetation

4.8.1. Regional Flora and Vegetation

Vegetation and flora studies were undertaken at the CGP area and surrounding areas on the Tanami tenements prior to commencement of mining activity (MBS 2004a, Biota 2005a, and Biota 2005b). Follow-up surveys and monitoring have been conducted by Ecotec (WA) Pty Ltd (Ecotec) since the commencement of mining in February 2006.

There are two main vegetation types found in the Coyote area, these are Hummock Grassland and Acacia / Grevillea Shrubland, both of which are common and well represented throughout the surrounding region. Vegetation has been classified using the National Vegetation Information System framework, sourced from the Australian Natural Resources Atlas (TGNL 2007d).

Hummock Grassland

The Hummock Grassland vegetation type is the most common in the Tanami region, accounting for 89% of vegetation present. *Triodia spp* (predominately *Triodia pungens*) dominate the vegetation with frequent emergent Acacias and Eucalypts. On the laterite rises the grasses are intersected with *Acacia hilliana*. Larger trees and shrubs are notably absent (TGNL 2007d).

Acacia / Grevillea Shrubland

The Acacia / Grevillea Shrubland vegetation type is found in scattered patches throughout the CGP area. Vegetation typically consists of various Acacia species and occasional Grevilleas and Hakeas. In some areas, vegetation is dominated by *Grevillea wickhamii;* in these areas the understorey is predominantly *Triodia spp* (TGNL 2007d).

A list of Flora observed in the CGP area, August 2004 to August 2006 is presented in **Appendix C**.

4.8.2. Coyote Flora and Vegetation

There are a number of vegetation associations throughout the area. Some of the common associations throughout the CGP area include:

- laterite rise: dominated by spinifex; trees and shrubs notably absent;
- sand plain: dominated by spinifex with emergent eucalypts, acacias and other shrubs; and
- drainage line: characterised by denser grouping of eucalypts, predominantly *E. brevifolia*. Although generally undefined and difficult to differentiate from ground level, these areas are often observable on satellite photos.

A total of 145 flora species from 41 families have been recorded during surveys of the CGP area and surrounding region (MBS 2004a, Biota 2005a and Biota 2005b). The most common families are Poaceae (26 species) Mimosaceae (12 species) and Myrtaceae (11 species). The most commonly recorded genera are Acacia (12 species) (TGNL 2007d).

A detailed vegetation description recorded over the area of the Coyote Deposit and the site of the Coyote WRL by MBS (2004) is presented in **Table 6**.

Table 6: Vegetation association descriptions at the Coyote deposit and site of the Coyote WRL (MBS 2004)

Location	Vegetation Association and Unit	Soil	Aspect	Disturbance
Coyote Deposit	Sandplain, Shrubland	Sand	Flat	Fire <3 years, exploration gridlines
	Shrubland of *Acacia bivenosa* (3 m) and *Acacia orthocarpa* (2 m) over mixed *Triodia aristida* grassland. Occasional upper storey emergence of *Corymbia opaca, Acacia coriacea* and *Eucalyptus gamophylla.* Occasional understorey species include *Hibiscus leptocladus, Dodonaea coriacea, Corchorus sidoides, Dicrastylis exsuccosa, Corchorus* sp.			
Coyote WRL	Sandplain, Mixed Heath/Herbland-Grassland	Sand with light laterite	Flat	Fire <3 years, exploration gridlines Sample Bag Farm
	Triodia schinzii grassland with occasional thick patches of *Jacksonia aculeata* and *Dampiera candicans* with a dominant low mid story of with a dominant low midstorey of *Acacia orthocarpa*. Occasional mid storey species include *Acacia stipuligera, A. coriacea* and *Eucalyptus kingsmillii*. Sparse emergent upper storey is dominated by *E. brevifolia* and *E. gamophylla* with occasional *Melaleuca acacioides* and *Hakea macrocarpa*. Occasional understorey species include *Acacia adoxa, Ptilotus polystachyus var. polystachyus, Halgania solanacea, Calytrix carinata, SchizachyriumJragile, Mollugo molluginis, Aristida contorta, Euphorbia australis, Eriachne melicacea, Senna notabilis, Eriachne obtusa, Bulbostylis barbata, Sida arenicola, Dicrastylis exsuccosa, Corchorus sidoides, Ptilotusfusiformis var. fusiformis, Brunonia australis, Rhyncharrhena linearis, Heliotropium cunninghamii, Pluchea tetranthera* and *Scaevola parvifolia.*			

The native Walnut (*Owenia reticulata*) is of cultural significance to the local Aboriginal people and TGNL has made a commitment to avoid disturbance of this species. It has not been located in the CGP area.

A number of weed species are known to exist in the Project area; Gallon’s Curse (*Cenchrus biflorus*) and Buffel Grass (*Cenchrus ciliaris*) have been found in the exploration camp, along the Tanami Road and in isolated patches throughout the surrounding area (TGNL 2007e).

4.8.3. Bald Hill Flora and Vegetation

According to the National Vegetation Information System framework, there are three main vegetation types found at Bald Hill and over the haul road route (TGNL 2007c); these comprise, Acacia Shrubland, Hummock Grassland (see description in Section 4.8.1), and Sand Dune.

The Acacia Shrubland is found in the Kookaburra and Sandpiper Deposits and at various locations along the haul road route. The Hummock Grassland is found in the proposed mining area and extensively along the haul road route, while the Sand Dune vegetation type is found at several points along the haul road route. The Sand Dune vegetation type is essentially Acacia or Grevillea

Shrubland growing on a sandy ridge. Typically these areas do not support Eucalypts but most other species present are found within the more common Acacia Shrubland vegetation. The Sandpiper and Kookaburra deposits support Acacia Shrubland and Hummock Grassland vegetation, typical of much of the surrounding region.

A search of the databases of the DEC Florabase (now DPAW) and the Department of Environment and Heritage in 2004 (now the Department of Environment) was conducted for the presence of threatened flora in the surveyed area prior to work carried out by MBS Environmental. The search indicated no records of Declared Rare or Priority Flora species or threatened ecological communities in the Project area. A detailed vegetation description recorded over Kookaburra and Sandpiper Deposits and over the site of the Bald Hill WRL by MBS (2004) is presented in **Table 7** below.

Table 7: Vegetation association descriptions at the Kookaburra and Sandpiper deposits and site of the Bald Hill WRL (MBS 2004)

<table>
<tr><th>Location</th><th>Vegetation Association and Unit</th><th>Soil</th><th>Aspect</th><th>Disturbance</th></tr>
<tr><td rowspan="2">Kookaburra Deposit</td><td>Rocky Hills Grassland Rocky Slopes</td><td>Lateritic Mantle</td><td>Rocky Outcropping rise</td><td>Exploration Gridlines</td></tr>
<tr><td colspan="4">Triodia pungens grassland with very occasional emergent Eucalyptus brevifolia. Occasional understorey species occurring in the inter-patches include Portulaca oleracea, Pterocaulon sphacelatum, Eragrostis setifolia, Sidafibulijera, Ptilotus exaltatus, Mollugo molluginis, Schizachyriumjragile and Bulbostylis barbata.</td></tr>
<tr><td rowspan="2">Sandpiper Deposit</td><td>Sandplain Open Shrubland</td><td>Sandy</td><td>Flat</td><td>Exploration Gridlines</td></tr>
<tr><td colspan="4">Tall to low open Acacia lysiphloia shrubland over Triodia pungens under storey with sparse emergence of Eucalyptus brevifolia. Occasional under storey species include Gossypium australe, Ptilotus calostachyus, Aristida latifolia, Mollugo molluginis, Cymbopogon bombycinus, Acacia adoxa, Sporobolus australasicus, Polycarpaea corymbose var. corymbose, Hybanthus enneaspermus, Eriachne ciliata, Digitaria brownii, Acacia orthocarpa, Sidafibulifera, Ptilotusfusiformis var. fusiformis, Corchorus sidoides, Tephrosia sp. Bungaroo Creek, Goodenia microptera, Halgania solanacea, Solanum diversifolium and Dampiera candicans. Areas of bare soil are present.</td></tr>
<tr><td rowspan="2">Bald Hill WRL</td><td>Sandplain - Laterite plain Herbland-Grassland</td><td>Light lateritic mantle</td><td>Flat</td><td>Exploration Gridlines</td></tr>
<tr><td colspan="4">Triodia pungens dominated grassland with thick patches of Tephrosia uniovulata (up to 80%) to 1.2 m. Under storey diversity is limited in the Triodia dominated areas. Diversity is higher in Tephrosia patches with species such as Mollugo molluginis, Acacia orthocarpa, Eragrostis setifolia, Ptilotus calostachyus, Ptilotusfusiformis var. fusiformis, Polycarpaea corymbose var. corymbose Digitaria brownie and Bulbostylis barbata.</td></tr>
</table>

4.9. Fauna

4.9.1. Regional Fauna

Fauna surveys were undertaken by MBS (2004a), and Biota Environmental Sciences in 2005 (Biota 2005a and Biota 2005b) in preparation of the initial approvals for the CGP. Ecotec continued survey work in the surrounding region following commencement of the operation, as part of TGNL's commitment to undertake broader biological surveys, from 2005 to 2010. The surveys have utilised trapping and incidental sightings to determine the fauna species present in the area (TGNL 2007a, TGNL 2007d).

A list of Fauna observed in the CGP area, August 2004 to August 2006 is presented in **Appendix D**.

4.9.2. Local Fauna

A range of fauna habitats are found within the CGP area including (TGNL 2007d):

- Shrubland: dense Acacia or Grevillea shrubs over *Triodia spp;*
- Hummock Grassland/ Sandplain: varying between closed and open grassland dominated by *Triodia spp*;
- Sand dune: usually densely vegetated and reach a maximum height of above 5 m above ground surface;
- Rocky outcrop: generally sparsely vegetated and frequented by reptiles and small mammals that use the rocks for shelter;
- Laterite Rise: often indistinguishable from Sandplain vegetation until closer inspection. Supports *Triodia spp* and ground dwelling shrubs such as *Acacia hilliana;*
- Laterite or Stony Hill: generally sparsely vegetated with *Triodia spp*, with *T. basedowii* being the most common species; and
- Drainage Lines: typically ill-defined, characterised by denser stands of Eucalypts.

The combined survey work of MBS, Biota and Ecotec has recorded 131 vertebrate species (of a potential 229 species). Observations so far include 65 species of bird, 18 native mammals, two introduced mammals, 43 reptiles and four species of frog.

Twelve vertebrate fauna species with conservation significance are known to occur or are potential inhabitants of the Tanami Region. Prior to commencement, only four of these had been recorded within the area surrounding the CGP. The threatened fauna known and potentially found in the CGP area and their conservation status is listed within **Table 8**. The conservation codes under the Western Australian Wildlife Protection Act 1950 and the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) are detailed within **Appendix E**.

Since commencement of the CGP there have been numerous sightings of these species and recordings of their activity. The Woma (*Aspidites ramsayi*), Bush Stone-Curlew (*Burhinus grallarius*) and Bilby have been sighted in the vicinity of the old camp and the mine site. Bilby burrows and foraging activity are common around the airstrip and at the southern end of the haul road. Major Mitchell's Cockatoos (*Cacatua leadbeateri*) and Australian Bustards (*Ardeotis australis*) are relatively common in the area.

At least one colony of Mulgara (*Dasycercus cristicauda*) is known from sand dune habitat between the existing Coyote and Bald Hill deposits. This area was the subject of a monitoring program prior to the establishment of the haul road in December 2006 (TGNL 2007a) and during haul road operations in 2008 to 2009 to assess the impact of the haul road on the Mulgara (Ecotech 2010).

Table 8: Conservation Significant Fauna potentially occurring within the Project area

Species	WA Conservation	IUCN Conservation	Recorded during surveys
Mulgara *Dasycercus cristicauda*	Schedule 1	VU	Yes
Bilby *Macrotis lagotis*	Schedule 1	VU	Yes
Southern and Northern Marsupial Mole *Notoryctes typhlops* and *N.caurinus*	Schedule 1	EN	No
Giant Desert Skink *Liopholis kintorei*	Schedule 1	VU	No
Peregrine Falcon *Falco peregrinus*	Schedule 4	-	No
Major Mitchell's Cockatoo *Cacatua leadbeateri*	Schedule 4	-	Yes
Woma *Aspidites ramsayi*	Schedule 4	EN	Yes
Gravel Dragon *Cryptagama aurita*	Priority 1	-	No
Sandy Ctenotus *Ctenotus uber johnstonei*	Priority 2	-	No
Spectacled Hare-wallaby *Lagorchestes conspicillatus leichardti*	Schedule 1	VU	No
Bush Stone-curlew *Burhinus grallarius*	Priority 4	NT	Yes
Australian Bustard *Ardeotis australis*	Priority 4	NT	Yes

4.10. Subterranean Fauna

The first phase of stygofauna sampling at the CGP was completed in October 2004. Stygofauna were collected from three bores at Coyote (CYMB01, CYMB02 and CYPB1). All of these sites were within the modelled dewatering influence of the CGP. The specimens collected during the first phase belonged to a minor crustacean family known as Parabathynellids and appear to be a previously undescribed species. Additional field sampling completed in February 2005 involved sampling of seventeen boreholes and stock wells. The objective of this work was to determine if the *Parabathynellids* collected from within the impact area for the Coyote Project occurred more widely in their locality. Specimens confirmed as the same species were collected from the Billiluna Bore, approximately 24 km from the mine, suggesting that the previously undescribed species occurs in suitable subterranean habitat over at least this spatial scale (TGNL 2005a).

Stygofauna sampling of the Bald Hill Project Area was conducted by Biota in February 2005. No stygofauna was found in samples collected from the bores at Kookaburra and Sandpiper. Sampling of another bore located approximately 10 km north of the site also returned no result.

4.11. Cultural Heritage

The CGP is located on the traditional land of the Tjurabalan People. No pastoral leases cover the Project area; which is zoned as UCL. TGNL and the previous title holder have undertaken heritage clearance surveys prior to exploration activities. These processes were formalised in Native Title and Heritage Protection Agreements signed in April 2003. Under these agreements a number of areas have been identified as being of cultural significance to the Tjurabalan People and the companies have undertaken not to enter or disturb these places; none of these culturally significant areas have been impacted by the mine development (TGNL 2005a).

The CGP is located entirely on land that has been the subject of a consent determination of native title in favour of the Tjurabalan people. Under this determination the native title is held in trust for the Tjurabalan people by the Tjurabalan Native Title Land Aboriginal Corporation (TNTLAC). TGNL entered into a Native Title, Heritage Protection and Mineral Exploration Agreement for the Tjurabalan Lands in April 2003. Following the notification by the State pursuant to Section 29 of the Native Title Act 1993 of the intention to grant the project titles, TGNL entered into a Negotiation Protocol with TNTLAC and the Kimberley Land Council (KLC).

In April 2005, TGNL signed an agreement with the TNTLAC. The purpose of the agreement is to allow the grant of mining leases to TGNL and provide benefits to the Tjurabalan people. TGNL is to employ Tjurabalan people in the workforce and to provide contracting or sub-contracting opportunities for any Tjurabalan contracting entities (TGNL 2005a).

There are no areas or sites of European heritage located on or near the mining and processing project sites.

4.12. Materials Characterisation

A number of investigations have been undertaken to characterise tailings and waste materials produced by the CGP. These include:

- MBS (2004b) Coyote Gold Project Waste Characterisation
- MBS (2004c) Larranganni Gold Project Waste Characterisation
- GCA (2004) Geochemical Characterisation of process tailings samples (static testwork). Implications for process-tailings management
- GCA (2008) Bald Hill Gold Project: Geochemical Characterisation of Sandpiper-Upper-Ore Sample
- GCA (2010) Bald Hill Gold Project: Geochemical Characterisation of Sandpiper-Lower-Ore Sample
- Landloch (2012a) Total metal values in soils and deposited sediment at Bald Hill WRL
- Landloch (2012b) Capping of the Tailings Dam at Coyote.
- Landloch (2012c) Interpretive report for 8 RC drilling materials supplied by Tanami Gold.

4.12.1. Waste Characterisation and Geochemistry

Waste generated from both the Coyote and Bald Hill Project Areas is non-acid forming (NAF) and alkaline (MBS 2004b, 2004c, GCA 2004, 2008, 2010, Landloch 2012c). This is particularly important due to slight enrichments in chalcophyles, and in particular As. However, the solubility of these chalcophyles is low; GCA (2010), concludes that, 'the enriched minor-elements are associated with silicates, clays, sesquioxides and carbonates (*c.f.* sulphides), and so should correspond to stable forms of low solubility.' It was noted by both MBS (2004b) and GCA (2004) that apart from higher As assay concentrations at Bald Hill, both Project areas have similar chemical geochemical characteristics and that the materials characterisation data can be treated similarly. However, it is noted that the physical attributes of material from above the water table differ substantially from Bald Hill (MBS 2004b).

Based on the physical attributes, waste material at Coyote can be divided into three broad categories; transported overburden, oxide regolith waste rock, and transitional regolith waste rock (MBS 2004b).

The transported overburden is subdivided into five zones (A to E). These are unconsolidated red Aeolian sand with fine ferruginous gravel (zone A) grading into a zone of relatively coarse, occasionally cemented pisolithic detritus (zone B), followed by grey or weakly mottled heavy, silty-sandy alluvial clays with minor gravel (zone C), grading into weakly mottled, indurated sandy material with a variable amount of gravel (zone D), underlain by a lower zone of heavy, weakly mottled alluvial clay (Zone E). Zone E material is alkaline with pH = 9.1, has the highest salinity of any material at Coyote though still has little NaCl content (< 0.1%) and has very low sulphate content. It is the only regolith material with water soluble As (0.6 mg/kg). This is considered a very minor water-soluble As horizon and should be buried within the WRL (MBS 2004b).

The oxide regolith comprises lighter coloured pallid sandstones and darker hematitic sandstone and siltstone material. The majority of the weathered meta-sediments are various shades of pale brown and light yellowish-brown. The lighter coloured pallid sandstones are visually obtrusive and should be placed within the WRLs, whereas the darker hematitic sandstone and siltstone material is suitable for the outer portion of the WRLs. All these materials are weakly alkaline, low in soluble salts, very low in non-sulphate sulphur minerals and free of water-soluble contaminants (MBS 2004b). Deep siltstone saprock is darker in colour, will blend better with the landscape than the sandstones and is suitable for surface stabilisation (MBS 2004b).

The one sample of transitional material analysed by MBS (2004b) was defined as a possible "Marker Unit" but had no obvious chemical signature, is weakly alkaline, low in soluble salts, very low in non-sulphate sulphur minerals and free of water-soluble contaminants, it is grey compared with the browns of other units and best placed within the WRL to avoid being visually obtrusive (MBS 2004b).

Despite the apparent geochemical similarities, the characterisation of the topsoil and waste material at Bald Hill differs greatly from Coyote and may require different methods of management. Landloch Pty Ltd was commissioned in January 2012 to assist with waste and soil characterisation (TGNL 2012c). Waste characterisation at the Bald Hill Project Area was carried out for both the Sandpiper and Kookaburra Open Pits. Although the weathered bedrock profile differs in some particulars between the Kookaburra and Sandpiper deposits (**Table 9** and

Table 10), the waste still divides into three reasonably defined zones (MBS 2004c):

- Zone A: strongly indurated saprolite and clay, estimated to extend to the standing water table at about 21 m;
- Zone B: Partially to totally oxidised saprolite, to a depth varying between 35 and 45 m dependent on the rock-type protolith;
- Zone C: Well oxidised saprolites and saprock, at greater depths, with a specific level at the top of the zone strongly enriched in potential contaminants cobalt, copper, lead, manganese, zinc and to a lesser extent sodium and boron. At both sites there is a pronounced sesquioxide – rich heavy elements and potassium – rich layer at a distinct change in geology occurring at an equivalent reduced level in the profile. This sesquioxide – rich layer overlies less weathered rocks to the base of the Kookaburra Open Pit with values directly reflecting fresh bedrock.

Table 9: Kookaburra deposit waste characterisation (MBS 2004c)

Sample Depth (m)	Zone	Description
6 to 7	Hardpanised upper saprolite	Indurate grey foliated clay-sericite rock after sedimentary protolith
11 to 12	Completely oxidised upper saprolite	Hard yellowish-brown foliated finely-crystalline ironstone
16 to 17	Mottled saprolitic clay	Yellow and subordinate white mottled limonitic schistose saprolitic clay
27 to 28	Completely oxidised upper saprolite	Dark brown foliated cherty-haematitic ironstone probably after shale protolith
39 to 40	Completely oxidised upper saprolite	Soft yellow limonitic saprolitic clay after dolerite protolith
47 to 48	Completely oxidised upper saprolite	Yellow clay with subordinate black weathered dolerite fragments
50 to 51	Partially weathered saprock	Massive medium-grained dolerite with approx. 20% light green weathered joint surfaces
60 to 61	Partially weathered saprock	Massive medium-grained dolerite with approx. 20% light green weathered joint surfaces
64 to 65	Completely oxidised upper saprolite	Light yellow clay with a remnant massive medium-grained texture after dolerite protolith
70 to 71	Partially weathered saprock	Massive medium-grained dolerite with approx. 20% light green weathered joint surfaces
81 to 82	Partially oxidised lower saprolite	Dark reddish-brown fine-grained schist probably after a chlorite schist protolith, weakly mineralised
93 to 94	Partially weathered saprock	Greyish-green fine-grained chlorite schist

Table 10: Sandpiper deposit waste characterisation (MBS 2004c)

Sample Depth (m)	Zone	Description
4 to 5	Mottled zone	Hard pan - white and brown mottled clays
8 to 9	Mottled zone	Very soft reddish-brown and white mottled clay
12 to 13	Mottled zone	Soft light yellow and subordinate white clays with a remnant massive medium-grained texture after dolerite protolith
23 to 24	Completely oxidised upper saprolite	Brown clay with fragments of fine-grained sericite-clay schist after sedimentary protolith
24 to 25	Completely oxidised upper saprolite	Soft greenish-yellow clays with a remnant massive medium-grained texture after dolerite protolith
35 to 36	Partially oxidised lower saprolite	Yellowish-green chlorite/smectite-kaolinite schist after sheared dolerite protolith, weakly mineralised
39 to 40	Completely oxidised upper saprolite	Light grey fine-grained sericite-clay schist after sedimentary protolith
44 to 45	Partially oxidised lower saprolite	Dark olive-green fine-grained chlorite schist
50 to 51	Partially weathered saprock	Light grey fine-grained sericite-kaolinite schist after sedimentary protolith
53 to 54	Partially oxidised lower saprolite	Interbedded chert and fine-grained sericite-

Sample Depth (m)	Zone	Description
		goethite-hematite-clay rock after thinly bedded siltstone and fine-grained sandstone protolith
57 to 58	Partially oxidised lower saprolite	Reddish-green weathered massive medium-grained dolerite now composed of hematite-chlorite-kaolinite
63 to 64	Partially weathered saprock	Grey sericite-clay schist after sedimentary protolith
63 to 64	Partially weathered saprock	Massive medium-grained dolerite with approx. 20% light green weathered joint surfaces

4.12.2. Tailings Characterisation

All tailings solid samples analysed have been classified as NAF (GCA 2004, 2008, 2010). Acid rock drainage should not be an issue for process tailings produced from the Coyote and Bald Hill deposits (GCA 2004). A moderate enrichment in As within the surface-zone of the filled-TSF will likely be the main issue to contend with when developing a TSF-closure strategy, as governed by the As status of Transition/Primary-Ores from the Coyote Deposit (GCA 2004). It follows that despite, a high As concentration recorded in Bald Hill-Ore-Tailings-Solids sample (0.3 to 0.4% / 3,300 mg/kg) the As concentration in the slurry-water of sample was low at c.0.2 to 0.3 mg/L, indicating that the high Total-As content corresponds to As forms that exhibit minimal leaching under alkaline conditions (GCA 2004).

GCA (2004) comments that, 'the reduced As solubility observed herein is believed to reflect the net outcome of arseniosiderite dissolution, and "scavenging" of As(V) forms (i.e. arsenates) by kaolin and goethite which are each accessory components of the tailings-solids sample.' The low solubility of As forms despite relative enrichment in As is similar to other ore bodies in the Tanami region.

Evidence at Coyote is that effectively all of the sulphide present is arsenopyrite (MBS 2004b). The mean values of sulphur and As are in approximately 1:1 stoichiometric balance, the same ratio as for arsenopyrite. Arsenopyrite produces only 37% as much acid as pyrite for the same sulphur content. The analyses carried out by MBS (2004) assumed that all sulphur present is pyrite and since most sulphur is actually as arsenopyrite, the Maximum Potential Acidity values are over-estimated by a factor of approximately 2.7 (MBS 2004b).

Further waste characterisation of tailings, potential capping materials and topsoil was carried out by Landloch (2012b). Landloch concluded that the high salinity of the tailings is likely to inhibit vegetation growth. The vegetation that is present on the surface of the tailings is occurring in depression zones were leaching of salts is more efficient. The salinity of the surface tailings (-10 cm) is considerably higher than the salinity of the underlying tailings (20 to 50 cm), and salts are likely to be rising in response to capillary action (Landloch 2012b).

The high combined silt and clay fraction will render leaching of salts or water through the tailings difficult. When coupled with high exchangeable sodium values, the tailings are also prone to liquefaction and considerable settlement that will significantly limit water entry. This will act to reduce the risk of downward movement of salts with seepage, particularly if a store and release cover is installed. The tailings' properties can be summarised as follows (Landloch 2012b):

- highly saline, particularly surface tailings samples.
- alkaline pH;
- presence of high Na concentrations; and
- particle size distribution dominated by clay and silt sized particles.

5. ANALYSIS OF DATA

The following section details the knowledge base of each feature, any knowledge gaps and the risk associated with not having this information.

Knowledge base: This provides a brief summary of what is currently known about each feature and forms the foundation for the closure planning process. Background information has been reviewed to develop the 'knowledge base' for each feature. This information may relate to pre-mining, design and construction, operation and monitoring, or the feature's current status.

Knowledge gaps: A critical review of the knowledge base for each feature identified 'knowledge gaps', which may limit the development of final rehabilitation strategies for some features. A knowledge gap may include, whether an access road is required after closure for monitoring purposes.

Associated risk: The associated risk is the risk associated with the knowledge gap (i.e. the risk associated with not having this information available). A mine closure risk assessment was undertaken on the potential unwanted events in impeding mine closure; the associated risks were considered in this assessment. **Section 8** summarises the initial high risks from this risk assessment, the proposed controls and subsequent residual risk. The entire completed risk assessment spreadsheet is included in **Appendix H**.

5.1. Landform Domain

The Landform domain comprises the following features:

- Coyote Waste Rock Landform;
- Coyote Tailings Storage Facility;
- Coyote Run of Mine Pad;
- Coyote Topsoil Stockpiles;
- Bald Hill Waste Rock Landform;
- Bald Hill Run of Mine Pads and Stockpiles; and
- Bald Hill Topsoil Stockpiles.

5.1.1. Coyote Waste Rock Landform

Knowledge Base

The Coyote WRL was formed with waste generated from mining the Coyote Open Pits between 2006 and 2008, and covers an area of disturbance of 26 hectares (ha) (**Plate 1**). Primary earthworks to reshape and batter down approximately 4 ha of the southern slopes of Coyote WRL to 15 degrees (^{o}) were completed in 2008. This work included constructing bunds around the upper surface for water management and spreading topsoil in a series of simple rehabilitation trials. A small southern finger of the WRL covers a landfill established prior to mining (TGNL 2010a). The north-eastern slopes adjacent to the leach vats and the eastern end adjacent to the ROM Pad remain largely at an angle of repose in order to provide rehabilitation material at closure.

Plate 1: Coyote WRL looking approximately north, over the southern slopes, November 2013

The main outcome of the rehabilitation trials was that a much more stable surface was achieved at the north-western end of the WRL by blending a relatively thin layer of topsoil with the underlying waste material, which has high clay and rock content (TGNL 2009). It was hypothesised that a smooth surface will allow rainfall runoff to shed from the WRL in non-eroding sheet flow. It was thought that the high sand content of topsoil from the Tanami region will assist in stabilisation (TGNL 2008b). The original aims of the trial rehabilitation of the Coyote WRL are as follows:

- determine if WRL batters can be effectively rehabilitated without contour ripping; and
- determine whether sufficient representation of native flora can be achieved on the WRL without the addition of seed (TGNL 2008b).

The southern and north-western faces of the Coyote WRL were battered down to 15°, with the waste conditioned to blend in rockier waste with areas of clay-rich waste. Three trial surfaces were established:

- the north-western face was a control with no topsoil spread;
- the western end of the southern face had a relatively thin layer (100 to 150 mm) of topsoil applied; and
- the eastern end of the southern faces had a thicker layer of topsoil applied (200 to 300 mm).

The surface created over areas topsoiled is shown in **Plate 2**. The results of the trial following the 2008 to 2009 wet season demonstrated mixed success. Overall, there was evidence of minor erosion resulting from several short duration high intensity rainfall events; however, the topsoil has largely remained in place. The southern face of the waste dump displayed minor to moderate gullying at the eastern end where topsoil has been applied at greater than 100 mm thickness (**Plate 3**). At the western end of the WRL, where topsoil has been applied thinly and blended with the underlying waste material, a much lower degree of erosion was exhibited (**Plate 4**). The northern side of the WRL did not at the time have topsoil applied and did not exhibit erosion (**Plate 5**) (TGNL 2009).

Plate 2: Coyote WRL following rehabilitation, February 2007 (TGNL 2008b)

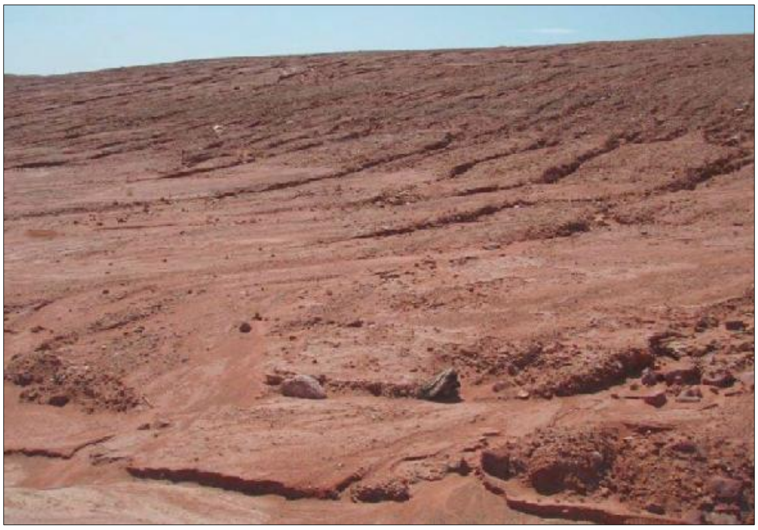

Plate 3: Coyote WRL, east end of southern slopes one year after rehabilitation (TGNL 2009)

Plate 4: Coyote WRL, west end of southern slopes one year after rehabilitation (TGNL 2009)

Plate 5: Coyote WRL, west end of northern slopes, trial control surface, no topsoil, approximately four years after establishment (TGNL 2012c)

The 2009 to 2010 Annual Environmental Report (AER) reported moderate gullying at the western end following an average wet season, vegetation growth was progressing well and assisting stabilisation of the soil (**Plate 6**). A variety of grasses (*Triodia* species) and shrubs (predominately *Acacia* species) were present (TGNL 2010a). However, at the eastern end, the outcome of the trial is less clear as this area was deep ripped after the trial surfaces were established in a late attempt to better mix in topsoil with the mine waste, and encourage infiltration. Erosion in this area was exacerbated by incomplete water management structures on the upper surface and berm of the WRL, hence the trial in this area was deemed to not be as successful (TGNL 2010a). A final landform design which incorporates surface water management is required to minimise erosion and meet a key objective of the Environmental Management Plan (EMP) (**Table A51**).

Plate 6: Coyote WRL, west end of southern slopes- two years after rehabilitation (TGNL 2010a)

A site inspection by Outback Ecology-MWH in November 2013, confirmed that the rehabilitation of the north-western slopes of the Coyote WRL appears to be successful, with any gullies shallow and self-armouring (**Plate 7**). It was observed that the vegetation in this area is largely dominated by *Acacia* sp., as opposed to the eastern end which is largely dominated by *Triodia* sp. Mature *Acacia* sp. and *Triodia* sp. were observed to be seeding with seedling succession. This difference could be due to one of, or a combination of a number of factors; such as the source of the topsoil, the depth to which the topsoil was applied, or the presence of viable seeds within the topsoil. Slightly different vegetation associations were observed over the Coyote deposit as opposed to the site of the Coyote WRL (see **Table 6**). It was observed during the site inspection that the considerable vegetative cover (and seeds) were attracting a number of species of birds, reptiles, ants and termites.

The depth of topsoil applied to the eastern end was observed to be considerably more than applied to the western end. It was later interpreted that a thin layer of topsoil, with shallow ripping (to mix waste rock with topsoil) improves the erosion resistance (TGNL 2012c). Subsequent rehabilitation was undertaken in consideration of this in 2012. In May 2012, the remainder of the western end of the WRL (previously contoured as the trial control surface with no topsoil) was covered with topsoil and lightly ripped along contours. In June 2012, rock drains were installed on the south-eastern slopes with erosion gullies dug out and lined with fresh rock (see **Plate 1**). The work was conducted with the fleet that arrived on site to undertake the embankment raise of the TSF (TGNL 2013). Unfortunately two months after this rehabilitation works an intense rainfall event of approximately 90 mm over one hour washed a portion of topsoil down the slope (**Plate 8**).

There is currently no toe bund to capture sediment emanating from the WRL. Consideration will be given to the installation of a toe bund in order to mitigate the impacts to the surrounding vegetation.

Plate 7: Stable slopes, Coyote WRL, west end of the southern slopes, November 2013

Plate 8: Coyote WRL, west end of northern slopes 2012 rehabilitation, November 2013

The majority of progressive rehabilitation that can be undertaken while still enabling access to mine waste for future rehabilitation has been carried out. Material will be sourced from the areas remaining at an angle of repose for the rehabilitation of the TSF, Evaporation Pond, Leach Vats and ROM Pad. The volume of material required to achieve closure of these features has been calculated in this MCP; however, a final landform design (incorporating surface water management) for the Coyote WRL (once this material has been removed) is still required.

Photo monitoring has been used to monitor rehabilitation surrounding the Coyote site since establishment of the site in 2007 (Figure 18). Photo monitoring sites were first set up on the Coyote WRL in 2012. Photo monitoring has not been accompanied by any reporting or commentary to date.

Landscape Function Analysis (LFA) data was collected for three sloping rehabilitation sites on the Coyote WRL and Bald Hill WRL in 2013 by site personnel trained in LFA / Ecosystem Function Analysis (EFA) monitoring. Suitable sloping analogue sites were not established due to a lack of suitable slope within the mining lease. No adjacent flat analogues were established. TGNL envisioned that it would be possible to draw on the data collected from the Central Tanami rehabilitation sites, located 90 km to the east of the Project in the NT, and potentially utilise them as analogues for the CGP. Four analogues were established at Central Tanami, all of which are on gently undulating to flat land, with sites of similar slope not available nearby.

However, the use of Central Tanami data to represent rehabilitation goals for CGP requires further investigation, for example comparison of soil characteristics at both sites would be required as a minimum. Further to this, EFA has not been undertaken at Central Tanami since 2008, and rehabilitation data should be compared to analogues during the same year of assessment, to account for fluctuations in data caused by seasonal variations.

TGNL plans to undertake rehabilitation monitoring to support the development of quantitative completion criteria. Rehabilitation monitoring will be conducted using EFA, which comprises vegetation monitoring and LFA, or an appropriate equivalent method, and will incorporate appropriate analogues.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for Coyote WRL (**Table 11**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. One high risk was identified for the Coyote WRL during the closure risk assessment and is summarised in **Section 8.**

Table 11: Coyote Waste Rock Landform knowledge gaps and associated risks

<table>
<tr><th>Knowledge Gaps</th><th>Associated Risks</th></tr>
<tr><td>• final landform design incorporating surface water management on the WRL</td><td>• slope erosion
• inappropriate closure planning
• exposure of dispersive and sodic materials
• impact to surrounding environment</td></tr>
<tr><td>• details of rehabilitation trial methodology and analysis of results (rehabilitation success criteria including erosion, soil surface characteristics and re-vegetation)
• quantity of seed required to augment the topsoil application</td><td rowspan="2">• rehabilitation failure
• lost opportunity to learn from trials
• inability to develop quantitative completion criteria
• inappropriate closure planning
• unplanned closure costs</td></tr>
<tr><td>• inadequate rehabilitation monitoring</td></tr>
<tr><td>• rehabilitation materials inventory detailing the volumes of each type of available material and the areas requiring rehabilitation</td><td>• inappropriate closure planning
• corporate cost blowout
• limited ability to undertake progressive rehabilitation and closure</td></tr>
<tr><td>• capacity to contain sediment due to erosion</td><td>• inappropriate closure planning
• corporate cost blowout</td></tr>
</table>

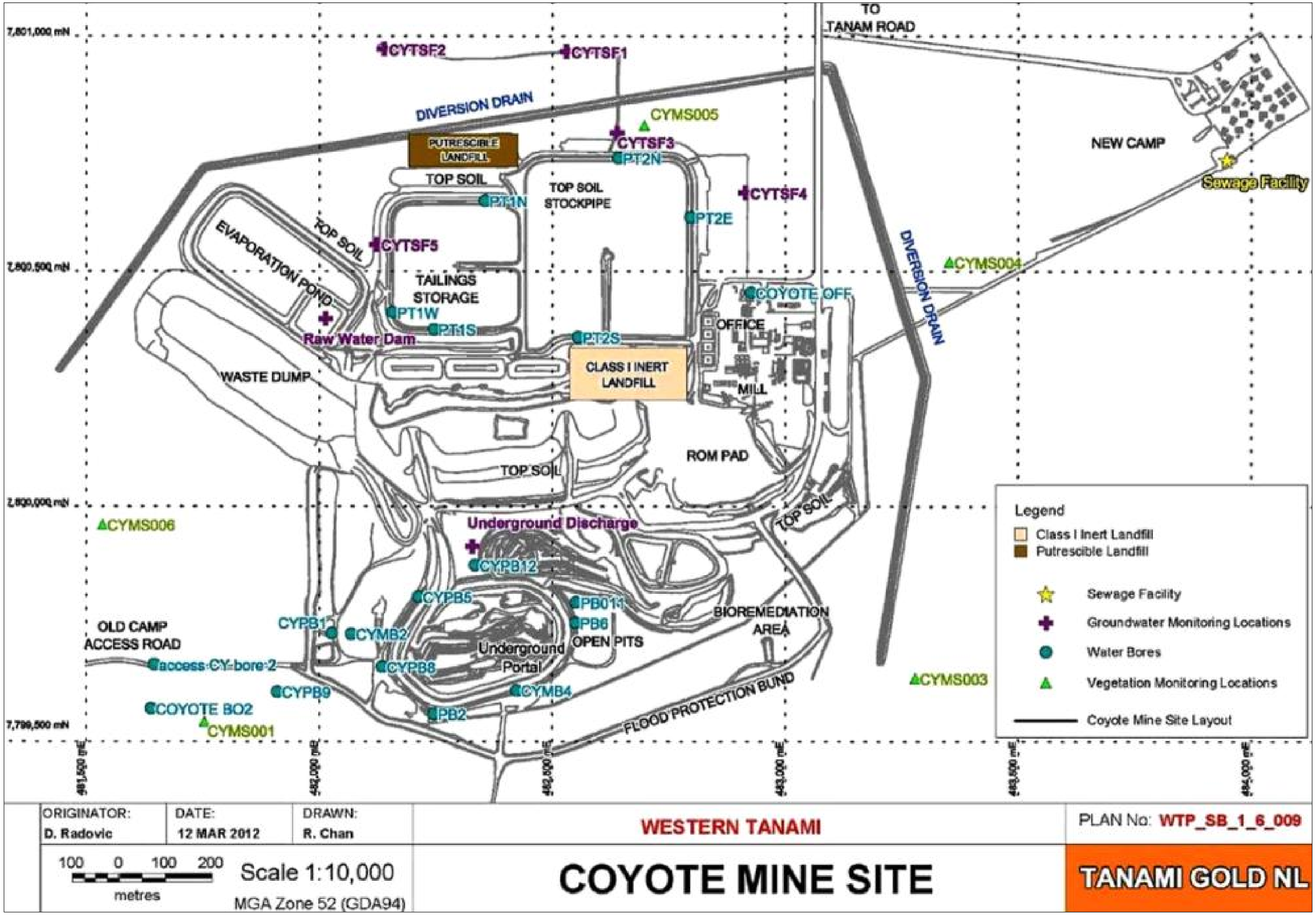

Figure 18: Coyote landfill locations, bores and photographic monitoring sites (TGNL 2013)

5.1.2. Coyote Tailings Storage Facility

Knowledge Base

The Coyote TSF is a conventional paddock style facility comprised of two square cells; which are separated by a common north-south embankment (**Plate 9** and **Figure 19**). Cell 1 has a side length of approximately 280 m, a surface area of 7.8 ha, and a base area of 9.58 ha. Cell 2 has a side length of approximately 370 m, surface area of 14.04 ha and a base area of approximately 15.83 ha.

All embankments have been constructed using mine waste as the primary source of fill. The only other material utilised for embankment construction, was lateritic gravel taken from the key trench excavation which was placed as a drainage layer beneath the downstream section, or Zone 2, of the starter embankment. The current embankment height of Cell 1 is 5.5 metres above ground level (mAGL), and 6.5 mAGL for Cell 2. The starter embankment for Cell 1 was constructed in 2006; this Cell is currently filled to the minimum freeboard. The starter embankment for Cell 2 was completed in February 2008, and currently has capacity for up to 750,000 t of solid tailings material (Coffey 2013).

Plate 9: Coyote TSF, November 2013

The layout of the Coyote TSF with vibrating wire piezometer (VWP) and embankment piezometer locations is detailed in **Figure 19**. Six embankment piezomters are emplaced with the embankments; while ten VWPs compose an east-west cross-section across cell 2.

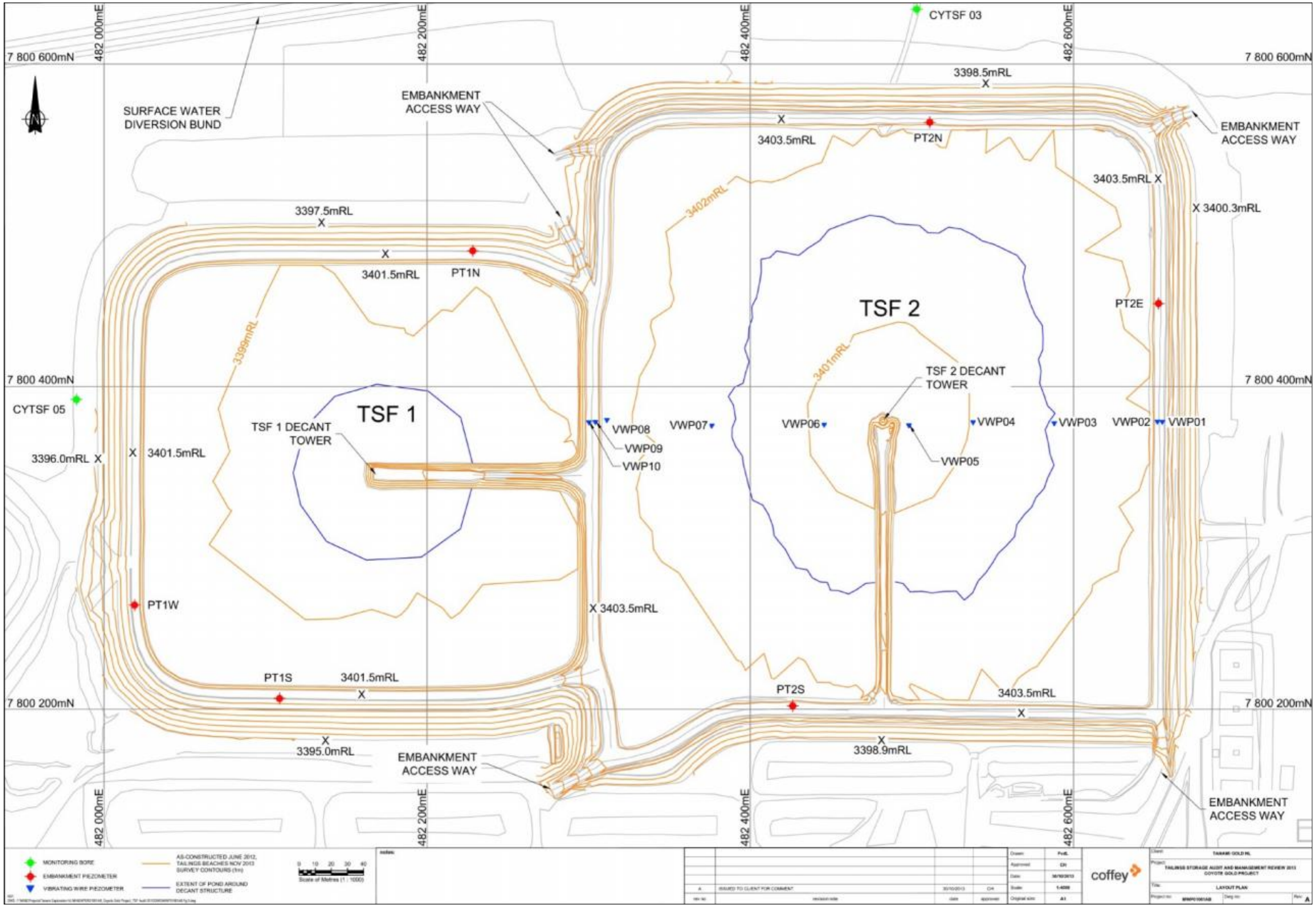

Figure 19: Coyote TSF Layout, with vibrating wire piezometer locations (Coffey 2013)

Construction of the starter embankments (**Figure 20**) incorporated excavation of a key trench beneath the upstream zone to a depth of approximately 2.5 m to allow the embankment to be keyed to the *in-situ* clay layer to limit the potential for seepage through the laterite. The key trench was backfilled with selected waste rock directly sourced from the open pit. The Zone 1 embankment fill was placed in thin (300 mm) horizontal layers using scrapers, and compacted to 98% Standard Maximum Dry Density at optimum moisture content, by both loaded scrapers and a heavy duty tamping foot vibrating compacter. Testing by an independent NATA laboratory confirmed that the fill is of high quality. The Zone 2 fill was placed between 0.5 to 1.0 m layers, and compacted by traffic compaction (Cooper 2005). All sterilisation and other drill holes were sealed prior to the commencement of stripping the site, using the methods recommended by DoIR (TGNL 2007d).

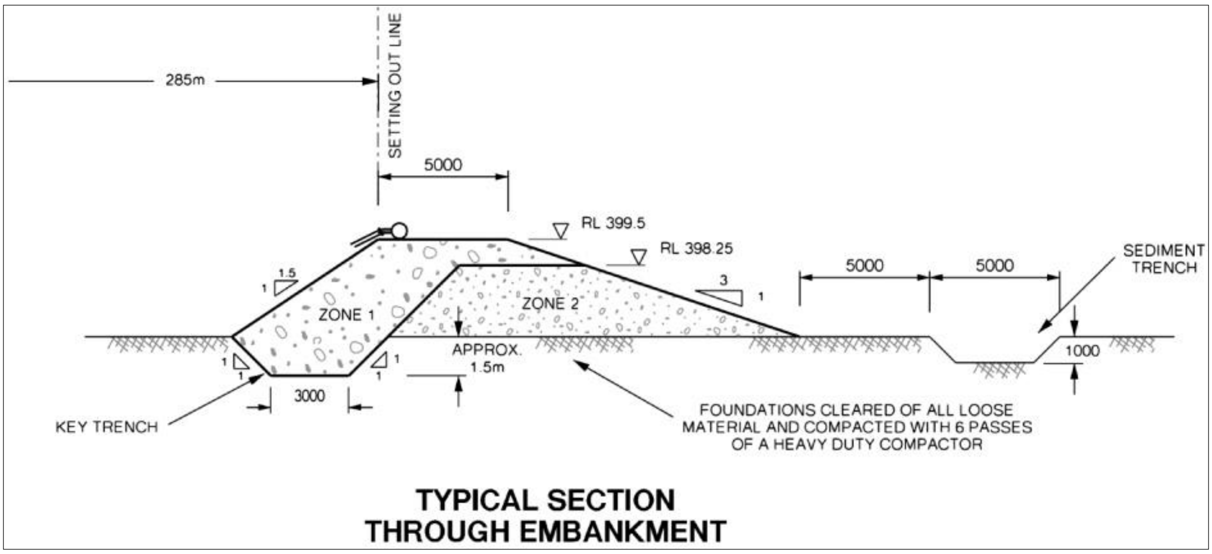

Figure 20: Starter embankment design Cell 1 (Cooper 2006)

The lateritic gravel taken from the key trench excavation was placed as a drainage layer beneath the downstream section, or Zone 2, of the embankment. This layer ensures that a phreatic surface cannot develop in the Zone 2 material, and hence the embankment stability can be maintained under all likely circumstances. The remainder of the Zone 2 fill was sourced from the open pit excavation (Cooper 2006). Descriptions of Zone 1 and 2 materials taken from the open pits are as follows:

- Zone 1 type material – located in the open pit at a depth of 10 to 13 m, mottled grey red puggy alluvial clays;
- Zone 2 type material – located below the Zone 1 fill, sandstone, becoming harder with depth.

Cell 1 was constructed with a starter embankment crest level of 399.5 mRL (Cooper 2009), before a subsequent perimeter embankment raise in 2008 of 2 m to 401.5 mRL (**Figure 21**). Cell 2 was constructed with a starter embankment crest level of 400.0 mRL, this was followed by a raise in 2010 of 1.5 m to 401.5 mRL, and a further raise of 2 m in 2012 to 403.5 mRL. The embankment raises of both cells utilised clayey mine waste, sourced from the Coyote WRL located to the south of the existing facilities (Coffey 2013). The TSF is planned to undergo an embankment wall lift of 2 to 2.5 m on both Cell 1 and 2 to provide capacity for another 700,000 t, providing two to three years of tailings production (TGNL 2013). Approvals have been granted, however, lift construction has been put on hold while the CGP is in care and maintenance.

Central pump out decants were installed in each cell to return water to the process water dam for reuse in the milling process (**Figure 22**). A design storm of 460 mm over a 72 hour (hr) period was adopted for the design of the TSF (the 72 hr one in 100 year event is 299.5 mm, based on the BoM figure of 4.16 mm/hr (BoM 2013)). A minimum 500 mm freeboard over the head of the tailings beach at the end of the life of the CGP was incorporated in the design (TGNL 2007d).

It was calculated that during the first year, tailings production could be as high as 200,000 t, which equates to a rate of rise of tailings against the embankment of approximately 1.7 m (Cooper 2006). During the first months of deposition into Cell 1, 45,468 t of cyclone slimes were deposited, while the coarse fraction was deposited into the leach vats (TGNL 2007a). A further 464,382 m^3 of tailings was discharged into Cell 1 during the following 2007 reporting period (TGNL 2008b).

From March to May 2012 TSF Cell 1 was used for tailings deposition whilst the embankment raise on TSF Cell 2 was completed and deposition into that cell continued from end of May to the end of the reporting period in February 2013 (TGNL 2013). The total tonnage of tailings deposited to the Coyote TSF since commissioning and reported in the 2013 TSF audit was 1,658,000 tonnes (Coffey 2013).

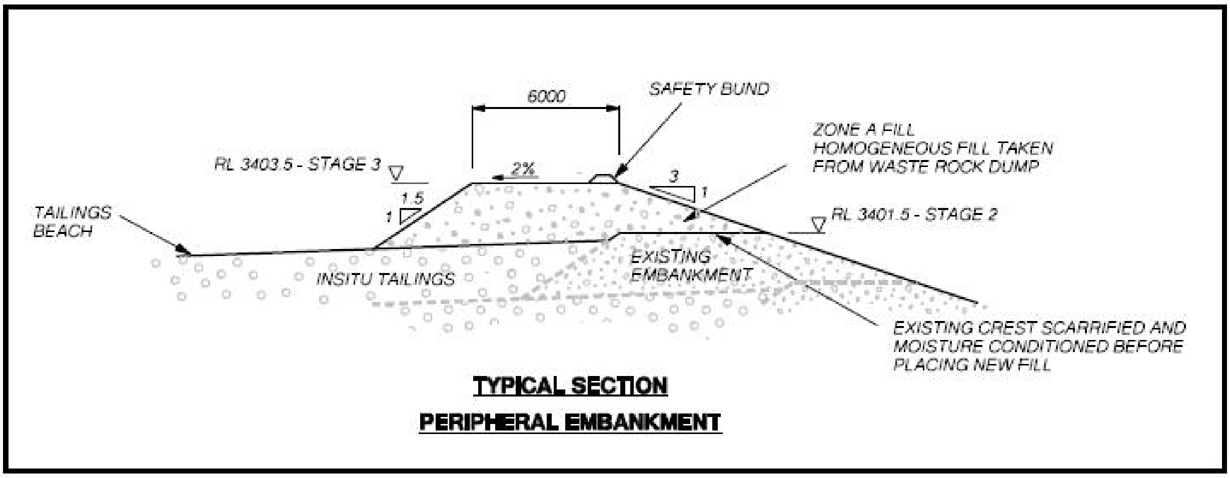

Figure 21: Embankment Raise design (Cooper 2009)

It was calculated that, as the embankment height will be low over the life of the TSF, the factor of safety (FOS) of the embankment will be many times that required (TGNL 2007d). In addition, the downstream face of the embankment will be fully protected against erosion from surface water, further maintaining the stability of the facility. Observations during a November 2013 site visit indicate the downstream faces are safe and relatively stable (**Plate 10**).

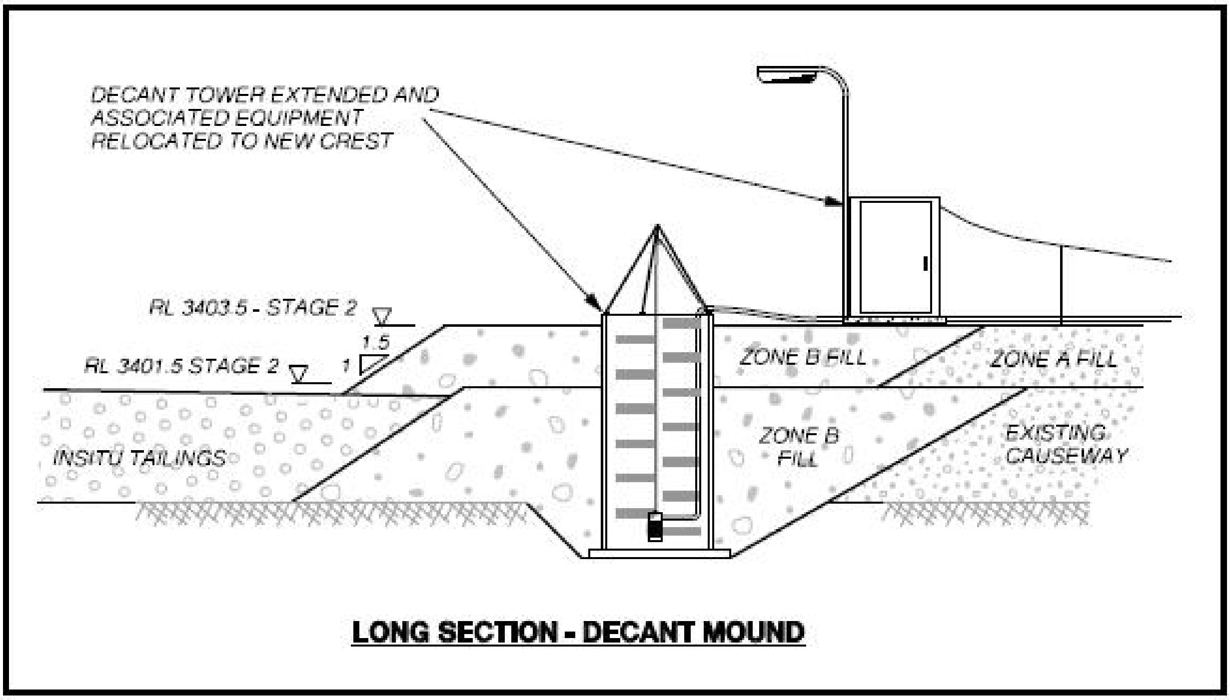

Figure 22: Decant raise design (Cooper 2009)

Plate 10: Vibrating wire piezometer PT2N, Cell 2 northern downstream embankment face

In order to reduce the potential for seepage through the foundations of the TSF, the area around the central decant was compacted to reduce the permeability and limit seepage losses. The size of the decant pond was effectively managed while the process plant was operational by maximising the volume of return water from the TSF. The groundwater quality beneath the facility is in the order of 10,000 mg/L TDS (TGNL 2007d). The process water is saline, and therefore the tailings water will contain residual salt.

Following a 2008 DMP inspection, it was reported that excess water was being pumped onto the TSF, due to insufficient capacity within the evaporation pond. Later during a 2010 DMP inspection, (**Appendix K**) evidence of seepage was noted at the south-western corner of cell 2. TGNL inspected the area further and found no evidence of seepage and responded accordingly to the 2010 inspection (**Appendix L**). No evidence of seepage was noted in the October 2013 TSF audit (Coffey 2013). Observations during the November 2013 site visit, also did not identify any seepage in this area, but did note the build-up of salt, although the source was not be defined (**Plate 11**). It was also observed during this site visit that the pond around the decant was quite large, and that the decant pumps had been removed. The size of the decant pond will affect the time for the tailings to consolidate prior to decommissioning of the TSF.

The embankment piezometers have recorded a water level rise over the past 30 months. The maximum rise was 1.39 m in piezometer PT2N, with rises of 1.27 m, 1.11 m, and 0.83 m in piezometers PT1W, PT2E and PT1N respectively (Coffey 2013). The water level in PT2S dropped 1.48 m over the same period. The highest embankment piezometer water level was recorded at PT2E at 4.09 mBGL (Coffey 2013).

Plate 11: Seepage Trench between Cell 1 and 2, looking west along the southern embankment

Tailings were discharged from the processing plant with average total cyanide (CN TOT) concentration of 17.6 mg/L for TSF surface water, with only two trace level detections of Cyanide in groundwater monitoring bores over the period. The average Weak Acid Dissociable cyanide (CN WAD) concentration of the tailing discharged from the processing plant was 8.2 mg/L for the TSF surface water.

In addition to the VWPs and embankment piezometers, five monitoring bores (CYTSF03 and 05 can be seen in Figure 19), are located around the TSF to monitor the phreatic surface and to provide water samples to comply with licence conditions. According to groundwater monitoring data (TGNL 2013), only minor groundwater mounding at the most proximal monitoring bores (CYTSF03 and 05) has been recorded. CYTSF03 Standing Water Level (SWL) has risen 2.17 m from a mean of 19.80 metres below ground level (mBGL) in 2009 to 17.63 mBGL in 2012, while CYTF05 has risen 2.86 m from a mean of 15.45 mBGL in 2009 to 12.59 mBGL in 2012. CYTSF03 and 05 were constructed in May 2008, but SWL was not recorded until April 2009. TDS CYTSF03 and 05 have not changed substantially since bore construction (TGNL 2013, 2009). CYTSF02 has risen slightly from 9,700mg/L TDS in April 2007 to an average of 14,482 mg/L TDS during 2012 (TGNL 2013, 2009).

Only two trace level detections of CN WAD in groundwater monitoring bores were found over the 2012 to 2013 reporting period. Arsenic levels have remained low, and within baseline levels monitoring began for the TSF monitoring bores up to the 2012 monitoring year (TGNL 2013, 2009).

The water quality in the TSF cells has been monitored since 2008. A summary of the results are presented in **Table 27** below. Arsenic values ranged from 0.1 to 2.6 mg/L in Cell 1 and from 0.2 to 4.0 mg/L in Cell 2 during the 2012 reporting period (TGNL 2013).

Table 12: March 2012 to February 2013 TSF water quality (TGNL 2013)

Water Quality Parameter	Mean	Minimum	Maximum	No. Samples
pH (Cell 1)	8.8	8.5	9.0	3
pH (Cell 2)	8.6	8.0	9.3	8
TDS (mg/L) (Cell 1)	18,667	18,000	19,000	3
TDS (mg/L) (Cell 2)	18,163	14,400	23,000	8
Total As (mg/L) (Cell 1)	1.93	0.1	2.6	3
Total As (mg/L) (Cell 2)	1.85	0.2	4.0	8
CN_{Total} (Cell 1)	12.5	5.3	24.0	3
CN_{Total} (Cell 2)	17.6	2.1	29.0	8
CN_{WAD} (Cell 1)	7.1	4.7	9.1	3
CN_{WAD} (Cell 2)	10.6	0.0	27.0	8

A Tailings Facility Decommissioning Plan has not yet been prepared and is required for the Coyote TSF according to the tenement condition 26, for M80/559:

'At the time of decommissioning of the tailings storage facility and prior to rehabilitation, a further review report by a geotechnical or engineering specialist will be required by the Director, Environment, DoIR. This report should review the status of the structure and its contained tailings, examine and address the implications of the physical and chemical characteristics of the materials, and present and review the results of all environmental monitoring. The rehabilitation stabilisation works proposed and any on-going remedial requirements should also be addressed.'

A topsoil stockpile located to the north of TSF cell 1 contains approximately 12,000 m^3 of topsoil; with the volume to be verified prior to TSF decommissioning. It is estimated that approximately 28,000 m^3 of topsoil (applied at 100 mm thickness) is required to rehabilitate the TSF. Therefore there is a potential shortfall in topsoil for the TSF of approximately 16,000 m^3. TGNL will consider the potential to harvest topsoil/ laterite material from roads and/ or the firebreak to augment topsoil application of the TSF. There are a number of potential sources of fresh rock available for the TSF capillary break from stockpiles within the Coyote Open Pit, and underground. However, fresh rock for a capillary break is currently not stockpiled for this purpose.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for Coyote TSF (**Table 13**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. One high risk was identified for Coyote TSF during the closure risk assessment and is summarised in **Section 8.**

Table 13: Coyote Tailings Storage Facility knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• requirement to harvest topsoil and/ or laterite from roads and/ or the firebreak to augment topsoil application on the TSF • final Tailings Facility Decommissioning Plan detailing final cover design.	• inappropriate closure planning • unplanned closure costs • failure to achieve relinquishment • rehabilitation failure
• final landform design incorporating surface water management on the TSF as well as a component of the site wide conceptual surface water management plan	• slope erosion • inappropriate closure planning
• timeframe for consolidation of the tailings prior to commencement of rehabilitation works	• inappropriate closure planning • unplanned closure costs
• potential for seepage post closure	• inappropriate closure planning • unplanned closure costs • failure to achieve relinquishment
• quantity of seed required to augment the topsoil application	• rehabilitation failure • unplanned closure costs

5.1.3. Coyote Run of Mine Pad

Knowledge Base

The Coyote ROM Pad covers 7.92 ha and is raised to approximately 6 mAGL. The southern embankment has been rehabilitated with considerable success. However, the southeast corner has developed some gullying, likely due to inadequate bunding at the upper edge of the ROM Pad, which will require minor remediation works. The remainder of the ROM Pad requires primary earthworks, with some ore currently stockpiled on the ROM surface. This ore will be processed when the mill restarts.

Closure costing has assumed that all ROM pads will require reshaping of the slopes to 15 degrees. Toe bunds and inside spoon drains are to be installed around the ROM toes where and as required to contain any erosional silt and prevent toe damage from surface water flows around each landform.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Coyote ROM Pad (**Table 14**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Coyote ROM Pad during the closure risk assessment.

Table 14: Coyote Run of Mine Pad knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• volume of material suitable for processing from the top of the ROM Pad	• inappropriate closure planning • lost opportunity for resource recovery
• potential for ROM Pad material for use in rehabilitation activities	• insufficient rehabilitation materials • inappropriate closure planning • limited ability to undertake progressive rehabilitation and closure
• final landform design incorporating surface water management on the ROM Pad	• slope erosion • inappropriate closure planning

5.1.4. Coyote Topsoil Stockpiles

Knowledge Base

Cleared vegetation and topsoil is stockpiled at strategic locations across the Project with topsoil stripped to a depth of approximately 200 mm. Long-term stockpiles are approximately 1 to 2 m in height and have been deep ripped to enable vegetation growth and continued biological activity. Short-term topsoil stockpiles were paddock dumped and will be utilised in rehabilitation of the WRL. The positioning of stockpiles will enable access for machinery and short haul distances during rehabilitation work. Long term stockpiles are located away from active areas to avoid disturbance. Stockpiles are located along the northern sides of the TSF and Evaporation Dam, as well as on the surface of the eastern end of the Coyote WRL. November 2013 site inspection revealed the topsoil stockpiles to be of less than 2 m in height and in good condition with condition with mature vegetative cover. Estimates of topsoil volumes at Coyote are presented in **Table 15** below.

Table 15: Estimated Topsoil stockpile volumes at Coyote

Stockpile	Height	Estimated Volume
North of TSF 1	2 m	20,000 m^3
North of EP	1.5 m	9,000 m^3
Windrow north of TSF	1 m	3,500 m^3
Topsoil / Laterite East of TSF	2 m	5,500 m^3
Atop of Coyote WRL	2 m	4,800 m^3

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Coyote Topsoil Stockpiles (**Table 16**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Coyote Topsoil Stockpiles during the closure risk assessment.

Table 16: Coyote Topsoil Stockpiles knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• topsoil stockpile volumes available for rehabilitation	• insufficient rehabilitation materials

5.1.5. Bald Hill Waste Rock Landform

Knowledge Base

The Ball Hill WRL was constructed with waste material generated from the Kookaburra and Sandpiper Open Pits between 2008 and 2011, and covers 28.49 ha. Waste characterisation carried out on anticipated waste materials prior to mining identified potentially dispersive materials (see section 4.12). Consequently, a WRL design to encapsulate hostile waste to minimise erosion was drafted and later approved by the DMP (**Figure 23** and **Figure 24**). Under the design, dispersive material was to be deposited in the centre of the WRL with the encapsulating waste tipped in a ring around the inner perimeter of oxide and topsoil. During waste placement the project geologist was assigned to monitor waste material produced and determine the appropriate location within the WRL (TGNL 2008a).

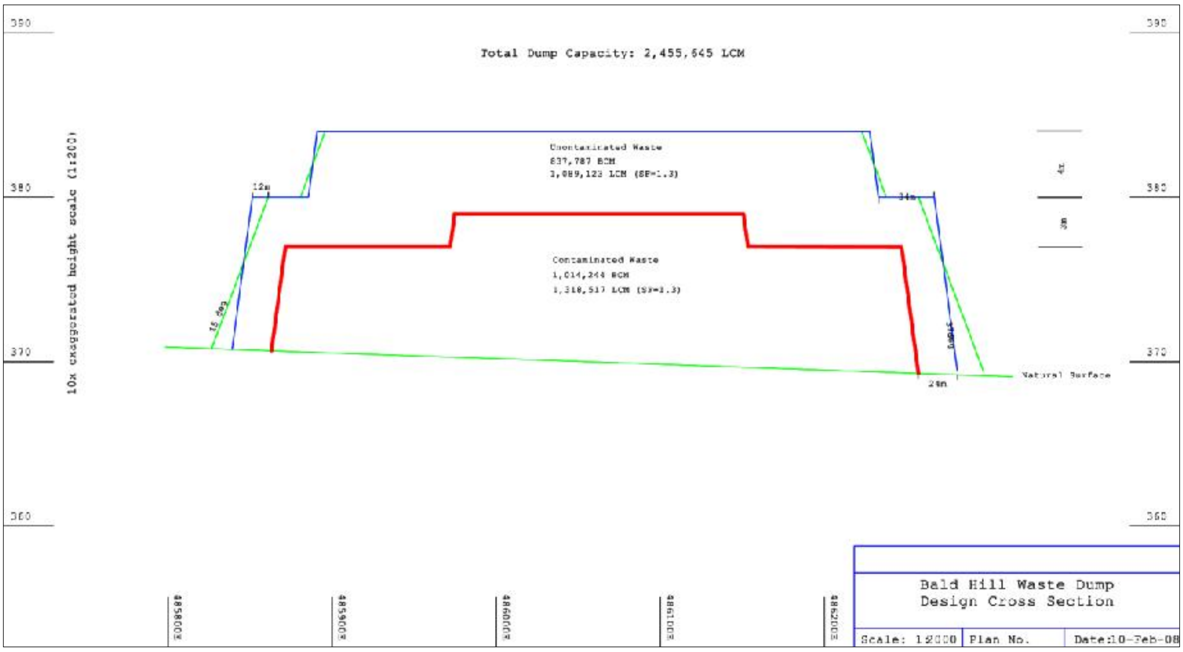

Figure 23: Bald Hill Waste Rock Landform waste encapsulation design (TGNL 2008a)

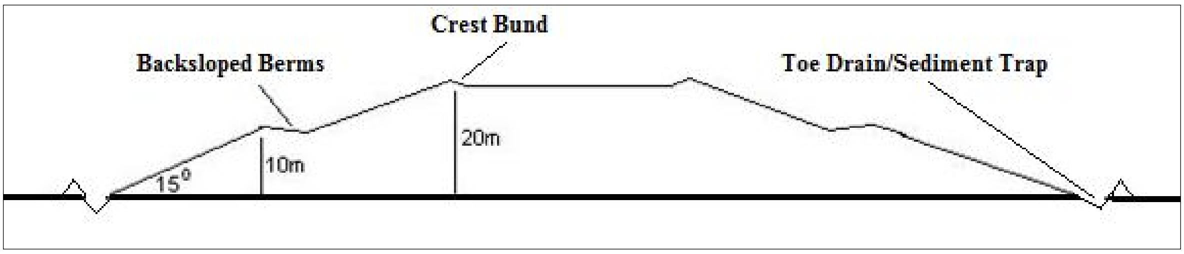

Figure 24 Conceptual Waste Rock Landform Design

The WRL design also included a back sloping bench on the lower slopes and crest and cell bunding to reduce surface flow and erosion channels. Prior to construction, the footprint of the WRL was cleared with vegetation and topsoil stockpiled around the perimeter.

When mining recommenced during the 2009 to 2010 reporting period, the western faces of the WRL were sheeted with lateritic material to increase slope stability (TGNL 2010a). The batter slope is 15°

(TGNL 2012c). Following the 2011/12 wet season it was identified that the WRL required a toe drain to capture sediment. The toe drain was engineered to a 1 in 72 hour rainfall event (**Figure 25**) and later installed in 2012. However, a site inspection in November 2013 revealed that the toe bund may not have been built to specification. The southern portion of the WRL adjacent to the south ramp received significant (approximately 300 mm) lateritic topsoil coverage to act as capping to any potentially dispersive material from the Kookaburra and Sandpiper Open Pits. However the cover appears to lack a sufficient proportion of laterite material to provide erosion resistance.

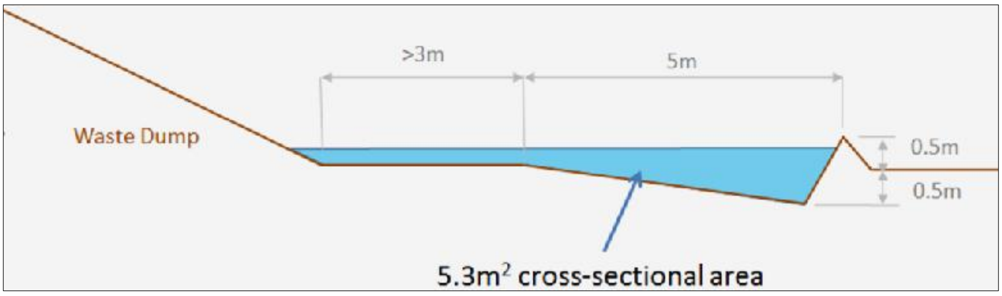

Figure 25: Bald Hill Waste Rock Landform toe drain design

A site visit in November 2013 revealed that the capping topsoil / laterite material is quite erosive, with evidence of significant riling on all of the rehabilitated upper slopes over the Bald Hill WRL. In places a considerable quantity of capping material from the upper slopes has been deposited into the back sloping berm. It is likely that if the upper slopes do not stabilise the back sloping berm may fill with sediment and will no longer provide an effective means of surface water management.

At present the north-western side of the WRL remains largely at an angle of repose, as a further stage of mining was planned at completion of the second stage of mining in 2011. This section requires primary earthworks and need to be completed in accordance with the approved landform design. It is proposed that upon closure the Bald Hill WRL ramps will become rock lined spillways, with the resulting run off directed into the Kookaburra Open Pit upon completion of the abandonment bund.

Crest bunds on the WRL upper surface are sized to accommodate the 100 year, 72 hour storm event, with bunds built to at least 650 mm high (providing 300 mm freeboard). The crest bunds are shaped to discourage the pond of water near the crest bund as a means of reducing the likelihood of tunnelling. The upper surface has been deep ripped to maximise the potential for water to infiltrate.

Major rehabilitation works were conducted in May to June 2012 with rehabilitation of the upper surface (**Plate 12**) and completion of works to the northeast, southeast and southwest corners of the WRL. Lateritic material was excavated from a large flood diversion bund and utilised to cap the WRL with topsoil spread over the laterite. The surface was seeded at this time with a mix of native grass seed obtained from Top End Seed and Acacia species collect by TGNL under permit, no fertiliser was applied. At this time the back sloped berm was repaired to ensure no overtopping of accumulated run off down the lower bench, as well as the installation of cross bunds established every 50 m as baffles to limit potential flows and reduce catchment areas (**Plate 13**) (TGNL 2013).

Six LFA transects were established on the Bald Hill WRL during the 2012 to 2013 reporting period. These transects included; BHRM03 (3 year old rehabilitation that has been re-ripped), BHRM04 (upper batter topsoiled and ripped in June 2012), BHRM06 (lower batter slope topsoiled in December 2011 and ripped in June 2012) (TGNL 2013). Transects located on the eastern and southern sides of the WRL were affected by fire in October 2011 and sparsely covered. Sites on the western site of the WRL not affected by fire and in a low lying area where water gathers showed vegetation coverage between 50 and 70% (TGNL 2013). The vegetation associations present over the site of the Bald Hill WRL and over the Kookaburra and Sandpiper Deposits are outlined in Section 4.8.3 (see **Table 7**).

Plate 12: Bald Hill WRL upper cell bunding, looking north east, November 2013

Plate 13: Bald Hill WRL slopes, looking south, November 2013

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for Bald Hill WRL (**Table 17**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. Three high risks were identified for Bald Hill WRL during the closure risk assessment and is summarised in **Section 8.**

Table 17: Bald Hill Waste Rock Landform knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• timeframe for completing the Bald Hill WRL in accordance with the final landform design	• exposure of dispersive and sodic materials • inappropriate landform design • failure to achieve relinquishment • slope erosion • rehabilitation failure
• requirement for re-work on existing rehabilitated slopes • extent of sediment loss from the WRL, and impact on surrounding environments	• rehabilitation failure • slope erosion • potential for back-sloping berms to fill with sediment (topsoil) and fail. • failure to achieve relinquishment
• whether waste placement was undertaken in accordance with encapsulation design • primary earthworks and rehabilitation requirements in areas not rehabilitated	• dispersive and sodic materials • inappropriate landform design • corporate cost blowout • rehabilitation failure • slope erosion
• rehabilitation materials inventory detailing the volumes of each type of available material and the areas requiring rehabilitation	• insufficient rehabilitation material • inappropriate closure planning • rehabilitation failure
• characterisation of material used to construct the toe bund and adequacy of the design	• dispersive and sodic materials • inappropriate closure planning
• quantity of seed required to augment the topsoil application	• rehabilitation failure • unplanned closure costs

5.1.6. Bald Hill Run of Mine Pads and Stockpiles

Knowledge Base

The Bald Hill ROM Pads consist of three separate areas: the High grade, Kookaburra and Sandpiper ROM Pads (from south to north). At the time of writing this report the Kookaburra ROM Pad hosts a Low-grade and mineralised waste stockpile (of < 10 m height, covering 3.16 ha) (**Plate 14**); the Sandpiper ROM consists of a built up pad (of < 4 m in height, covering 0.86 ha) (**Plate 15**), while the High grade ROM has largely been rehabilitated, apart from a small stockpile adjacent to the haul access road (of < 3 m height, covering 0.21 ha) (**Plate 16**).

Plate 14: Kookaburra ROM Pad stockpile, looking west from Bald Hill WRL, November 2013

Plate 15: Sandpiper ROM Pad, looking northwest from Bald Hill WRL November 2013

Plate 16: High grade ROM Pad, looking south from Kookaburra ROM Pad, November 2013

The site has approximately 350,000 t of low-grade ore stockpiled (TGNL 2013); once the site is no longer in care and maintenance it is planned that Low-grade ore will continue to be hauled to Coyote for blending with Coyote underground ore on an as needed basis. Once the Low-grade stockpiles have been exhausted and plans for future mining in the vicinity are decided, rehabilitation of the ROM Pads and north-western side of the Bald Hill WRL will begin.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Bald Hill Run of Mine Pads and Stockpiles (**Table 18**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for Bald Hill Run of Mine Pads and Stockpiles during the closure risk assessment and is summarised in **Section 8.**

Table 18: Bald Hill Run of Mine Pads and Stockpiles knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• volume of low-grade ore to be removed for processing and timeframe; • volume of material remaining on ROM Pad post closure;	• stakeholder expectations • insufficient rehabilitation material • inappropriate closure planning • lost opportunity for resource recovery
• suitability of remaining material on ROM Pad for rehabilitation purposes at closure	• inappropriate closure planning • rehabilitation failure
• quantity of seed required to augment topsoil application	• rehabilitation failure

5.1.7. Bald Hill Topsoil Stockpiles

Knowledge Base

Cleared vegetation and topsoil is stockpiled at strategic locations across the Bald Hill Project Area with topsoil stripped to a depth of approximately 200 mm and stored in stockpiles approximately 2 m in height. The majority of stockpiles adjacent to the Bald Hill WRL were depleted for the rehabilitation carried out to date. Further stockpiles of subsoil (lateritic material) are located around the open pits, largely as sections of the abandonment bund. Topsoil Stockpiles are also located adjacent to the Evaporation Dam. Estimates of topsoil volumes at Bald Hill are presented in **Table 19** Table 15below.

Table 19: Estimated Topsoil stockpile volumes at Bald Hill

Stockpile	Height	Estimated Volume
Bald Hill EP	2 m	6,800 m^3
Bald Hill windrow stockpiles	1 m	6,000 m^3
North of Bald Hill WRL	1.5 m	1,000 m^3
Between ROM and WRL	2 m	4,000 m^3

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Bald Hill Topsoil Stockpiles (**Table 20**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Bald Hill Topsoil Stockpiles during the closure risk assessment.

Table 20: Bald Hill Topsoil Stockpiles knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• topsoil stockpile volumes available for rehabilitation	• insufficient rehabilitation materials

5.2. Industrial Infrastructure Domain

The Industrial Infrastructure domain comprises the following features:

- Coyote Process Plant;
- Offices, Workshop and Stores;
- Power House, Fuel Storage and Refuelling Bay;
- Reverse Osmosis Plant;
- Coreyard and Workshop;
- Coyote Laydown;
- Boneyard;
- TSF Laydown;
- Explosives Magazine;
- Putrescible and Inert Landfills;
- Bioremediation Area;
- Sewage Treatment Facility;
- Airstrip;
- Accommodation Village;
- Bald Hill Administration; and
- Bald Hill Storage Compound and Laydown.

5.2.1. Coyote Process Plant

Knowledge Base

Milling operations initially recovered gold by utilising gravity gold recovery of coarse material to be treated in a series of lined Leach Vats, with Carbon In Leach (CIL) treatment of fine ore (slimes). Vat leaching ultimately proved unsuitable for treating the Coyote ores and was discontinued in December 2006 with the plant modified to a conventional gravity, followed by CIP circuit. The remaining Leach Vat cells are described separately within the water management structures domain. At the time of decommissioning of the leach vat process the plant capacity was reduced from 490,000 to around 250,000 tonne per year (t/y). Tailings produced by the Coyote process plant are pumped as a slurry to the Coyote TSF. The CIP process plant covers 0.63 ha.

Prior to the operation going into care and maintenance in 2006, the CGP utilised gravity gold recovery of the mill product, with intense leaching of the gravity concentrate and CIP leaching of the cyclone overflow, to recover gold from oxide and primary ore (**Plate 17**). In 2007, upgrades to the leach circuit to improve gold recovery included replacement of the three existing 45 m^3 leach tanks with three 570 m^3 tanks. This increased the maximum holding capacity of the plant from 220 m^3 to approximately 1,895 m^3, which allows an increase in the residence time of the ore in the leaching tanks and subsequent gold extraction efficiency.

The upgrade also entailed construction of adequate bunding for containment of process solutions in the event of pipeline or tank failure. In December 2010, a submission was made to the DMP and

DEC to increase the treatment capacity to 400,000 t/y from 250,000 t/y. To reach this capacity the process plant required a number of upgrades. Upgrades undertaken to date include the addition of three 570 m^3 tanks in June 2010 increasing the mill capacity to 300,000 t/y. The addition of a new ball mill is required to reach the 400,000 t/y treatment capacity, this is yet to be completed.

Plate 17: Coyote Process Plant, looking west, November 2013

The crushing circuit consists of a primary jaw crusher and a secondary impact crusher. The ore is crushed and screened to produce a sub 14 mm fine ore product to feed to the grinding section. Fine ore is stored in a fine ore bin for direct feed to the mill or onto a fine ore stockpile for use if the crushing circuit is not operating. With the removal of the Leach Vat section of the plant, the design has been simplified to a conventional gold recovery plant where the mill operates in closed circuit with cyclone classifiers using both gravity and cyanide/CIP processes to recover the gold.

The grinding circuit is a single stage, incorporating a 535 kilowatt (kW) ball mill with closed circuit classification and gravity concentration. Crushed ore is fed to the mill directly from the crushing circuit or via the emergency feed bin and feeder. Quick lime is added to the ore fed to the ball mill in order to increase alkalinity, thereby inhibiting the generation of HCN gas.

Coarse gold is recovered from the mill discharge by Knelson concentrators. The gravity concentrate from the Knelson concentrators is fed to a concentrate storage hopper, where it is stored for further treatment using intensive cyanidation via a Consep Acacia reactor. The cyclone overflow is treated in a CIP circuit. Ground ore gravitates from the cyclone overflow to the trash screen to remove any waste material and is then pumped to the leach circuit. Cyanide is added to the leach tank along with spent electrolyte. The leached slurry flows to the Pumpcell™ adsorption circuit for gold recovery. The adsorption circuit comprises six tanks with an internal launder system, discharge and feed pipes, launder gates and plug valves with a combined agitator/screen mechanism. All tanks in the adsorption circuit are the same size and the top of the tanks are at the same level. Pulp is fed to the circuit via the feed launder located above the tanks.

Cyanide is used to leach gold from the ore slurry in the leach circuit. This is controlled by the operator who takes regular solution samples from the leaching circuit and then titrates the sample to determine the free cyanide concentration. The operator then adjusts the ball valve on the cyanide dosing line to increase or decrease the cyanide dosage rate. Small amounts of cyanide are also used in the Acacia reactor treating gravity concentrate and the Zadra strip recovering gold from the carbon. Spent solutions from these processes are returned to the leach circuit.

Loaded carbon is transferred by a carbon pump from the adsorption circuit to the 2 t rubber lined elution column and is stripped using Zadra technology. Acid washing of the carbon is carried out using 3% HCl either with recirculation or static “soak”. After acid treatment the carbon is drained and washed with potable water, the wash residue being discarded to the .tailings hopper. Gold is then stripped from the carbon using a 2% cyanide, 2% caustic soda solution and electroplated onto steel wool. A diesel-fired barring furnace is used to smelt the cathode sludge to produce doré bullion.

5.2.2. Coyote Offices, Workshop and Stores

Knowledge Base

The Coyote offices consist of a number of transportable buildings located adjacent to the Process Plant utilised for exploration and administration comprising crib rooms, ablutions and medic station covering 0.34 ha (**Plate 18**). The workshops at Coyote are also adjacent to the plant and consist of steel frame sheds, over concrete pads, covering 0.33 ha. A washdown bay is located on the east side of the workshop, comprising a 15 m by 5 m concrete pad, with oil / water separation system and sump. Between the Offices and workshop and adjacent to the water treatment ponds lies a storage compound and laydown covering 0.53ha. In total, the Coyote offices, workshop and stores cover 1.20 ha.

Plate 18: Coyote offices, workshop and stores, looking west, November 2013

5.2.3. Power House, Fuel Storage and Refuelling bay

Knowledge Base

Power is supplied by a 2 megawatt (MW) diesel power house located at Coyote. The power house covers 0.20 ha and is located directly adjacent to the Coyote fuel storage (**Plate 19**). Diesel fuel is stored on site in a purpose-built storage facility covering 0.18 ha. The facility has a capacity of approximately 500,000 litres (L), although only around 400,000 L is held on site at any time. The bunded storage areas have been constructed to contain a minimum of 110% of the capacity of the largest storage tanks. Oil and other lubricants are stored in 1000 L tanks or 205 L drums within bunded facilities. Waste hydrocarbon products are stored in bunded facilities and are transported off site for appropriate disposal on a regular basis. Fuel is supplied to the powerhouse via a buried pipeline from a header tank in the Fuel Storage. An overhead power line corridor runs from the powerhouse to the Accommodation Village and covers 1.12 ha. Underground dewatering infrastructure is also supplied with power via overhead wires.

Plate 19: Power house, fuel storage and refueling bay, looking west, November 2013

5.2.4. Reverse Osmosis Plant

Knowledge Base

A reverse osmosis (RO) plant is located adjacent and to the south of the process plant, and covers 0.08 ha. The RO plant supplies fresh water to the accommodation village and office facilities, from four tanks (see **Plate 17**). Raffinate from the RO plant is discharged to settling ponds to evaporate.

5.2.5. Coreyard and Workshop

Knowledge Base

A covered coreyard and workshop covers 0.22 ha and is located at the northern end of Coyote (**Plate 20**). The workshop is sited on a concrete pad, while the coreyard sits atop of a pad composed of crushed fresh rock from the underground operation.

Plate 20: Coreyard and Workshop, looking west, November 2013

5.2.6. Coyote Laydown

Knowledge Base

The Coyote laydown is composed of a central area south of the coreyard and workshop utilised as a heavy machinery and support infrastructure laydown and a contractors laydown which is located alongside the site ring road on the eastern flank of the site, the combined areas covers 1.27 ha. The contractors laydown is used as a staged laydown for incoming and outgoing freight, core trays and drilling contractor equipment (**Plate 21**). The contractor's laydown also contains a loading ramp, for loading vehicles and machinery onto semi-trailers.

Plate 21: Coyote site looking west, November 2013

5.2.7. Boneyard

Knowledge Base

The boneyard is located at the southern side of the site, adjacent to the process plant and ROM Pad covering 0.98 ha. The boneyard is used as a laydown for machinery parts (**Plate 22**). Due to the location of the site, it is unlikely scrap steel and other materials will be recycled, with scrap steel and other inert waste likely buried at the licenced inert landfill or disposed underground at closure.

Plate 22: Boneyard, looking west November 2013

5.2.8. Tailings Storage Facility Laydown

Knowledge Base

The TSF Laydown is located at the northern end of the site adjacent to eastern embankment of Coyote TSF cell two (see Plate 21), and covers 2.32 ha. The TSF Laydown contains the concrete batching plant, alongside a small stockpile of crushed fresh rock, and larger stockpiles of laterite. The TSF laydown is also used as a general laydown and hosts a number of disused water and fuel tanks and a number of drill rods and core trays. At the northern end of the TSF Laydown is an area previously used as an emergency response team training area. This area is currently not used, and hosts a number of old vehicles.

5.2.9. Explosives Magazine

Knowledge Base

The explosives magazine is located approximately 500 m south of the open pit, and covers 1.68 ha. The main compound is fenced around a central shed, with a number of transportable containers. The area around the shed is sheeted in crushed fresh rock. The east end of the compound consists of a 0.2 ha ammonium nitrate laydown pad built in 2011 (**Plate 23**). The entire facility is surrounded by a firebreak, which has an approved disturbance of 4.9 ha (TGNL 2011b).

Plate 23: Explosives magazine, November 2013

5.2.10. Putrescible and Inert Landfills

Knowledge Base

Coyote has three landfill sites (see **Figure 18**), a licenced putrescible landfill located to the north of TSF cell 1, a licenced inert landfill in the decommissioned vat leach cells to the south of TSF cell 2, and a decommissioned landfill buried under a small southern finger of the Coyote WRL. The putrescible landfill originally consisted of an 180 m long trench, with the tip face covered with a belkan cage to prevent windblown rubbish and access to the rubbish by scavengers such as dingos. The putrescible landfill covers 0.47 ha of the 1.2 ha licenced, and any remaining open trenches will be covered at closure.

The inert landfill is contained within the leach vats which are 120 m long trenches battered to 4 m deep in the centre. To ensure that the tipping area is less than 30 m it has been broken into a series of 30 m cells. The landfill also has a safety windrow along the front of the tip face to prevent stormwater entering the landfill. The landfill is covered on a weekly basis (TGNL 2013). The location of tyres buried within the inert landfill, is recorded and defined within the AER. The inert landfill covers 2.07 ha of the 3.06 ha licenced, and any remaining area of the inert landfill will be covered with waste rock from the immediately adjacent Coyote WRL at closure.

5.2.11. Bioremediation Area

Knowledge Base

Hydrocarbon contaminated soils are treated at the bioremediation area. The bioremediation area is located to the south of the open pits within the flood diversion bund to prevent in-undulation from regional runoff. To maintain biological activity the facility is watered, fertilised and tilled at least monthly, with a soil thickness of 0.6 to 1.5 m maintained. During the 2012/13 reporting period a total of 57.25 m^3 was taken to the bio-remediation facility, with approximately 40 m^3 taken to the putrescible landfill after treatment. Before any remediated soil is removed from the facility it is analysed for hydrocarbons at a NATA accredited laboratory (TGNL 2013).

5.2.12. Sewage Treatment Facility

Knowledge Base

The Sewage Treatment Facility consists of an above ground, self-contained sewage treatment plant, covering 0.02 ha and manufactured by Enviroflow water technologies (**Plate 24**). The plant processes raw sewerage at a rate of 300 L/person/day to cater for a total daily inflow of 30,000 L. The sewage treatment plant treats raw sewerage and grey water to accepted health standards and will include nutrient reduction capabilities to achieve nitrogen and phosphorus levels acceptable for sub surface irrigation in accordance with DEC guidelines. The bulk of the excess water is pumped to the TSF to evaporate.

An existing leach drain will be maintained to dispose of any excess or for use during rain events when the lawns are already saturated. The treated solid material will be removed from the system as required and transferred to the site bioremediation facility. This organic matter will assist in the breakdown of hydrocarbons in the contaminated soil (TGNL 2006a, Enviroflow 2007).

Plate 24: Coyote Sewerage Plant, November 2013

5.2.13. Airstrip

Knowledge Base

The Coyote Airstrip was built in 2006, and covers 21.5 ha, which includes the airstrip, apron and access road from Tanami highway (**Figure 26**). Initial plans were modified to reduce the impact of clearing on laterite rise habitat favoured by the Bilby (TGNL 2005b).

A shire borrow pit is located immediately adjacent to the northern side of the airstrip. However, conditions set do not allow for disturbance of the existing borrow pits. Currently this shire borrow pit area still consists of open excavations, although vegetation has covered the majority of the area. Laterite material for construction of the airstrip was instead sourced from an area adjacent to the apron and alongside the runway, and a small pit to the north east with these areas since rehabilitated. The strip is utilised by the Royal Flying Doctor Service (RFDS) to service the Tanami highway, and is unlikely to be rehabilitated at closure. Consultation will be undertaken to determine if a third party would like to retain the airstrip.

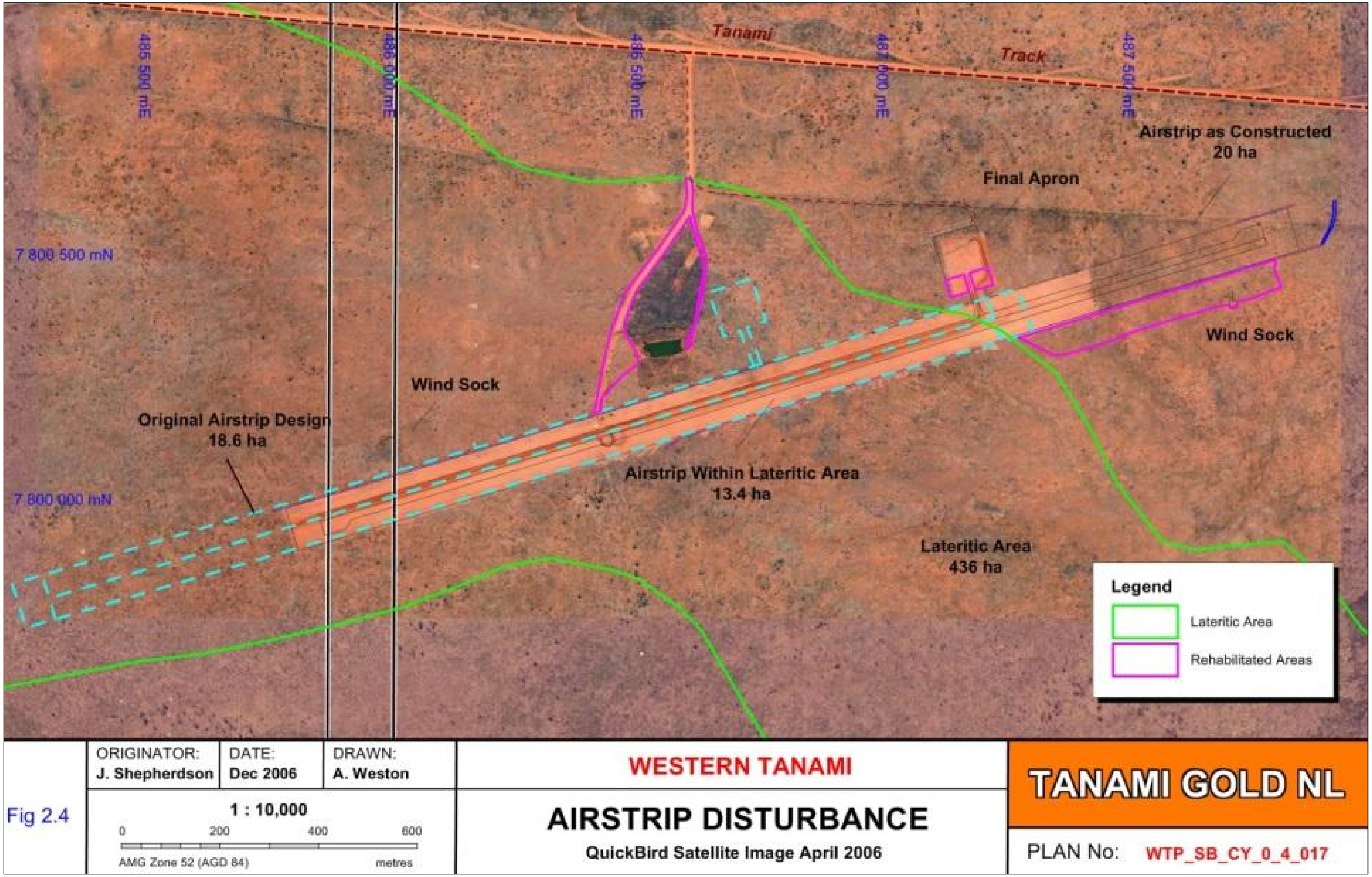

Figure 26: Airstrip final disturbance outline (TGNL 2007d)

5.2.14. Accommodation Village

Knowledge Base

The accommodation village covers 3.86 ha and is located approximately 1 km to the northeast of Coyote and was built in 2007 following the decision to relocate the original accommodation village (dubbed 'Exploration Coreyard' for the purposes of this report) located approximately 10 km to the west of Coyote. The village contains 48, four room transportable accommodation buildings, configured in pairs with a covered deck between the buildings. A 24 m x 18 m administration building (built from transportable blocks), a gym, wet mess and a number of transportable laundry buildings also exist on the site. Pathways are sheeted with crushed fresh rock. A walk track sheeted with crushed rock runs alongside the power line corridor connecting the accommodation village to Coyote mine site.

5.2.15. Bald Hill Administration

Knowledge Base

The Bald Hill administration covers 1.33 ha, and was used during the mining campaigns at Bald Hill. The infrastructure at the site currently consists of four demountable buildings, a communications tower and a water tank (**Plate 25**). In addition a small stockpile of crushed fresh rock lies adjacent to the demountable buildings. A small stockpile of used tyres at the site will be removed and buried at the licenced inert landfill at Coyote.

Plate 25: Bald Hill administration, looking southwest from Bald Hill WRL, November 2013

5.2.16. Bald Hill Storage Compound and Laydown

Knowledge Base

A fenced Storage Compound is located on a Laydown immediately adjacent to the Sandpiper ROM Pad and covers 0.62 ha. The fenced area has been sheeted with crushed fresh rock and was used as a storage compound during mining campaigns at Bald Hill.

5.2.17. Industrial Infrastructure Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the industrial infrastructure domain (**Table 21**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. One high risk was identified for the Putrescible and Inert Landfill during the closure risk assessment and is summarised in **Section 8.**

Table 21: Industrial Infrastructure knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• volume of contaminated material to dispose of at closure, in particular around the fuel storage facility, process plant, workshops and bioremediation area • volume of core to dispose of or process at closure • potential for scrap recycling • volume and types of materials to be disposed of and/or buried on site at closure	• unplanned closure costs • inappropriate closure planning • corporate cost blowout • failure to comply with license • contaminated sites register • soil contamination
• infrastructure to be retained by a third party post closure and transfer of assets	• failure to meet stakeholder expectations

5.3. Mining Infrastructure Domain

The Mining Infrastructure domain comprises the following features:

- Coyote Open Pit;
- Coyote Underground;
- Sandpiper Open Pit;
- Kookaburra Open Pit; and
- Osprey Pit and Laterite Re-handle Area.

5.3.1. Coyote Open Pit

Knowledge Base

The Coyote Open Pit was originally opened as four separate pits (pits 1 to 4) that were later merged into two pits separated by a narrow neck. TGNL later re-optimised the pit design resulting in a single, larger pit with the narrow neck cutback to approximately 5 mBGL (**Plate 26**). At this time the area of disturbance increased by 2.2 ha to 16.2 ha. This cut back resulted in mining to approximately 60 metres at the deepest point in what was originally pit 2. The crest of the north-eastern end of the pit is located 55 m from the closest point of the toe of the ROM Pad. An abandonment bund was built around the open pits, outside the zone of potential instability and also acted as a flood protection bund (TGNL 2006b). The bund will require closing at the eastern end, where it will block the access road and adjoin the ROM Pad. The existing surface water diversion and abandonment bunding will be left in place at closure to prevent flooding of the pit.

The waste to ore ratio for the Coyote Open Pit was 30 to 1, with waste placed in the Coyote WRL (see *Section 5.1.1*).

The eastern section of the pit has been backfilled largely to ground level, over an area covering 2.63 ha. This area was shaped into an impromptu evaporation facility in 2010. However, a short time after utilising the area for evaporation of dewatering, TGNL received a $10,000 fine from the DMP and the area has not been used since. This area has not been rehabilitated and currently requires reshaping and remediation. However a section of the southern embankment has been rehabilitated.

Plate 26: Coyote Open Pit looking west, November 2013

Groundwater level is expected to reach a height of approximately 13 mBGL within three years of cessation of dewatering with low to medium salinity expected. A layer of rain water and surface runoff is expected to accumulate on top of the groundwater, potentially resulting in a final water level of 5 to 10 mBGL (TGNL 2005a).

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Coyote Open Pit (**Table 22**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Coyote Open Pit during the closure risk assessment.

Table 22: Coyote Open Pit knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• rehabilitation requirements for the backfilled pit area	• unplanned closure costs • failure to meet stakeholder expectations
• adequacy and completeness of abandonment bunds	• public safety • failure to achieve relinquishment

5.3.2. Coyote Underground

Knowledge Base

The Coyote Underground was opened in 2008 via a portal and a number of adits in Coyote pit 2. Coyote pit 2 now accounts for the south-western half of Coyote Open pit, since the four original pits have been merged. A number of disused adits exist at the western end of the Coyote pit 2, with the active decline portal located at the eastern end of the Coyote pit 2 alongside an adit and vent shaft at approximately 30 mBGL. At this depth the decline portal, vent shaft and adit will be 10 to 20 m below the pit lake at closure. However the top two adits at the western end of the pit may be at or only just below the final pit water level during the dry season.

The underground workings provide access to further resource base with underground development outlined in mine planning at the time Coyote went into Care and maintenance (**Figure 27**). In addition to the resources currently defined, a deeper mineralised zone has been identified, as the Kavanagh lode and is being defined during the current care and maintenance period (**Figure 28**).

It was reported that in 2009, 'that the underground workings are currently approximately 198.5 mBGL (CYPB08) and that groundwater is draining towards this level at a rate of approximately 257 kilolitres per day (kLd^{-1})' (KH Morgan 2009). Groundwater abstraction increased in 2009/10 to 380 kLd^{-1} and was predicted to increase substantially further during the 2010/11 period to 3,000 kLd^{-1} (TGNL 2010b). Abstraction rates to dewater the underground at the time of writing are approximately 2,300 kLd^{-1}.

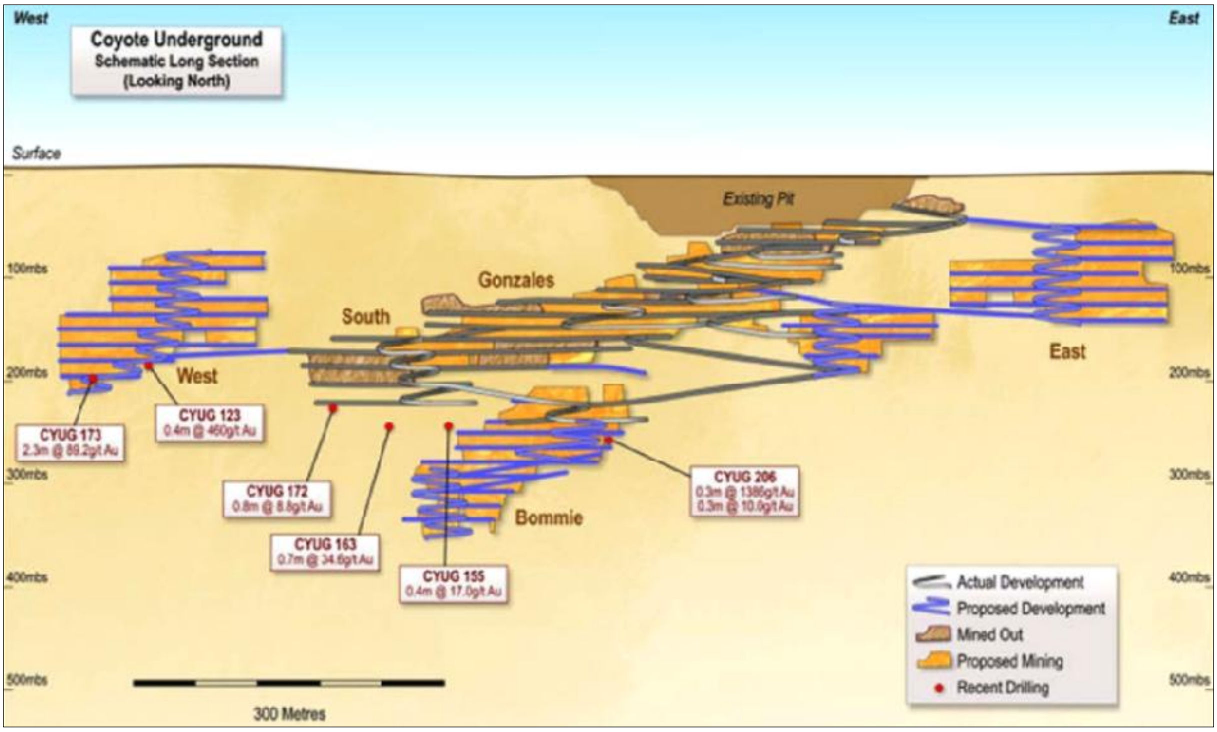

Figure 27: Coyote Underground, current and planned development (TGNL 2013)

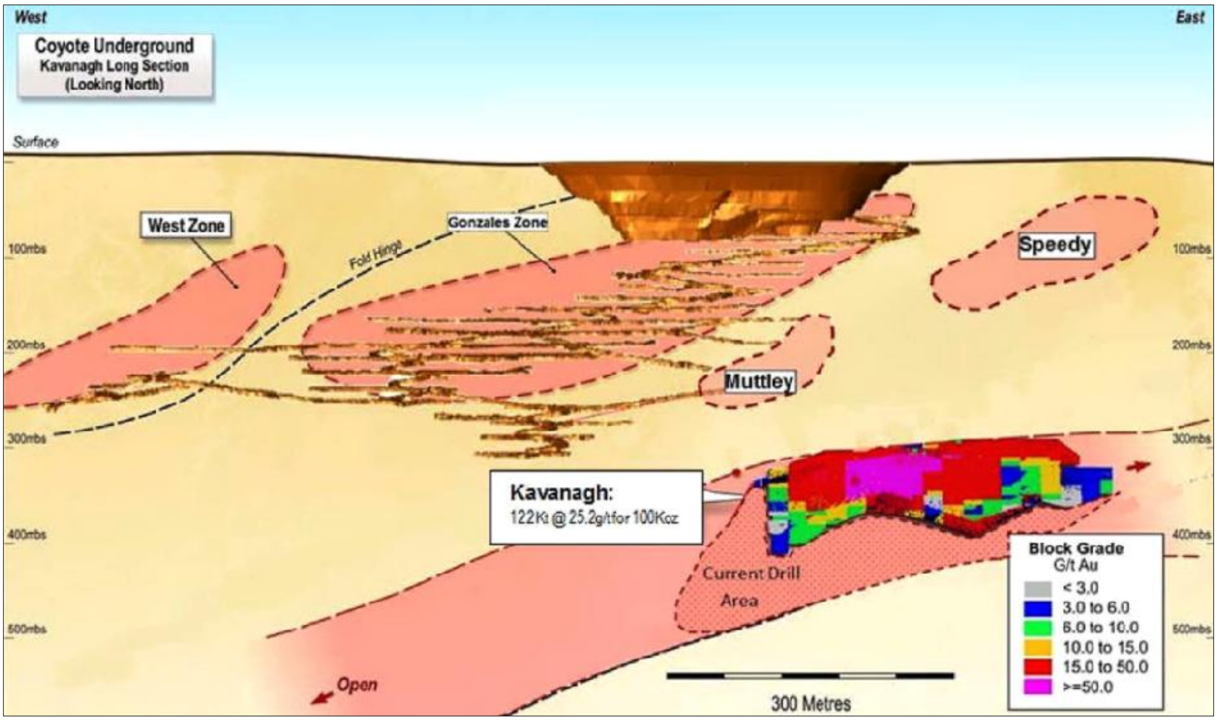

Figure 28: Coyote Underground, Kavanagh lode (TGNL 2013)

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Coyote Underground (**Table 23**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Coyote Underground during the closure risk assessment.

Table 23: Coyote Underground knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• available resource and potential life of mine	• life of mine plan changes
• whether any adits will be exposed above the pit lake water level post closure	• unauthorised access to underground • public safety

5.3.3. Sandpiper Open Pit

Knowledge Base

The Sandpiper Open Pit has been mined to approximately 50 mBGL and covers 5.52 ha. Since the completion of the second stage of mining in 2011 (when groundwater abstraction ceased), saline groundwater (23,000 to 26,000 mg/L TDS) has begun to flow into the Sandpiper (**Plate 27**) and Kookaburra Open Pits. The aquifer has a low hydraulic conductivity and a low hydraulic gradient, so it is expected that saline groundwater inflow into the pit will be very slow and there will not be substantial groundwater through-flow to and from the pits, once the groundwater table has stabilised (PB 2007). The final water quality will be variable, with surface water expected to be brackish and deeper water saline. It is plausible that the addition of rainfall and surface runoff after episodic rainfall events will result in an increase in the water level. The existing drainage channels will be left in place to direct water away from both the Sandpiper and Kookaburra Open Pits.

The relatively low rainfall and extremely high evaporation rate is expected to result in a final pit water level of between 10 and 20 mBGL, with the potential for a fresh water layer of up to 1 m in thickness developing in the Sandpiper and Kookaburra Open Pits during the wet season. It is expected that this fresh water layer will evaporate over the following dry season. Therefore, it was concluded that fresh water in the Sandpiper and Kookaburra pits may accumulate over the short periods of high rainfall, but will not dwell over several months due to a greater net evaporation than net rainfall. It was not expected that animals will seek either pit as a source of drinking water (PB 2007).

Long-term monitoring of abandoned pits from other mining activity in the Tanami region has indicated that camels are not attracted to water in the pits. There are numerous other permanent, semi-permanent and temporary fresh water sources in the area including Slatey Creek to the north of the site, stock watering points and gravel pits along the Tanami Road (TGNL 2007c).

The overall waste to ore ratio for the Sandpiper Open Pit was 10.5 to 1.

Plate 27: Sandpiper Open Pit, looking west, November 2013

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Sandpiper Open Pit (**Table 24**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Sandpiper Open Pit during the closure risk assessment.

Table 24: Sandpiper Open Pit knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• potential resource for further mining	• unplanned closure costs • failure to meet stakeholder expectations
• potential to backfill the open pit	
• adequacy and completeness of abandonment bunds	• public safety

5.3.4. Kookaburra Open Pit

Knowledge Base

The Kookaburra Open Pit is located in the Bald Hill Project Area, is approximately 90 m deep and covers 8.07 ha. As stated in the Sandpiper Open Pit knowledge base, current open pit reserves have been mined out, although both the Sandpiper and Kookaburra Open Pits at Bald Hill are reported to have underground potential. The minor slip on the western pit shell occurred during mining. Observations during a site assessment in November 2013 noted that a considerable pit lake had developed in the Kookaburra Open Pit (**Plate 28**). The overall waste to ore ratio for the Kookaburra Open Pit was 6.5 to 1.

Plate 28: Kookaburra Open Pit looking north-west November 2013

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Kookaburra Open Pit (**Table 25**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Kookaburra Open Pit during the closure risk assessment.

Table 25: Kookaburra Open Pit knowledge gaps and associated risks

Knowledge Gaps	Associated Risk
• potential resource for further mining	• unplanned closure costs • failure to meet stakeholder expectations
• potential to backfill the open pit	
• adequacy and completeness of abandonment bunds	• public safety

5.3.5. Osprey Pit and Laterite Re-handle Area

Knowledge Base

During November and December 2012 a small scale mining operation was undertaken at the Osprey deposit. A total of 15,927 t (or 7,273 bank cubic meters (BCM)) of ore was mined from the Osprey deposit, forming a shallow pit to a total depth of approximately 5 m (TGNL 2013). Operations were suspended in December due to the wet season and rehabilitation work was subsequently conducted. The rehabilitation works incorporated backfilled the pit with lateritic waste to leave a gentle depression. The area was then covered using the stockpiled topsoil and vegetative material, and seeded (**Plate 29**). The Osprey Pit covered 0.55 ha, the surrounding laterite re-handle and topsoil area covered 1.56 ha.

The currently defined Osprey resource is restricted to this laterite mineralisation (to a maximum depth of 5 m) and underlying highly weathered dolerite and vein material (to a maximum depth of 18 m). All materials mined were devoid of sulphides with Total S values less than 0.3%, and are classed as NAF (Landloch 2012c). Since there is to be no waste landform construction from the materials from the Osprey Deposit, the clay content of the materials will not pose dispersion issues (TGNL 2012d).

Plate 29: Osprey Pit and Laterite Re-handle area rehabilitation, November 2013

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Osprey Pit and Laterite Re-handle Area (**Table 26**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Osprey Pit and Laterite Re-handle Area during the closure risk assessment.

Table 26: Osprey Pit and Laterite Re-handle Area knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• potential resource for further mining	• unplanned closure costs • failure to meet stakeholder expectations
• potential source of laterite material for use in rehabilitation	• insufficient rehabilitation materials • unplanned closure costs
• requirement to undertake rehabilitation monitoring	• rehabilitation failure

5.4. Water Management Structures Domain

The Water Management Structures domain comprises the following features:

- evaporation and raw water pond;
- leach vats;
- water treatment ponds and turkeys nest;
- Bald Hill evaporation dam;
- Bald Hill turkeys nest;
- flood diversion drain and bund;
- surface water sump; and
- Bald Hill flood protection and abandonment bund.

5.4.1. Evaporation and Raw Water Pond

Knowledge Base

A High Density Polyethylene (HDPE) lined evaporation pond (EP) is located adjacent to TSF Cell One and the Coyote WRL. The EP is composed of two cells, with the southern corner utilised as raw water storage for the process plant (**Plate 30**). The raw water dam or southern corner of the evaporation pond receives decant return water from the TSF, while water generated from dewatering the underground workings is discharged into the larger cell of the EP.

Plate 30: Evaporation and Raw Water Pond, November 2013

The EP is operated with an ‘operational’ freeboard of 0.6 m; this enables the EP to contain the design rainfall event of a 1 in 100 year ARI 72 hour storm event (290 mm). The design freeboard also makes allowance for wave action (TGNL 2005c). Water balance analyses utilising average rainfall and evaporation figures were undertaken in order to size the evaporation pond.

The embankments forming the EP are constructed by cut to fill earthworks using sand, gravely sand and sandy gravel materials sourced from within the facility. The maximum embankment height is ~ 4 m. The outer embankments had design slopes of 1V:2H downstream and 1V:3H upstream. A 1 mm HDPE liner is installed on the floor and sides of the facility in order to minimise the potential for seepage and possible water flow back to the pits (TGNL 2005c). The EP has a design storage capacity of approximately 590,000 m^3 (excluding a freeboard allowance of 0.6 m) with a maximum water depth of approximately 3 m.

The water quality of the Evaporation and Raw Water Pond has been monitored since 2009. A summary of the results are presented in **Table 27** below. Arsenic values ranged from 1.0 to 2.8 mg/L during the 2012 reporting period (TGNL 2013).

Table 27: March 2012 to February 2013 Evaporation and Raw Water Pond water quality (TGNL 2013)

Water Quality Parameter	Mean	Minimum	Maximum	No. Samples
pH	8.7	8.2	9.2	11
TDS (mg/L)	11,682	11,000	13,000	11
Total As (mg/L)	1.87	1.0	2.8	11
CN_{Total}	<0.004	<0.004	<0.004	7
CN_{WAD}	0.004	<0.004	0.020	7

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the evaporation and raw water pond (**Table 28**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the evaporation and raw water pond during the mine closure risk assessment.

Table 28: Evaporation and Raw Water Pond knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• ability to maintain freeboard during care and maintenance	• overtopping • failure to comply with licence
• water quality of contained water	• water: alteration of water quality • soil: contamination
• integrity of the HDPE lining of the ponds • potential for contamination	

5.4.2. Leach Vats

Knowledge Base

Initially the process stream included a HDPE lined Leach Vat heap stage. Cyanide was applied to the Leach Vats at concentrations in the order of 200 mg/kg. However, this method proved unsuitable for treating the Coyote ores and was discontinued in December 2006, with the remaining cyanide solution recovered from the vats at this time. Seven Leach Vats were constructed, with only three remaining intact at present. The three intact vats cover 2.18 ha and are currently utilised as evaporation ponds, although they still contain tailings the HDPE liners are intact. The additional four vats cover 2.07 ha and are utilised as a licenced inert landfill. The Leach Vats are located adjacent to the main WRL, allowing the surface of these vats to be readily covered with waste rock as part of the final closure plan (Cooper 2005). It is proposed that subsequent to waste rock being pushed down over the surface of the vats that the surface water management for the seven leach vats will be incorporated into the final landform design for the Coyote WRL.

The Leach Vats are formed by the construction of embankments using a combination of "cut to fill" from within the vats (**Figure 29**), with selected waste rock taken directly from the open pit, or from areas of the WRL (Cooper 2005). The embankments were formed by compacting the selected rockfill in layers at optimum moisture content. The embankments were overfilled on both faces to allow compaction to the edge of the embankment section. Uncompacted fill was trimmed back to compacted material using a hydraulic backhoe, in order to provide a stable surface for the liners. The geometry of the vats is as follows:

- base area 110 x 10 m;
- depth 4.8 m (2.8 m above N/S);
- embankment section - crest 5 m;
- upstream slope 1:1.5 (V:H); and
- downstream slope 1:1.5 (V:H).

Beneath the ore there is a 300 mm thick filter layer which encloses a system of Polyvinyl Chloride (PVC) filter pipes used for pumping water (and pregnant liquor) in and out of the vats; there are no pipes passing through the embankments. An allowance of 500 mm was made for freeboard; no emergency spillway was incorporated into the design. The first row of vats was formed by excavating to a depth of 4.8 m, with the depth of ore limited to 4 m in the cells (Cooper 2006). The vats were designed to only be used once; hence they serve as a permanent containment for the ore following the extraction of the gold, as there is no excavation of material from the vats.

The embankment slopes are steeper than would normally be used for water retaining structures. However the stability of the embankments will be assured for the following reasons:

- the fill will be of a high frictional value material and the compacted fill will be very strong;
- the fill will not be subject to any seepage pressures (see below);
- the embankments will only be subject to full loading (full hydrostatic pressure) for a very short period (approximately 40 days); and,
- the downstream faces of the embankments, forming all but the final line of vats, will become internal embankments as soon as the adjacent line of vats has been constructed.

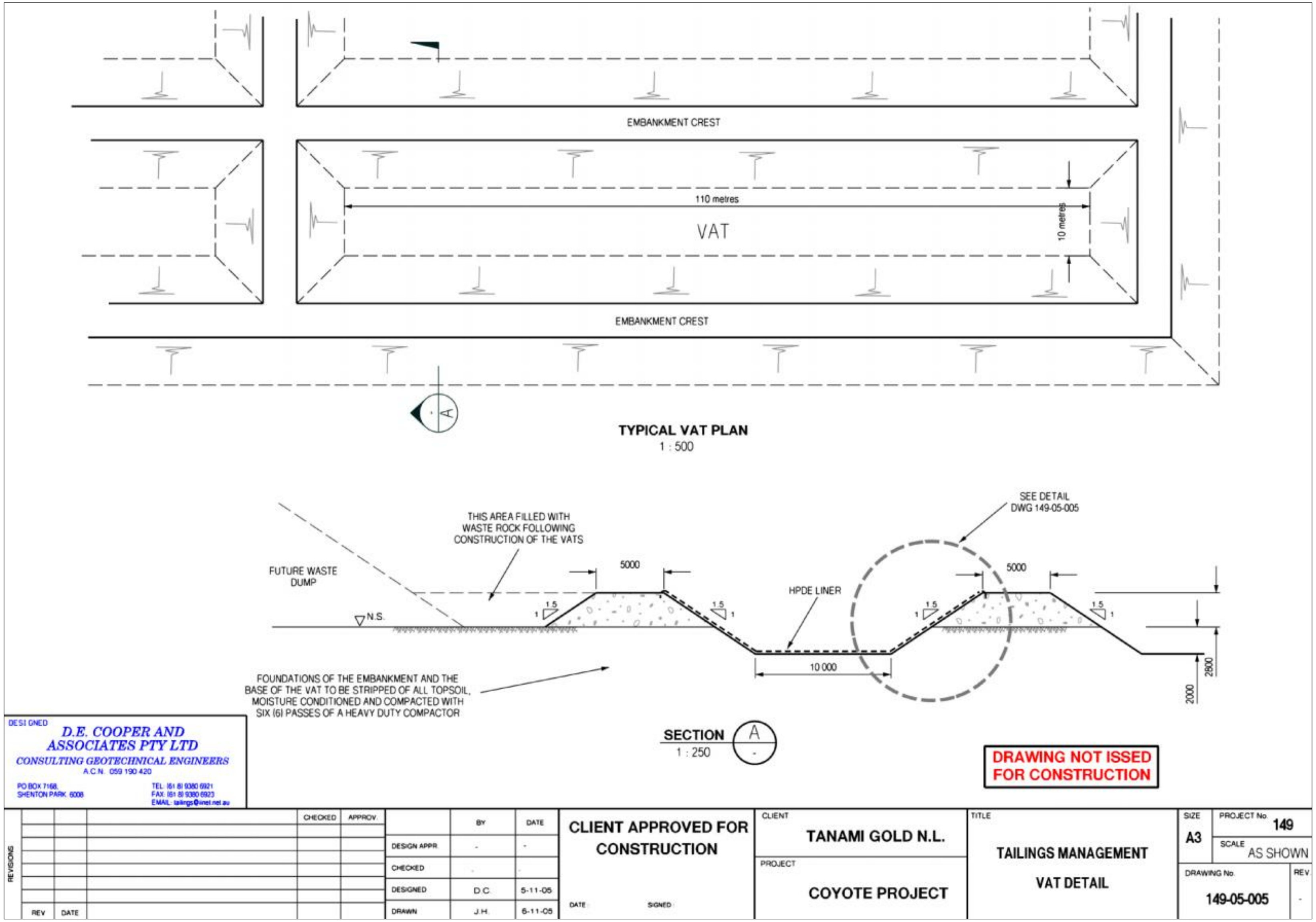

Figure 29: Leach Vat design (Cooper 2005)

Rehabilitation of the former Leach Vats commenced in 2009; work commenced at the eastern end and at this stage has involved removal of ore, tearing the liner to allow water penetration and backfilling the void with mine waste (TGNL 2010c). Subsequent to this work, the eastern four leach vats were licenced as a Class 1 inert landfill, and have been excavated for the burial of inert waste. Considerable capacity remains in the inert landfill. Three HDPE lined leach vats remain onsite and will be decommissioned at closure.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks are identified for the Leach Vats (**Table 29**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. One high risk was identified for the Leach Vats during the closure risk assessment and is summarised in **Section 8.**

Table 29: Leach Vats knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• integrity of the HDPE lining of the ponds	• water: alteration of water quality • soil: contamination
• potential for contamination underlying the rehabilitated leach vats	• contaminated sites register
• quality of water contained within the leach vats	• water: alteration of water quality • soil: contamination • unplanned closure costs
• final landform design incorporating surface water management on the WRL as well as a component of the site wide conceptual surface water management plan	• slope erosion • inappropriate closure planning

5.4.3. Water Treatment Ponds and Turkeys Nest

Knowledge Base

A series of four HDPE lined water treatment ponds are utilised for sediment settling and evaporation of raffinate from the Reverse Osmosis plant. The water treatment ponds are located at the western edge of the plant site, adjacent to the eastern edge of TSF cell 2. The Coyote Turkeys Nest is located at the eastern edge of the plant site on the Coyote Laydown. The Coyote Turkeys nest is also HPDE lined, and is utilised to collect potentially contaminated water from the washdown bay and core cutting saw. The turkeys nest is periodically emptied, with water disposed of at the evaporation pond and sediment remediated at the bioremediation facility. The water treatment ponds cover 0.32 ha and the turkeys nest 0.06 ha.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the water treatment ponds and turkeys nest (**Table 30**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Water Treatment Ponds and Turkeys Nest during the closure risk assessment.

Table 30: Water Treatment Ponds and Turkeys Nest knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• integrity of turkeys HDPE liner	• water: alteration of water quality • soil: contamination
• water quality contained within ponds	• water: alteration of water quality • soil: contamination • unplanned closure costs
• potential for contamination	• contaminated sites register

5.4.4. Bald Hill Evaporation Dam

Knowledge Base

Construction of the floor of the dam entailed stripping away topsoil and gravel to reach competent material and importing high-clay content material gained from pre-stripping of the open pits (Shepherdson 2008). The floor was then completed by spreading the clay material to an even depth of approximately 300 mm, moisture conditioning and compacting with a heavy duty compactor to achieve maximum water retention (as per any agricultural water dam). In addition, a key trench was excavated to the depth of the clay layer (**Figure 30**).

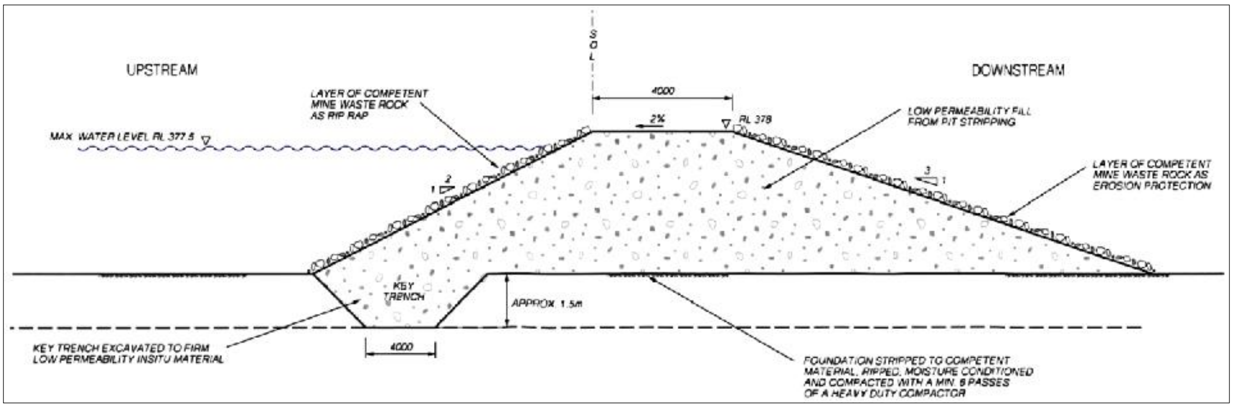

Figure 30: Typical embankment section, as designed by DE Cooper (TGNL 2007e)

It is expected that this method of construction will be effective in preventing seepage from the dam. Furthermore, any seepage from the evaporation pond will in all likelihood report to the open pits due to the large cone of depression formed by the dewatering of the pits. The amount of water which is in circulation between the evaporation pond and the pits is estimated at <1% (TGNL 2007e).

The area surrounding the evaporation dam and its walls have been covered with topsoil and lightly ripped to encourage re-vegetation and stability during the rehabilitation program in May/June 2012 (**Plate 31**). The three monitoring sites established in 2012 around the Bald Hill evaporation dam showed generally excellent vegetation coverage, between 35 to 85% vegetation coverage (TGNL 2013).

The contents remaining in the floor of the evaporation dam have been windrowed up and trucked away to the Kookaburra Open Pit which already contains saline water. The floor of the evaporation dam (**Plate 32)** was sampled for salinity using both field testing equipment and laboratory analysis (**Table 31**). TGNL have previously committed to repeat the sampling process after 12 months to assess whether any more material requires removal before more permanent rehabilitation, due to the potential for capillary salt rise (TGNL 2012d).

Plate 31: Bald Hill evaporation dam rehabilitation, looking south, November 2013

Plate 32: Bald Hill evaporation dam, looking southwest, November 2013

Table 31: Bald Hill Evaporation Pond Floor Salinity Testing Results

Bald Hill EP		Field Result			Laboratory Result		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum
28/05/2012	Conductivity	17,992	525	99,800	N/A		
	TDS	13,000	300	79,800	5,708	1,400	19,000
	pH	8.25	7.24	9.52	7	6.3	8.2
12/06/2012	Conductivity	1,530	154	5,220	N/A		
	TDS	897	89	3,087	704	2	1,900
	pH	8	6.8	8.65	7	6.8	7.9

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Bald Hill evaporation dam (**Table 32**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Bald Hill Evaporation Dam during the closure risk assessment.

Table 32: Bald Hill Evaporation Dam knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• extent of any contamination/ seepage from the Bald Hill Evaporation Pond.	• soil: contamination • contaminated sites register • water: alteration of water quality

5.4.5. Bald Hill Turkeys Nest

Knowledge Base

The Bald Hill turkeys nest lies between the Sandpiper and Kookaburra Open Pits and is HDPE lined occupying 0.10 ha. The turkeys nest currently has a pipeline running to the pit lake in the Kookaburra Open Pit for the collection of water. A standpipe is also still connected to allow the filling of water trucks should mining recommence in the area (**Plate 33**). The facility was recently utilised for the recent trial mining of Osprey deposit.

Plate 33 Bald Hill turkeys nest

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Bald Hill Turkeys Nest (**Table 33**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Bald Hill Turkeys Nest during the closure risk assessment.

Table 33: Bald Hill Turkeys Nest knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• timeframe for decommissioning and rehabilitating the Bald Hill Turkeys Nest.	• increased closure costs

5.4.6. Flood Diversion Drain and Bund

Knowledge Base

A flood diversion drain and bund surrounds the Coyote site with the exception of the magazine and accommodation village and is composed of two features, a diversion drain and a flood protection and abandonment bund (see Plate 26). The diversion drain runs along the eastern and northern side of the Coyote site to protect the process plant and support facilities, TSF, landfills, EP and topsoil stockpiles from flood waters. The diversion drain consists of an outer channel, against an inner laterite bund for a total width of approximately 20 m. A site inspection in November 2013 revealed the Diversion Drain to be stable and re-vegetated (**Plate 34**).

The flood protection / abandonment bund runs along the southern boundary of the Coyote site to protect the Coyote Open Pit and underground portal; this bund turns north at both the eastern and western ends, to key into the Coyote ROM Pad in the east, and Coyote WRL in the west. The bund is approximately 15 m wide, 2.5 m high with a 7 m elevated road running along the upper surface. It is planned that at closure this bund will form the Abandonment Bund for the Coyote Open Pit.

Plate 34: Coyote Diversion Drain, north of Coyote Tailings Storage Facility

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Flood Diversion Drain and Bund (**Table 34**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Flood Diversion Drain and Bund during the closure risk assessment.

Table 34: Flood Diversion Drain and Bund knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• requirement to retain flood diversion drain post closure • re-work / upgrades required to flood diversion drain and bund to be maintained post closure	• flooding • erosion • sedimentation to downstream environments • impacts to the integrity of permanent features.

5.4.7. Surface Water Sump

Knowledge Base

To allow collection of incident rainfall from within the flood protection and abandonment bund, a sump covering 0.16 ha, has been excavated to approximately 3 m at the south-western corner of the bund.

A diesel powered pump and self bunded fuel tank is positioned adjacent to the sump (**Plate 35**). Salt scaring is evident in the base of the sump.

Plate 35: Surface water sump within the Coyote flood protection / abandonment bund

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the surface water sump (**Table 35**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Surface water sump during the closure risk assessment.

Table 35: Surface water sump knowledge gaps and associated risks

Knowledge Gaps	Associated Risk
• salt accumulation at the base of the water collection sump	• impact to surrounding vegetation

5.4.8. Bald Hill Flood Protection and Abandonment Bund

Knowledge Base

A flood protection and abandonment bund of 2 to 3 m height encircles both the Kookaburra and Sandpiper Open Pits. The bund is largely comprised of laterite material, although a section on the north eastern side is composed of open pit waste. This waste appears to be predominantly saprolitic material and does not look to be dispersive. A 200 m section adjacent to the Sandpiper Open Pit is only approximately 1 m high and requires pushing up the required height (more than adequate material is available). It is likely that laterite material was salvaged from this area for rehabilitation of the Bald Hill WRL. To complement this structure and to protect the Bald Hill Evaporation Dam, an additional flood diversion bund extends from the northern tip of the abandonment bund to the north-western corner of the Bald Hill Evaporation Dam (see **Figure 4**). For the purposes of this report the closure and decommissioning tasks for this feature are detailed within with the Bald Hill Flood Protection / Abandonment Bund.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Bald Hill Flood Protection / Abandonment Bund (**Table 36**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Bald Hill Flood Protection / Abandonment Bund during the closure risk assessment.

Table 36: Flood Protection / Abandonment Bund knowledge gaps and associated risks

<table>
<tr><th>Knowledge Gaps</th><th>Associated Risks</th></tr>
<tr><td>• potential to harvest any laterite material from the bund for rehabilitation</td><td>• ineffective decommissioning
• inappropriate closure planning</td></tr>
<tr><td>• requirement to retain the flood diversion bund at closure</td><td rowspan="2">• alteration of surface hydrology
• flooding
• unplanned closure costs</td></tr>
<tr><td>• repair and upgrades required to maintain the bund post closure</td></tr>
</table>

5.5. Groundwater Infrastructure Domain

The Groundwater Infrastructure domain comprises the following features:

- groundwater monitoring bores; and
- dewatering bores and pipelines.

5.5.1. Groundwater Monitoring Bores

Knowledge Base

Five monitoring bores, CYTSF1 to 5 lie at varying distances from the northern half of the Coyote TSF cell 1 and 2 (*see Figure 17*). These bores are regularly monitored to comply with licencing conditions, along with the Raw water dam and underground discharge point.

5.5.2. Dewatering bores and pipelines

Knowledge Base

Eight dewatering bores surround the Coyote Open Pit, to enable the dewatering of the Coyote Underground (see Figure 17). Associated with the production bores is a pump house and transformer supplied with power via a spur line from the power house. Due to the volume and depth of dewatering, several of the production bores are sited on concrete pads.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the Groundwater Infrastructure domain (**Table 37**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Groundwater Infrastructure domain during the closure risk assessment.

Table 37: Groundwater Infrastructure domain knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• whether any groundwater infrastructure will be retained post closure	• failure to adequately consult stakeholders
• condition and rehabilitation requirements of groundwater infrastructure.	• unplanned closure costs

5.6. Roads Domain

The Roads domain comprises the following features:

- site roads;
- Bald Hill Haul Road; and
- exploration tracks.

5.6.1. Site Roads

Knowledge Base

The Site Roads are composed of access and haul roads at the Bald Hill and Coyote Project areas. At Bald Hill 4.8 ha of roads connect the open pits with the WRL, ROM Pads, evaporation dam and site administration area. At Coyote 12.25 ha of roads connect the internal site infrastructure (Open Pit, WRL, ROM Pad, process plant and support infrastructure, evaporation dam and TSF), as well as satellite infrastructure, such as the magazine, accommodation village, exploration coreyard while an additional 0.83 ha connects the airstrip to Tanami Road.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the site roads (**Table 38**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the Site Roads during the closure risk assessment.

Table 38: Site Roads knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• which roads will be retained by a third party post closure	• failure to adequately consult stakeholders
• rehabilitation requirements for each road	• rehabilitation failure • failure to achieve relinquishment
• impact to surface hydrology	• impacts to surrounding vegetation

5.6.2. Bald Hill Haul Road

Knowledge Base

The main access track to Bald Hill was formed in 2004 during seismic surveys of the area by the Western Australian Geological Survey. The track was graded at this time but has had no further development. Subsequently, Miscellaneous Licence L80/45 was placed over this route, and the Bald Hill Haul Road constructed in 2009 (TGNL 2007c).

The haul road will be maintained until all mining to the north of Coyote is complete. The road will then be cut down to its original size (TGNL 2010c). The Bald Hill Haul Road currently covers 39.48 ha.

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for Bald Hill Haul Road (**Table 39**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for Bald Hill Haul Road during the closure risk assessment.

Table 39: Bald Hill Haul Road knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• whether the haul road will be retained by a third party post closure	• failure to adequately consult stakeholders

5.7. Exploration Domain

The Exploration domain comprises the following features:

- drill pads, dumps and tracks; and
- exploration coreyard.

5.7.1. Drill Pads, Sumps and Tracks

Audits of exploration rehabilitation work are conducted internally by TGNL's Exploration Department. The aim of regular auditing is to ensure that exploration rehabilitation work is completed and remains at an accepted standard. **Table 40** below outlines the procedure used for rehabilitating exploration sites, while **Table 41** presents the current rehabilitation status (TGNL 2013). Currently TGNL has 13.4 ha over tenements E80/1481, E80/1483, E80/1677, E80/1679, E80/1737, E80/3238, E80/3388, E80/3845, E80/3846, E80/3847, E80/4306, which is the process of being rehabilitated. The DMP requested that exploration areas are deep ripped during rehabilitation, however a lot of areas have rehabilitated without ripping. TGNL will consult with the DMP on this requirement following assessment of rehabilitated areas.

Table 40: Drill Hole Rehabilitation Procedure (TGNL 2013)

Timing	Type	Action
Immediate on drilling completion	All	Remove all rubbish
	All	Check ground for hydrocarbon leaks, and excavate and remove contaminated soil

Timing	Type	Action
	All	Collar plugged or capped
	DC, RC	Sumps flagged to make visible
	DC	Photograph drilling pad
1-2 months after drilling	All	Check if sumps dry; fill and rake flat
	DC, RC	Rip or rake flat the drilling pad and excavated berms
	RC	Remove sample bags when sample no longer required
	DC, RC	Photograph drilling pad
6-12 months after drilling	AC, RAB	Check no open collar
		Remove survey pegs and flagging
		Check pad and access track is rehabilitating
		Photograph drilling pad
6-12 months after sumps filled, pad raked	DC, RC	Cut and bury collar
		Remove survey pegs and flagging
		Check pad and access track is rehabilitating
		Photograph drilling pad

Table 41: Exploration rehabilitation status (TGNL 2013)

Prospect	Type	Drilling Completed	Immediate Action	1-2 month Action	6-12 month Inspection due	
Coyote	DC	15/11/2009	Complete	Complete	February	2012
Cuckoo	RC	2/12/2009	Complete	Complete	April	2012
Osprey	RC	10/03/2010	Complete	Complete	May	2012
Lyrebird	RC	1/05/2010	Complete	Complete	July	2012
Cuckoo	AC	1/05/2010	Complete	N/A	May	2011
Bald Hill North	AC	9/05/2010	Complete	N/A	May	2011
Big Bustard	AC	8/06/2010	Complete	N/A	June	2011
Roadrunner	RC	15/06/2010	Complete	Complete	July	2012
Camel	DC	26/08/2010	Complete	Complete	June	2012
Hutch's Find	DC	10/09/2010	Complete	Complete	June	2012
Buggsy	DC	22/10/2010	Complete	Complete	October	2011
Sandpiper	DC	22/11/2010	Complete	Complete	November	2011
Cuckoo	RC	22/05/2011	Complete	Complete	May	2012
Osprey	RC	1/06/2011	Complete	Complete	June	2012
Albatross	RC	3/06/2011	Complete	Complete	June	2012
Montecristo	AC	30/10/2011	Complete	N/A	November	2012
Bald Hill North	AC	1/10/2011	Complete	N/A	November	2012
Tent Hill East	AC	10/10/2011	Complete	N/A	November	2012
Big Bustard	AC	21/10/2011	Complete	N/A	November	2012
Popeye-Olive	AC	27/11/2011	Complete	N/A	November	2012
Pebbles North	AC	28/11/2011	Complete	N/A	November	2012
Coyote	DC	9/09/2012	Complete	Complete	November	2013
Coyote	RC	12/04/2012	Complete	Complete	April	2013
Coyote	RC	14/04/2012	Complete	Complete	April	2013
Osprey	RC	28/07/2012	Complete	Complete	August	2013
Mojave	RC	4/08/2012	Complete	Complete	Complete	
Coyote	DC	10/08/2012	Complete	Complete	August	2012
Regional	RAB	24/09/2012	Complete	N/A	September	2013
Regional	RAB	30/09/2012	Complete	N/A	September	2013

Prospect	Type	Drilling Completed	Immediate Action	1-2 month Action	6-12 month Inspection due	
Regional	RAB	1/10/2012	Complete	N/A	October	2013
Regional	RAB	2/10/2012	Complete	N/A	October	2013

5.7.2. Exploration Coreyard

Knowledge Base

The exploration coreyard is all that remains of the original accommodation village, consisting of a small bore shed, core logging shed and associated core trays covering 0.66 ha. The original accommodation village was decommissioned in December 2007 with the transportable buildings transferred to the mine site or new camp. The exploration coreyard is utilised as part of the exploration programme (**Plate 36**). A grader has attempted to rip compacted areas, however areas have been identified for ripping with a bulldozer (**Figure 31**) which will only be available after the next planned TSF embankment raise.

Plate 36: Exploration coreyard, looking southwest November 2013

Knowledge Gaps and Associated Risks

The following knowledge gaps and associated risks have been identified for the exploration domain (**Table 42**). A mine closure risk assessment was undertaken to identify potential risks on impeding mine closure. No high risks were identified for the exploration domain during the closure risk assessment.

Table 42: Exploration Domain knowledge gaps and associated risks

Knowledge Gaps	Associated Risks
• volume of core to dispose at closure	• inappropriate closure planning
• requirement for deep ripping exploration areas • extent of exploration rehabilitation required	• rehabilitation failure • unplanned closure costs

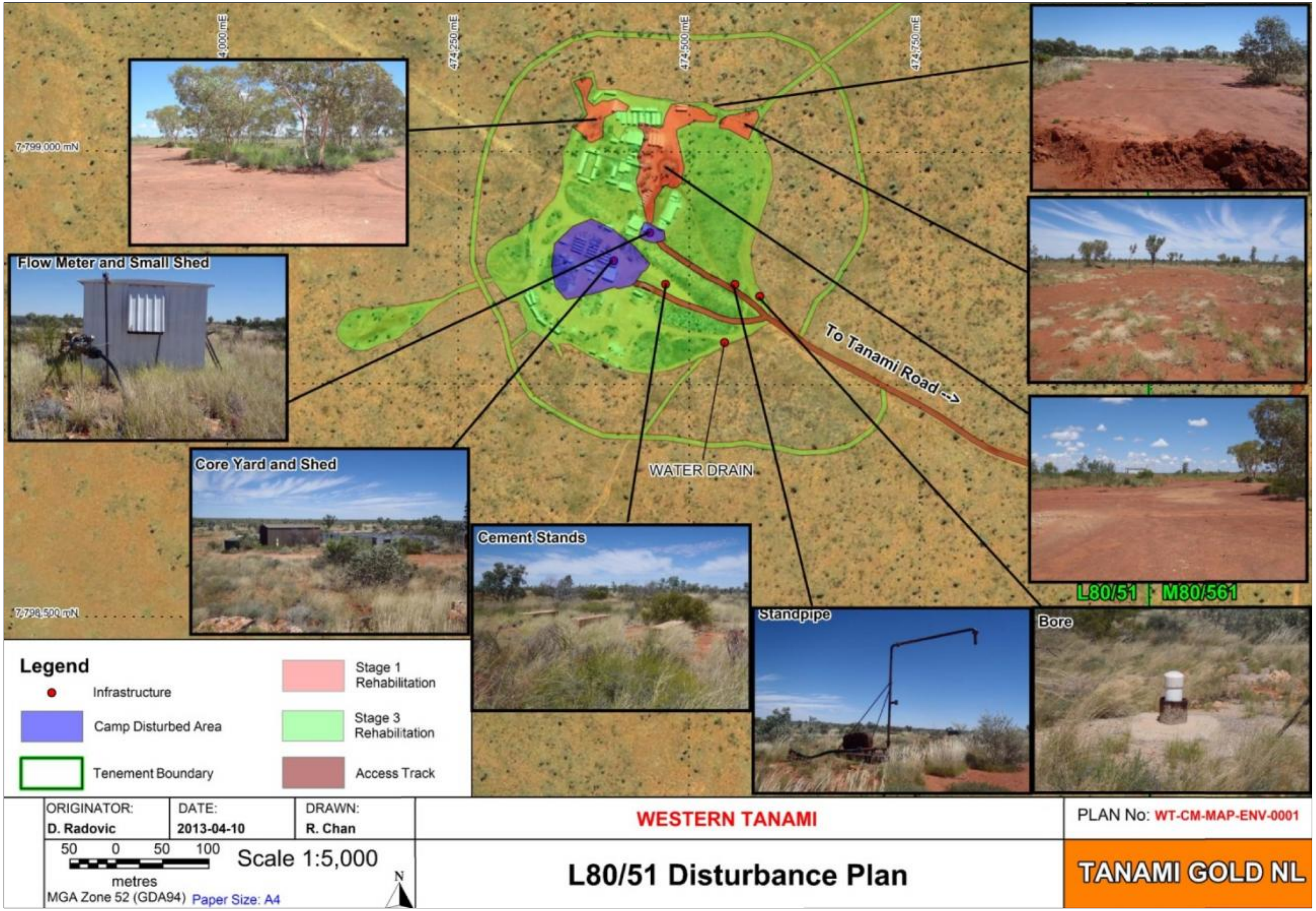

Figure 31: Exploration Coreyard disturbance area

6. STAKEHOLDER IDENTIFICATION

The development of an effective framework for stakeholder consultation is critical to ensure that both primary and secondary stakeholders are able to contribute to the closure planning process, and therefore the final outcomes. Consultation regarding closure of the CGP has been undertaken with relevant stakeholders during the development of the mine. Consultation with key stakeholders will persist throughout remaining phases of the Project, and continue to decommissioning and closure.

Key stakeholders who have been engaged in the closure planning process include:

- Department of Mines and Petroleum (DMP) Environment;
- Department of Environment and Regulation (DER);
- Department of Regional Development (DRD);
- Environmental Protection Authority (EPA)
- Department of Water (DoW);
- Department of Indigenous Affairs (DIA)
- DMP Resources Safety;
- Shire of Halls Creek;
- Environs Kimberley (EK);
- Conservation Council of Western Australia (CCWA);
- Kimberley Land Council (KLC); and
- Tjurabalan Native Title Land Aboriginal Corporation (TNTLAC).

In 2005, EK and CCWA lodged separate appeals against the EPA's level of assessment of the Project and grant of the Clearing Permit. Following consultation with the groups and commitment by TGNL to undertake ongoing biological survey and monitoring work of the Project area and surrounding region, both appeals were withdrawn. TGNL has maintained this commitment and provides EK with updates of biological survey work undertaken. KLC and TNTLAC are supportive of the mining operation and the opportunities it has provided for local communities (TGNL 2007d).

A draft EPS was submitted to the EPA, Environs Kimberley and the Conservation Council of Western Australia for stakeholder feedback in February 2007. Subsequent comments and recommendations received from the EPA Service Unit, Environs Kimberley and the Conservation Council of Western Australia were incorporated into a revised EPS, which was submitted late in June 2007. It was reviewed by the EPA Board on the 12th July, and released for public comment on the 30th July 2007. An appeal was lodged by the Department of Indigenous Affairs (DIA) regarding heritage survey work completed in the area. Following a meeting with the DIA to provide details of the work carried out by TGNL, the appeal was withdrawn.

A stakeholder consultation strategy is presented in **Table 43**, while a detailed stakeholder consultation register is included in **Appendix B**.

Table 43: Stakeholder Consultation Strategy

Stakeholder	Subject / Action	Timeframe
Department of Mines and Petroleum (DMP) Environment	• submit MCP • seek comment on MCP • discussion on utilising Central Tanami rehabilitation data to augment rehabilitation data collected at CGP to develop quantitative completion criteria. • ongoing consultation/ communication on mine status • Annual Environmental Report	• March 2014 - ongoing
Department of Environment Regulation (DER)	• ongoing consultation/ communication on mine status • licencing conditions and renewals • Annual Environmental Report (AER) • Annual Site Inspection	• licence expires 17 July 2017
Environmental Protection Authority (EPA)	• ongoing consultation/ communication on mine status • Annual Environmental Compliance Report and AER • AER publicly available on TGNL website	• ongoing
Department of Water (DoW)	• ongoing consultation/ communication on mine status • licencing conditions and renewals	• ongoing while licence active
DMP Resources Safety	• ongoing consultation/ communication on mine status	• ongoing
Shire of Halls Creek;	• seek confirmation in writing on any commitment to take responsibility for any infrastructure post closure (airstrip, roads, bores etc.) • ongoing consultation/ communication on mine status	• ongoing
Environs Kimberley (EK);	• ongoing consultation/ communication on mine status	• ongoing
Kimberley Land Council (KLC); and,	• seek confirmation in writing on any Commitment to take responsibility for any infrastructure post closure (airstrip, roads, bores etc.) • ongoing consultation/ communication on mine status	• prior to recommencing mining/ decommissioning
Tjurabalan Native Title Land Aboriginal Corporation (TNTLAC).	• seek confirmation in writing on any commitment to take responsibility for any infrastructure post closure (airstrip, roads, bores etc.)	• prior to recommencing mining/ decommissioning

7. POST MINING LAND USE AND CLOSURE OBJECTIVES

7.1. Post Mining Land Use

Tanami Gold NL anticipates the post mining land use for the CGP will revert back to the pre-existing land use of Unallocated Crown Land (UCL). Immediately following decommissioning, the appropriate land use will be 'mine site rehabilitation' for some time until ecosystems have demonstrated to be sufficiently resilient to satisfy closure objectives to the level outlined in the completion criteria.

The TSF, WRLs, and open pits will be permanent features of the landscape. However, the size and location of the final landforms may be altered subject to the nature and extent of future mining campaigns.

Notwithstanding, these features will be excluded by flood protection abandonment bunding to prevent pastoral and native grazing on these features. Landform monitoring will be maintained until landforms are relinquished, after which these landforms will be assessed for suitability and compatibility with the surrounding land use and agreed post mining land use.

During a meeting at the Bulliluna community on the 11th April 2012, the TNTLAC expressed their preference for roads, airstrip and any water bores to be retained for their use post closure. Further meetings will be undertaken with relevant stakeholders to determine responsibility and formalise an agreement for this infrastructure should it remain post closure.

7.2. Closure Objectives

Closure objectives have been developed for the CGP under the following five aspects:

- compliance;
- landforms;
- ecosystem function;
- key stakeholders; and
- mining infrastructure.

Under each aspect, a series of closure objectives have been defined as follows:

Compliance

- All legally binding conditions and commitments relevant to rehabilitation and closure will be met.
- Infrastructure will be retained or removed in accordance with agreed post mining land use in consultation with relevant stakeholders.
- To rehabilitate using best practice rehabilitation techniques and within the constraints of the post mining environment.
- The application of rehabilitation material is prioritised over all areas requiring rehabilitation.

- Surface drainage patterns prevent impact to the downstream environment.
- Groundwater quality and levels to reflect original water chemistry as much as practicable.

Landforms

- Establish a safe, non-polluting post mining landscape which supports vegetation growth and resistance to erosion.
- Establish a safe and stable TSF.
- Appropriately manage mine waste throughout the life of mine.

Ecosystem Function

- The rehabilitated ecosystem has function and resilience indicative of target ecosystem.
- Vegetation in rehabilitated areas will have values indicative of target ecosystems.
- The final landscape will have the ability to withstand or have the capacity to recover following stochastic occurrences.
- Where the completion criteria above are attained, fauna utilisation, abundance and diversity will trend towards original levels in the areas rehabilitated.
- To monitor environmental performance during rehabilitation and post closure of the Project and take appropriate action until the specified completion criteria have been met.

Key Stakeholders

- Actively engage key stakeholders on a regular basis including attaining agreement on the post-mining land use of Traditional Indigenous Uses.

Mining Infrastructure

- Inadvertent public access to open pits will be prevented as far as is practicable.
- Declines will be made safe.

8. IDENTIFICATION AND MANAGEMENT OF CLOSURE RISKS

In order to identify, evaluate and mitigate closure risks, a closure risk assessment was undertaken during the week of the 10th February 2014 in consultation with TGNL personnel.

The assessment was undertaken on a domain and feature basis. Many potential impacts were eliminated through mitigation and management. **Section 5 Analysis of Data** details the identified knowledge gaps and all of the associated risks (these were captured in the risk assessment).

The completed risk assessment is included in **Appendix H**. A number of potential unwanted closure events were identified; **Table 44** provides a summary of all of the initial high and very high risks (with existing controls in place), and the residual risk (once proposed controls have been implemented). The proposed controls have been integrated into the closure implementation tasks in **Section 11 Closure Implementation** where appropriate.

Table 44: Summary of High Residual Closure Risk and Controls

Risk No.	Feature	Factor Unwanted Event (Receptor)	Existing Controls	Proposed Controls
0.3	**Site Wide - Coyote and Bald Hill**	CORPORATE: unplanned closure	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program
0.5		COMPLIANCE: failure to achieve relinquishment	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation, Stakeholder Consultation during mine development	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Ongoing Stakeholder Consultation, Financial Provisioning for Closure and allocation of funds for closure
0.6		CORPORATE: unplanned closure costs	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation, Independent, Closure Costing, Standard Operating Procedure	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Financial Provisioning for Closure and allocation of funds for closure, Ongoing Stakeholder Consultation
1.1.3	**Coyote WRL**	CORPORATE: unplanned closure costs	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation, Independent Closure Costing, Wildlife Management Plan	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Ongoing Stakeholder Consultation, Financial Provisioning for Closure and allocation of funds for closure, Integrated Landform Design
1.2.7	**Coyote TSF**	CORPORATE: unplanned closure costs	Mine Closure Plan, Environmental Management Plan, Independent Closure Costing, Standard Operating Procedure	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Financial Provisioning for Closure and allocation of funds for closure, Integrated Landform Design

Risk No.	Feature	Factor Unwanted Event (Receptor)	Existing Controls	Proposed Controls
1.5.2	Bald Hill WRL	LANDFORM: surface erosion / sedimentation by water	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation, Independent Closure Costing	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Financial Provisioning for Closure and allocation of funds for closure
1.5.3		CORPORATE: unplanned closure costs	Mine Closure Plan, Environmental Management Plan, Independent Closure Costing, Standard Operating Procedure	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Financial Provisioning for Closure and allocation of funds for closure, Integrated Landform Design
1.5.5		COMPLIANCE: failure to achieve relinquishment	Mine Closure Plan, Environmental Management Plan, Photo Monitoring, Rehabilitation trials and progressive rehabilitation, Independent Closure Costing, Standard Operating Procedure	Implement Mine Closure Plan, Mine Decommissioning Plan, Site Survey of rehabilitation material stockpiles, Rehabilitation Material Inventory, Continued Progressive Rehabilitation, Implement Conceptual Surface Water Management Plan, Rehabilitation Monitoring Program, Financial Provisioning for Closure and allocation of funds for closure, Ongoing Stakeholder Consultation
2.10.3	**Putrescible and Inert Landfills**	ENVIRO: contaminated sites register	Mine Closure Plan, Environmental Management Plan, Standard Operating Procedure	Implement Mine Closure Plan, Mine Decommissioning Plan
4.2.4	**Leach Vats**	ENVIRO: contaminated sites register	Mine Closure Plan, Environmental Management Plan, Standard Operating Procedure, HDPE Liner, Engineered Design, Clay Liner	Implement Mine Closure Plan, Mine Decommissioning Plan

9. DEVELOPMENT OF COMPLETION CRITERIA

Completion criteria for the CGP are proposed for the closure objectives identified under the following five aspects:

- compliance;
- landforms;
- ecosystem function;
- key stakeholders; and
- mining infrastructure.

Due to the lack of quantitative rehabilitation monitoring undertaken over the CGP landforms, qualitative completion criteria have been developed for the CGP. These will be refined and become quantitative completion criteria as sufficient data is collected. In addition quantitative performance indicators will be developed in accordance with these criteria, and presented within subsequent MCPs.

TGNL will consult with the DMP further for the potential to utilise data obtained from the Central Tanami site located 90 km east of the Project to augment data to be collected for the CGP.

Quantitative rehabilitation monitoring data collection at the CGP to date has been limited; the first and only quantitative monitoring data was collected using LFA in 2013. A review of this data was conducted by experienced LFA practitioners at Outback Ecology, and a number of gaps and errors were found within the data. As such, no meaningful results can be interpreted from the data and this data cannot be incorporated into the development of completion criteria for the CGP.

TGNL commit to undertaking EFA of both rehabilitation and local analogues (target ecosystems) to assist in the development of quantitative criteria.

Under each aspect, a series of closure objectives have been defined (refer to **Section 7 Post Mining Land Use and Closure Objectives)**, and from each of these closure objectives, a set of completion criteria and performance indicators have been derived (**Table 45**). Criteria will be measured against local target ecosystems, which will form the basis for the quantitative standard values.

These criteria are again presented in **Appendix F** which details the criteria that apply the features of each domain.

Table 45: Project Closure Objectives and Completion Criteria

	Closure Objective	Completion Criteria	Type of monitoring	Performance indicators
1. Compliance				
1.1	All legally binding conditions and commitments relevant to rehabilitation and closure will be met.	All conditions and commitments are met.	Auditing.	All conditions and commitments are achieved.
1.2	Infrastructure will be retained or removed in accordance with agreed post mining land use in consultation with relevant stakeholders.	Retained infrastructure will be left in a safe condition and transferred to a legally responsible entity. Infrastructure and equipment that is not retained will be removed in accordance with the post-mining land use of the area.	Inspections of retained features prior to handover. Signed asset transfer agreement in place prior to transfer of legal responsibility. Review against Decommissioning Plans.	Removal of all redundant surface infrastructure where required. Transfer of liabilities completed.
1.3	To rehabilitate using best practice rehabilitation techniques and within the constraints of the post mining environment.	Rehabilitation is conducted using leading practice rehabilitation techniques and within the limits of the expected post mining environment.	Qualitative assessment. Auditing.	Compliance with regulatory standards through audits.
1.4	The application of rehabilitation material is prioritised over all areas requiring rehabilitation.	Survey volumes of topsoil and other rehabilitation material required. Prepare a plan to prioritise the application of available topsoil and other rehabilitation materials.	Verify against Mine Closure Plan and/or appropriate management plan. Auditing and verification of disturbance and rehabilitation for Mine Rehabilitation Fund and AER reporting.	Compliance with Mine Closure Plan.

Closure Objective		Completion Criteria	Type of monitoring	Performance indicators
1.5	Surface drainage patterns prevent impact to the downstream environment	Surface drainage to downstream environments is not adversely affected by development and closure of the operation. Surface drainage patterns do not impact on the integrity of landforms.	Audit against appropriate management plan.	Compliance with appropriate management plan. Repairs are undertaken as necessary where site audits identify adverse impacts to landforms or downstream environment.
1.6	Groundwater quality and levels to reflect original water chemistry as much as practicable.	Groundwater chemistry and levels fall within the seasonal variability as recorded during monitoring prior to and during early mine development.	Groundwater monitoring data compared against available data recorded prior to and during early mine development.	Compliance with legally binding documentation and legislature
2. Landform				
2.1	Establish a safe, non-polluting post mining landscape which supports vegetation growth and resistance to erosion.	Landforms are conducive to re-vegetation and are constructed to support local provenance vegetation.	Establishment of vegetation communities is monitored against target ecosystems.	Compliance with proposed completion criteria for vegetation.
		Final surfaces develop resistance to erosive forces. Final surface water management and drainage has been incorporated into the landform design. Establish rehabilitation profiles that promote soil stability.	Audit constructed landform for compliance against design specifications. Surface stability and erosion features of the landform will be monitored.	Full compliance with approved landform design. Rehabilitation area meets agreed standard. Re-work is undertaken as necessary where rehabilitation areas do not meet the agreed standard.
2.2	Establish a safe and stable TSF.	Compliance with relevant TSF guidelines for landform safety and stability.	Audit of Tailings Storage Facility as per tenement conditions.	Full compliance with regulatory guidelines.

Closure Objective		Completion Criteria	Type of monitoring	Performance indicators
2.3	Appropriately manage mine waste throughout the life of mine.	Waste placement is according to design. Waste placement aligns with material characterisations. Mined waste materials with potential for adverse environmental impact are managed appropriately.	Audit of waste placement against material characterisations and landform design	Material characterisations align with waste placement according to design. Full compliance with placement and cover specifications in approved landform designs.
3. Ecosystem Function				
3.1	The rehabilitated ecosystem has function and resilience indicative of target ecosystem.	Establish rehabilitation profiles that promote soil stability and vegetation growth and are comparable with the surrounding environment.	Ecosystem function assessed to determine infiltration and nutrient cycling values.	Percentage (%) achieves an agreed proportion of the target ecosystem for stability, infiltration and nutrient cycling indices.
3.2	Vegetation in rehabilitated areas will have values indicative of target ecosystems.	Re-vegetation is represented by local provenance species assemblage. Re-vegetation demonstrates viability through propagule development, and effective recruitment, and is subject to colonisation by surrounding species. Re-vegetation demonstrates values that trend towards relevant target ecosystem sites.	Vegetation assessed to produce a native perennial species richness value.	Achievement of values that trend towards those of relevant analogue sites in terms of density, plant cover and species composition/ richness. Presence of an upper storey in areas where an upper storey is required.

Closure Objective		Completion Criteria	Type of monitoring	Performance indicators
3.3	The final landscape will have the ability to withstand or have the capacity to recover following stochastic occurrences.	Monitoring confirms that the recruitment of native perennial species reaches sexual maturity.	Qualitative assessment of vegetation health	Flowering, fruiting, soil seed bank or second generation seedlings
		Research trials demonstrate the potential of the rehabilitation to regenerate following fire.		Structurally dominant species have reached age sufficient to tolerate fire (defined through research, or review of published information).
		Monitoring has confirmed the rehabilitation can survive one or more season of drought.		Recovery of plant populations to appropriate pre-drought levels
		Presence of weed species does not exceed target ecosystems.		No weed species detected that are new to the local area
3.4	Where the completion criteria above are attained, fauna utilisation, abundance and diversity will trend towards original levels in the areas rehabilitated.	Fauna utilisation is indicative of agreed percentage of target ecosystem.	Frequency and type of habitat structures in rehabilitated areas Qualitative assessment and visual inspection	Fauna habitats demonstrate values trending toward those of relevant target ecosystem sites.
3.5	To monitor environmental performance during rehabilitation and post closure of the Project and take appropriate action until the specified completion criteria have been met.	Adherence to monitoring schedule within the Mine Closure Plan or other applicable management plans.	Audits and Qualitative assessment. Post closure monitoring will be undertaken in accordance with the Mine Closure Plan.	Compliance with approved completion criteria, and appropriate monitoring / management plan.
4. Key Stakeholders				
4.1	Actively engage key stakeholders on a regular basis including attaining agreement on the post-mining land use of Traditional Indigenous Uses	All key stakeholders contacted and given the opportunity to comment on post-mining land use. A post-mining land use has been	The post-mining land use has been documented and endorsed by the key stakeholder groups.	Compliance with stakeholder agreements. Priority outcomes of community and stakeholder consultation in relation

Closure Objective		Completion Criteria	Type of monitoring	Performance indicators
		determined in consultation with key stakeholders. Key stakeholders will be informed on the Project status, and any proposed changes to the Project and Mine Closure Plan.		to closure are taken into consideration in development and reviews of the Mine Closure Plan.
5. Mining Infrastructure				
5.1	Inadvertent public access to open pits will be prevented as far as is practicable.	Access points to open pits to be blocked off to conform to appropriate guidelines, regulations and existing approvals.	Audit against the Department of Industry and Resources (DoIR) Safety Bund Walls Around Abandoned Open Pit Mines Guideline. 1997 Visual assessment to ensure that the bund is in place across the open pit ramp.	Compliance with regulatory guidelines and Mine Closure Plan.
5.2	Declines will be made safe.	Inadvertent access to underground workings is prevented.	Establish process and conduct visual inspections prior to relinquishment.	Compliance with Mine Closure Plan. Risk assessment

**Preliminary completion criteria only*

9.1. Target Ecosystems

Assessing target ecosystems is an integral part of monitoring rehabilitation and can generate values to support completion criteria, depending on both seasonal and stochastic events such as storms, droughts and fire. Target ecosystems are represented by an analogue site or transect which provides values of landscape function, vegetation and habitat representing natural ecosystems with which the progress of rehabilitation can be measured. Data from target ecosystems forms part of the monitoring procedure through time, so that varying seasonal conditions result in a ‘band’ of values to act as reference values for rehabilitation (Tongway and Hindley 2004).

The appropriate selection of target ecosystems is highly important for assessing the final quality of a rehabilitated area. A target ecosystem which is ultimately unachievable for a rehabilitation area is inappropriate and will result in completion criteria not being achieved. A suitable site is one that has many of the physical and chemical attributes of the planned final landscape, given that these aspects play an important role in determining the vegetation community that develops. Key physical attributes may include similar slope, soil texture, and capacity for regulation of resources such as rainfall and vegetation litter. Key chemical attributes may include considerations of soil salinity.

Target ecosystems need to be selected prior to the commencement of rehabilitation activities. The establishment of a target ecosystem needs to take into account the planned rehabilitation design (eg, slope angle) and physical and chemical characteristics of the waste materials and their placement. Where high salinity is expected within the surface materials of a waste landform, a suitable target ecosystem is likely to have a similar high salinity levels. Therefore analogue installation will require a review of material characterisation and plans for placement of materials within constructed waste landforms, or, if landforms already exist, a review of their physical and chemical attributes.

Target Ecosystems for rehabilitation at Coyote and Bald hill will utilise flat to gently undulating analogue sites located on areas nearby the mine sites. Unfortunately there are no slopes of a similar magnitude to those present on the WRLs for a significant distance from both Coyote (30 to 60 km) and Bald Hill (15 to 20 km). Additionally access to these areas is limited. Consequently, TGNL will utilise information gained from trial rehabilitation surfaces set up on the southern slopes of Coyote WRL. Further guidance will be gained from utilisation of EFA monitoring results of rehabilitated landforms at TGNLs nearby Central Tanami site, located approximately 90 km from Coyote across the border in the NT.

10. FINANCIAL PROVISIONING FOR CLOSURE

Closure costing was undertaken to estimate the cost of closure for the CGP utilising third-party contractor rates for each feature.

Financial provisioning has also been included for the following additional components, which will be considered throughout operations:

- closure related technical studies;
- social studies; and
- rehabilitation trials.

The following closure related technical studies will be considered during operations include:

- hydrogeological / ground water modelling;
- pit-lake recharge / water quality studies;
- landform erosion modelling;
- final landform design;
- development of landform decommissioning plans;
- tailings geochemistry studies;
- waste characterisation and rehabilitation material balance studies; and
- surface water drainage assessment studies.

The following social studies which will be considered during operations include:

- social impact assessments; and
- post closure land management plan.

The rehabilitation trials which will be considered during operations include:

- slope rehabilitation and erosion trials.

A closure costing report detailing assumptions, methodology and financial processes is provided in **Appendix I.**

In addition, to the undertaking a detailed closure cost estimate, a financial provision has been developed, to progressively rehabilitate the site during operations, which will be incorporated into the LoM Plan and operating budgets.

11. CLOSURE IMPLEMENTATION

The following section details closure implementation activities, which include research, investigation and trials which will assist in closing knowledge gaps for each domain and landform features and the closure and decommissioning tasks required to be undertaken for each domain and landform features.

11.1. Coyote and Bald Hill Project Areas

Research and Investigation Trials

Research, investigations and trials will assist in closing any knowledge gaps identified in Section 5. The following site wide research, investigations and trials will be undertaken for the CGP:

- develop a rehabilitation materials inventory detailing sources and volumes of suitable rehabilitation and cover materials and areas requiring rehabilitation;
- investigate the requirement to harvest topsoil and/or laterite from roads and/or the firebreak;
- identify any potentially contaminated sites that may fall within the parameters of the Contaminated Sites Act 2003;
- assess quantitative landform monitoring results against monitoring reports (EFA) from TGNL Central Tanami site for any applicable targets for performance indicators;
- establish target ecosystems/ analogues on-site to provide targets for performance indicators;
- undertake EFA or an appropriate equivalent method which incorporates the selection of appropriate analogues to assess rehabilitation performance;
- subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions;
- identify which vegetative species will be established according to the limitations of the landform and growth medium;
- source seed based on investigation task, clean and store appropriately; and
- survey landforms to ascertain the extent of remedial work required.

11.2. Landforms Domain

11.2.1. Coyote Waste Rock Landform

Research and Investigation Trials

The following research, investigations and trials will be undertaken for Coyote WRL to assist in closing the knowledge gaps identified in **Section 5.1.1**:

- develop a final landform design incorporating surface water management on the WRL;
- assess rehabilitation trials utilising EFA or an appropriate equivalent method, and analyse results to apply any further lessons learnt to future rehabilitation strategies;
- determine the quantity of seed required to augment the topsoil application; and
- assess the requirement to construct a toe bund to limit sedimentation off the WRL.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Coyote WRL:

- undertake remedial work required;
- pending the outcome of the investigative task above, construct toe bund and / or sediment catchment facility to prevent impact to surrounding vegetation;
- encapsulate any deleterious waste (Zone E material) within the WRL;
- complete final landscaping, including shaping batters to a maximum of 15 degrees and install crest bunds;
- construct cell bunding on the upper surface for drainage control / water capture;
- rehabilitate access ramp to blend in with the WRL, ensuring water does not run down the ramp, where the ramp is not designed a rock lined spillway;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;
- shallow rip rehabilitation to mix topsoil into waste areas along the contour; and
- seed rehabilitated surfaces with provenance seed mix.

11.2.2. Coyote Tailings Storage Facility

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.1.2**:

- develop a tailings decommissioning plan incorporating a detailed final cover design based on the characterisation of the final tailings bed profile and outer embankments;
- develop a final landform design incorporating surface water management;
- determine an appropriate timeframe for consolidation of the tailings prior to commencement of rehabilitation works;
- assess the potential for seepage from the TSF post closure; and
- determine the quantity of seed required to augment the topsoil application.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Coyote TSF:

- decommission the decant and associated infrastructure;
- undertake recommendations detailed in the Tailings Decommissioning Plan;
- complete final landscaping, including shaping batters to a maximum of 15 degrees;
- apply suitable cover materials (capillary break and oxide rock) to the depth outlined in the final cover design;
- construct cell and crest bunding on the upper surface;
- complete final landscaping, including shaping batters to a maximum of 15 degrees in accordance with the integrated landform surface water design;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan;

- shallow rip rehabilitation to mix topsoil into waste areas along the contour; and
- seed rehabilitated surfaces with provenance seed mix.

11.2.3. Coyote Run-Of-Mine Pad

Research and Investigation Trials

The following research, investigations and trials will be undertaken to close the knowledge gaps identified in **Section 5.1.3**:

- determine volume of material suitable for processing from the top of the ROM Pad;
- determine whether the ROM Pad material is suitable for use in rehabilitation; and
- develop a final landform design incorporating surface water management on the ROM Pad.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Coyote ROM Pad:

- process the volume of material identified as suitable;
- complete final landscaping, including shaping batters to a maximum of 15 degrees and construct crest bunds;
- construct cell bunding on the upper surface for drainage control / water capture;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;
- shallow rip rehabilitation to mix topsoil into waste areas along the contour;
- seed rehabilitated surfaces with provenance seed mix; and
- install rock mulch/ topsoil toe bund around perimeter of ROM Pad to prevent impact to surrounding vegetation.

11.2.4. Coyote Topsoil Stockpiles

Research and Investigation Trials

The following research, investigation and trials will be undertaken to assist in closing the knowledge gap identified in **Section 5.1.4:**

- assess the total volume of topsoil stockpiled for use in rehabilitation.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Coyote Topsoil Stockpiles;

- remove topsoil for use in rehabilitation;
- reshape footprint surface for drainage control,
- deep rip; and
- seed with provenance seed mix.

11.2.5. Bald Hill Waste Rock Landform

Research and Investigation Trials

The following research, investigations and trials will be undertaken for the Bald Hill WRL to assist in closing the knowledge gaps identified in **Section 5.1.5**:

- determine the timeframe for completing the Bald Hill WRL in accordance with the final landform design;
- review the current landform design, against the approved landform design, to determine the extent of remedial works required (submit an amendment to the existing approvals if required);
- assess the extent of sediment loss from the WRL, and if there is any impact to the surrounding environment;
- determine whether any deleterious waste is exposed on the outer surfaces of the WRL;
- determine the rehabilitation requirements in areas not yet rehabilitated;
- develop a rehabilitation materials inventory detailing the volumes of each type of available material and the areas requiring rehabilitation;
- assess physical and chemical properties of the toe bund and adequacy of design; and
- ascertain quantity of seed required to augment the topsoil application.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Bald Hill WRL:

- undertake repairs and maintenance as required;
- encapsulate any deleterious material within the WRL;
- complete final landscaping, including shaping batters to a maximum of 15 degrees and construct crest bunds;
- construct cell bunding on the upper surface for drainage control / water capture;
- undertake earthworks in accordance with surface water management design on WRL;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;
- shallow rip rehabilitation areas along the contour; and
- seed rehabilitated surfaces with provenance seed mix.

11.2.6. Bald Hill Run Of Mine Pads and Stockpiles

Research and Investigation Trials

The following research, investigations and trials will be undertaken for the Bald Hill ROM Pads to assist in closing the knowledge gaps identified in **Section 5.1.6**:

- determine volume of material suitable for processing from the top of the ROM Pad and within stockpiles;
- assess the volume of material remaining within the ROM Pad post closure;
- assess the suitability of remaining ROM Pad material for use in rehabilitation; and
- ascertain quantity of seed required to augment the topsoil application.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Bald Hill ROM Pads:

- process the volume of material identified as suitable;
- encapsulate any deleterious material within competent units within the Bald Hill WRL;
- if a final landform remains, complete final landscaping, including shaping batters to a maximum of 15 degrees and construct crest bunds;
- construct cell bunding on the upper surface for drainage control / water capture;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within final landform design;
- shallow rip rehabilitation to mix topsoil into waste areas along the contour;
- seed rehabilitated surfaces with provenance seed mix; and
- construct toe bund and / or sediment catchment facility to prevent impact to surrounding vegetation.

11.2.7. Bald Hill Topsoil Stockpiles

Research and Investigation Trials

The following research, investigations and trials will be undertaken for the Bald Hill Topsoil Stockpiles to assist in closing the knowledge gaps identified in **Section 5.1.7**:

- assess the volume of topsoil stockpiled for use in rehabilitation.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Bald Hill Topsoil Stockpiles:

- remove topsoil for use in rehabilitation;
- reshape footprint surface for drainage control;
- deep rip; and
- seed with provenance seed mix.

11.3. Industrial Infrastructure Domain

11.3.1. Industrial Infrastructure

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.2.17**:

- assess the volume of contaminated material to dispose of at closure, in particular around the fuel storage facility, process plant, workshops and bioremediation area;
- determine the volume of core to dispose of at closure and an appropriate disposal strategy;
- assess opportunities to salvaging, recycling and re-using any industrial infrastructure features and / or scrap;
- determine the volume and types of materials to be disposed of and/or buried on site at closure;

- undertake stakeholder consultation to determine whether any third parties have an interest in retaining any infrastructure post closure; and
- if any infrastructure is to be retained, consult with the Halls Creek Shire and/or Kimberley Lands Council (see **Table 43**).

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Industrial Infrastructure Domain:

- remove all industrial infrastructure as detailed in the mine decommissioning plan;
- if required, remove any contaminated soil and dispose of appropriately;
- subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan;
- deep rip rehabilitation areas along the contour; and
- seed rehabilitated surfaces with provenance seed mix.

11.4. Mining Infrastructure Domain

11.4.1. Coyote Open Pit and Underground

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.3.1** and **5.3.2**:

- determine the requirement for rehabilitation works to the backfilled section of the pit;
- assess the status of the abandonment bunds around the open pit in accordance with the DMP guidelines Safety Bund Walls around Abandoned Open Pit Mines 1997; and
- investigate requirement to limit access to the shallowest two adits (final pit water level versus depth to adit) and if the adits can be accessed in order to be closed off.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Coyote Open Pit and Underground:

- undertake remedial work to the abandonment bunding;
- remove access to the underground mine;
- remove access to open pit ramp;
- rehabilitate backfilled pit section as required;
- establish fencing, lockable gates, signage and alternative bunding where required; and
- remove all surface infrastructures remaining within abandonment bunds and open pits (such as pipelines, powerlines, and other support infrastructure).

11.4.2. Kookaburra and Sandpiper Open Pits

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.3.3** and **5.3.4**:

- determine the potential to further mine the Kookaburra and Sandpiper Open Pits;
- review the potential to backfill the open pits nearing the end of mine life, as per discussions with Environs Kimberley and Kimberly Lands Council on the 11th August 2006; and
- assess the adequacy and completeness of the abandonment bund around the open pits in accordance with the DMP guidelines Safety Bund Walls around Abandoned Open Pit Mines 1997.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Kookaburra and Sandpiper Open Pits:

- remove access to open pit ramp;
- complete abandonment bunding;
- establish fencing, lockable gates, signage and alternative bunding where required; and
- remove all surface infrastructures remaining within abandonment bunds and open pits (such as pipelines, powerlines, and other support infrastructure).

11.4.3. Osprey Pit and Laterite Re-handle Area

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.3.5:**

- determine the potential for further mining;
- determine whether laterite material could be sourced from the Osprey Pit and Laterite re-handle area for use in rehabilitation; and
- assess the requirement and extent to undertake rehabilitation monitoring.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Osprey Pit and Laterite Re-handle Area:

- if required seed rehabilitated surfaces with provenance seed mix.

11.5. Water Management Structures Domain

11.5.1. Evaporation and Raw Water Pond

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.1:**

- assess the ability to maintain freeboard on the ponds during care and maintenance;

- determine water quality of contained water and dispose of / treat appropriately; and
- assess the integrity of HDPE liner and the potential for contamination.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Evaporation and Raw Water Pond:

- drain water and dispose of appropriately or allow to evaporate;
- if required, remove any contaminated soil and dispose of appropriately;
- all pipelines and pumps to be flushed and removed from site;
- remove any liners and dispose of appropriately;
- deposit concrete rubble and contaminated material from the demolition of the processing plant and associated infrastructure;
- push in embankment to cover rubble forming a gentle sloping mound;
- subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions;
- shallow rip rehabilitation along the contour;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and
- seed rehabilitated surfaces with provenance seed mix.

11.5.2. Leach Vats

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.2**:

- assess the integrity of the HDPE liners;
- assess the potential for contamination underlying the rehabilitated leach vats, and if this falls within the parameters of the Contaminated Sites Act 2003;
- determine water quality of contained water and dispose of or treat appropriately; and
- develop a final landform design incorporating surface water management.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Leach Vats:

- drain water and dispose of appropriately or allow to evaporate;
- remove and re-process economic tailings;
- all pipelines and pumps to be flushed and removed from site;
- dispose of liner in the bottom of the vats;
- push in and leach vats and trench between vats and TSF;

- subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions:
- shallow rip rehabilitation along the contour;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and
- seed rehabilitated surfaces with provenance seed mix.

11.5.3. Water Treatment Ponds and Turkeys Nest

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.3:**

- determine water quality of contained water and dispose of or treat appropriately;
- assess integrity of HDPE liner; and
- if contamination is identified, determine volume of contaminated material to be appropriately disposed.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Water Treatment Ponds and Turkeys Nest:

- drain water and dispose of appropriately or allow to evaporate;
- all pipelines and pumps to be flushed and removed from site;
- remove liner and dispose of appropriately;
- push in and level;
- subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the post closure conditions
- deep rip rehabilitation along the contour;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and
- seed rehabilitated surfaces with provenance seed mix.

11.5.4. Bald Hill Evaporation Dam

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.4**:

- assess the extent of any contamination/ seepage from the facility.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Bald Hill Evaporation Dam:

- all pipelines and pumps to be flushed and removed from site;
- push in to form gentle sloping mound;
- deep rip rehabilitation along the contour;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and
- seed rehabilitated surfaces with provenance seed mix.

11.5.5. Bald Hill Turkeys Nest

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.5**:

- determine the timeframe for decommissioning and rehabilitating the Bald Hill Turkeys Nest.

Decommissioning

The Bald Hill Turkeys Nest is located The following closure and decommissioning tasks will be undertaken for the Bald Hill Turkeys Nest:

- drain water and dispose of appropriately or allow to evaporate;
- all pipelines and pumps to be flushed and removed from site; and
- remove liner and dispose of appropriately.

11.5.6. Flood Diversion Drain and Bund

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.6**:

- confirm the requirement to retain the flood diversion bund at closure; and
- assess the requirement for re-work / upgrades required to flood diversion drain and bund to be maintained post closure.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Flood Diversion Drain and Bund:

- undertake re-work / upgrades as required to flood diversion drain and bund.

11.5.7. Surface Water Sump

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.4.7**:

- determine the extent of salt accumulation at the base of the sump; and an appropriate disposal strategy.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Surface Water Sump:

- drain water and dispose of appropriately or allow to evaporate; and
- all pipelines and pumps to be flushed and removed from site.

11.5.8. Bald Hill Flood Protection and Abandonment Bund

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps for the Bald Hill flood protection and abandonment bund identified in **Section 5.4.8**:

- assess the potential to harvest any laterite material from the bund for use in rehabilitation;
- confirm the requirement to retain the flood diversion bund at closure; and
- assess the requirement for re-work / upgrades required to the flood protection bund to be maintained post closure.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Bald Hill flood protection and abandonment bund:

- undertake re-work / upgrades as required to the flood protection bund.

11.6. Groundwater Infrastructure Domain

11.6.1. Monitoring and Dewatering Bores and Pipelines

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.5**:

- continue discussions with key stakeholders regarding end land use of the borefields and pipelines to determine any interest in retaining any of the groundwater infrastructure;
- ensure legal requirements and processes for transfer of disturbance liability have been properly executed; and
- undertake an audit to assess the condition and rehabilitation requirements of groundwater infrastructure.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the groundwater infrastructure domain:

- disconnect all services including power;
- remove, break up or bury concrete pads;

- decommission bores in accordance with regulatory requirements, plug, cap and deregister if required;
- remove groundwater infrastructure including bores and pipelines to be detailed in the demolition and decommissioning plan i.e. all above ground pipelines and pumps to be flushed prior to removal, underground pipelines to remain in place post closure;
- all above ground pipelines and pumps flushed and removed from site (underground pipelines will remain in place, post closure);
- if required, remove any contaminated soil and dispose of appropriately;
- remove all rubbish including old couplings and dispose of in a designated landfill;
- re-establish natural surface water flows and drainage lines, without compromising the integrity of the landform features;
- remove access tracks;
- deep rip rehabilitation areas along the contour;
- place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and
- seed rehabilitated surfaces with provenance seed mix as required.

11.7. Roads Domain

11.7.1. Site Roads and Bald Hill Haul Road

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.6**:

- determine whether any roads will be retained for key stakeholders;
- ensure legal requirements and processes for transfer of disturbance liability have been properly executed;
- identify and document the rehabilitation requirements for each road; and
- determine the potential for roadways to restrict or significantly alter the course of surface water flow after mine closure.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Roads Domain:

- if required, remove any contaminated soil and dispose of appropriately;
- salvage recyclable/ reusable commodities such as pipelines, culverts and rock gabions and dispose of unwanted material in accordance with state waste regulations;
- re-establish natural surface water flows and drainage lines, without compromising the integrity of the landform features;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan;
- deep rip rehabilitation areas along the contour; and
- seed rehabilitated surfaces with provenance seed mix.

11.8. Exploration Domain

11.8.1. Drill pads, Sumps and Tracks and Exploration Coreyard

Research and Investigation Trials

The following research, investigations and trials will be undertaken to assist in closing the knowledge gaps identified in **Section 5.7.1** and **Section 5.7.2**:

- search all geology databases and compile a list of all drill sites and grid lines;
- undertake an audit to ascertain the extent of exploration rehabilitation required upon closure;
- develop an exploration disturbance database detailing type of disturbance and location;
- determine the volume of core to be disposed of at closure, and an appropriate disposal strategy; and
- review requirement to deep-rip hard stand areas based on rehabilitation success.

Decommissioning

The following closure and decommissioning tasks will be undertaken for the Drill pads, Sumps and Tracks and Exploration Coreyard:

- remove all infrastructure as detailed in the mine decommissioning plan;
- establish surface water flows and drainage lines, without compromising the integrity of the landform features;
- if required, remove any contaminated soil and dispose of appropriately;
- cut drill collars off at least 0.4 mBGL, plugging appropriately and backfilling to ensure surface water does not pond locally;
- remove sample bags, drill spoil, exploration pegs and other rubbish;
- backfill sumps and re-contour drill pads;
- re-spread stockpiled topsoil, laterite, rock mulch and/ or vegetation mulch;
- lightly rip compacted areas;
- establish a photo monitoring and rehabilitation record for the database;
- maintain a process of progressive closure and reduction of liability, with regular reporting to regulators and stakeholders informing and supporting that process; and
- spread available vegetative material to improve resistance to erosion, act as a source of seeds and organic matter and provide fauna habitats;

12. POST CLOSURE MONITORING AND MAINTENANCE

Post closure performance monitoring and maintenance tasks will be undertaken at the CGP as detailed in **Table 46**. Post closure monitoring will be undertaken in accordance with the mine closure and performance monitoring plans and current tenement conditions and commitments. During monitoring site visits, other site inspections that will be undertaken include:

- gate damage and repairs;
- erosion and drainage issues and reporting; and
- general site inspection for unauthorised site access and damage especially associated with the Coyote underground workings.

In addition, landform weed eradication and maintenance, landform maintenance and repair and feral animal control will be undertaken as a part of the post closure monitoring activity. To assist in defining rehabilitation maintenance programs, annual post closure site audits will be undertaken.

Table 46: Post closure monitoring and maintenance

Type of Monitoring	Monitoring Frequency and Duration
Ecosystem Function Analysis	Annually for the post closure period to assess the development of and success against stable landforms and self-sustaining ecosystem targets
Erosion and surface water drainage monitoring	Annually during the post closure period
Geotechnical monitoring of the TSF and WRLs	Annually for the first 5 years of post-closure
Ground water monitoring	Annually for the first 5 years of post-closure
Surface water quality monitoring	Annually for the first 5 years of post-closure
Satellite imagery and photographic assessment of rehabilitated areas	Biennially over the post closure period

Ecosystem Function Analysis provides data relating to landscape functioning, vegetation establishment and habitat development. The data collected is been compared to local analogue sites, which are re-assessed to reflect any changes resulting from natural climatic fluctuations. In successful rehabilitation, steady improvements should be expected, in soil structure and soil protection, vegetative cover and development, and stability of erosion features. Therefore, EFA data should gradually trend upward and plateau as the ecosystem becomes stable and self-sustaining. Results over time will indicate if the ecosystems have achieved these self-sustaining levels and can withstand climatic fluctuations.

Analogue sites provide representative values that are typical of the landscape surrounding the mine. Analogues are selected with attributes such as slope angle, topsoil cover and vegetation communities most similar to anticipated final attributes of the rehabilitation areas being assessed.

13. TEMPORARY OR UNEXPECTED CLOSURE

In the event of unexpected or temporary closure, where the site will be placed on care and maintenance for a period of time, as a minimum, the following will be undertaken:

- environmental audit to ascertain high priority tasks;
- development of a detailed care and maintenance plan in consultation with DMP to include:
    - monitoring schedule (geo-technical, geo-chemical or high risk areas, groundwater and in-pit monitoring, erosion and rehabilitation monitoring);
    - program to address high priority risks and ensure that appropriate risk mitigation measures are in place;
    - be based on this MCP;
    - consideration of safety obligations required under sections 42 and 88 of the Mines Safety and Inspection Act 1994 relating to mine suspension or abandonment. One of these obligations is to notify the relevant DMP District Inspector before a mining operation is suspended or abandoned; and
- costs will be allocated for two caretaker/supervisor roles and two maintenance personnel responsible for site contacts and statutory requirements, maintenance and general security activities and to allow for run-up of major equipment and to maintain access to the underground workings.

In the event of unexpected closure, the closure process will be accelerated. This would involve a review of this MCP to include a detailed decommissioning plan.

In the event the site is placed on care and maintenance, minimal staff will be retained on site to undertake scheduled monitoring and maintenance tasks. Closure costing was undertaken for the whole site and in the case of temporary and unexpected closure. The total cost for sudden closure and care and maintenance costs has been calculated. **Table 47** details the breakdown and assumptions that were taken into account when calculating this cost.

Table 47: Sudden Closure Care and Maintenance Assumptions

Labour Costs
• Care and Maintenance staffing requirements are assumed to include: Two caretaker/supervisors and two maintenance personnel responsible as site contacts and for statutory requirements, maintenance requirements and general security activities.
• Costs have been allocated to allow for run-up of major equipment and to maintain access to the underground workings.
• Other duties will include primarily site safety and environmental inspections and general asset protection.
Camp and FIFO
Camp and FIFO costs have been included.
Maintenance Costs
Costs have been included for care and maintenance of all assets across the site.
Post Closure Monitoring Costs
rehabilitation monitoring costs during the post closure period are included

14. MANAGEMENT OF INFORMATION AND DATA

This MCP is intended to be a live document that is subject to changes during mine operations and mine closure. Closure planning is a complex process that commences at initial mine planning and evolves with the project and improved knowledge.

In accordance with s83AA of the Mining Act 1978, Tanami Gold NL will implement a management strategy to review and update this plan every three years (or at such time as specified in writing) and submit to the DMP for review.

This plan will be reviewed periodically and updated accordingly for currency with legislation, standards, guidelines and operational requirements. It is intended that as much rehabilitation as possible will be undertaken progressively during the life of the mine. This will allow rehabilitation methods to be tested and refined to determine the most suitable and, successful method for final rehabilitation.

The triennial update and review of the MCP will include a review of the financial provision, in addition to this, any significant closure outcomes will result in a review of the MCP and financial provisioning.

Appendix G details the closure tasks associated with each domain and complex features, and an indicative timeframe for completion of each task (based on the life of mine plan, schedule of activities and current non-operational status). The MCP is a subset of the mine closure planning process, and is integrated with mine planning for each phase of the CGP.

15. REFERENCES

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APPENDIX A

Legal Compliance Register

Table A48: Tenement Conditions

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
M80/559	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
	10	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	11	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
	13	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
	17	A finalised site-decommissioning plan for the Coyote Project is to be submitted to the Department of Industry and Resources and other relevant regulatory bodies by March 2007. The decommissioning plan should follow the model provided in the ANZMEC/MCA Strategic Framework for Mine Closure (2000).
	19	Placement of waste material must be such that the final footprint after rehabilitation is outside the zone of potential pit instability.
	20	The lessee ensuring that all matter containing water soluble arsenic constituents being encapsulated within inert waste in the centre of the waste dump, such that there is no contamination of surface or ground water.
	27	The lessee ensuring that all matter containing saline, alkaline, cyanide or other process chemical constituents being retained within holding facilities, such that there is no impairment of surface or underground waters.
M80/560	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe immediately after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
		and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
	9	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	10	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
	12	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
	17	A finalised site-decommissioning plan for the Coyote Project is to be submitted to the Department of Industry and Resources and other relevant regulatory bodies by March 2007. The decommissioning plan should follow the model provided in the ANZMEC/MCA Strategic Framework for Mine Closure (2000).
M80/561	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
	9	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	10	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Environmental Officer, Department of Industry and Resources.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
	12	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Environmental Officer, Department of Industry and Resources.
M80/562	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
M80/563	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
	10	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	11	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
	13	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
	19	The evaporation dam embankments shall be removed at completion of the project and any soils affected by the water stored in the evaporation dam shall be suitably rehabilitated to the satisfaction of the Environmental Officer, DoIR.
	25	On the completion of operations or progressively where possible, all waste dumps, tailings storage facilities, stockpiles or

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
		other mining related landforms must be rehabilitated to form safe, stable, non-polluting structures which are integrated with the surrounding landscape and support self sustaining, functional ecosystems comprising suitable, local provenance species or alternative agreed outcome to the satisfaction of the Executive Director, Environment Division, DMP.
M80/564	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
L80/45	7	On the completion of the life of mining operations in connection with this licence the holder shall: • remove all installations constructed pursuant to this licence; and • on such areas cleared of natural growth by the holder or any of its agents, the holder shall plant trees and/or shrubs and/or any other plant as shall conform to the general pattern and type of growth in the area and as directed by the District Inspector of Mines and properly maintain same until the Inspector advises regrowth is self supporting, unless the Mining Registrar or Minister responsible for the Mining Act 1978 orders or consents otherwise.
	10	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	11	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
	13	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
L80/46	10	On the completion of the life of mining operations in connection with this licence the holder shall: • remove all installations constructed pursuant to this licence; and • on such areas cleared of natural growth by the holder or any of its agents, the holder shall plant trees and/or shrubs and/or any other plant as shall conform to the general pattern and type of growth in the area and as directed by the

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
		Inspector and properly maintain same until the Inspector advises regrowth is self-supporting, unless the Mining Registrar or Minister for State Development orders or consents otherwise.
	13	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	14	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
	16	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
L80/49	4	On the completion of the life of mining operations in relation to this licence the holder shall: • remove all installations constructed pursuant to this licence; • cover over all wells and holes in the ground to such degree of safety as shall be determined by the District Inspector of Mines; and • on such areas cleared of natural growth by the holder or any of its agents, the holder shall plant trees and/or shrubs and/or any other plant as shall conform to the general pattern and type of growth in the area and as directed by the Inspector and properly maintain same until the Inspector advises regrowth is self-supporting, unless the Mining Registrar or Minister for State Development orders or consents otherwise.
L80/51	9	On the completion of the life of mining operations in connection with this licence the holder shall: • remove all installations constructed pursuant to this licence; and • on such areas cleared of natural growth by the holder or any of its agents, the holder shall plant trees and/or shrubs and/or any other plant as shall conform to the general pattern and type of growth in the area and as directed by the District Inspector of Mines and properly maintain same until the Inspector advises regrowth is self-supporting, unless the Mining Registrar or Minister responsible for the Mining Act 1978 orders or consents otherwise.
	12	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	13	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
		satisfaction of the Director, Environment Division, DoIR.
	15	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
E80/1481	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
E80/1483	2	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	4	All waste material, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/1677	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/1679	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
	8	All topsoil and vegetation being removed ahead of all mining operations and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
	10	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, Department of Industry and Resources.
E80/1737	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/1905	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/2036	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
E80/2133	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3238	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3378	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3388	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
E80/3389	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3665	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3845	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/3846	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
E80/3847	3	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	4	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	5	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/4006	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/4305	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.
E80/4306	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.

Closure and Rehabilitation Tenement Conditions		
Tenements	**Condition**	**Conditions**
E80/4307	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
	2	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
	3	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration programme.

Table A49: DEC Licence Expiry 15th July 2017

DEC Licence No: L8111/2005/2 Category 5, 6, 85 and 89	
Condition	**Conditions**
No Closure and Rehabilitation related conditions on Licence.	

Table A50: Notice of Intent 5157A October 2005

Notice of Intent 5157A	
Page No.	**Conditions**
ii	Disturbance will be kept to a minimum in establishing the Project and associated infrastructure.
ii	Rehabilitation of disturbed areas will be undertaken progressively where possibly.
ii	A conceptual Decommissioning and Closure Plan is being developed and will be available prior to plant commissioning. The plan will outline the proposed rehabilitation, decommissioning and closure of the site.
iii	The ultimate objective of site closure is to return the site as close as possible to its original condition.
iii	All stope voids will be backfilled with waste rock from development, or from the open pit mining phase.
14	A minor water-soluble arsenic horizon identified in the lower alluvial clay zone of the waste material will be encapsulated within inert waste in the centre of the waste dump.
16	Materials required for road, hardstand and airstrip construction will be sourced from laterite and ferricrete borrow pits located immediately north of and adjacent to the proposed airstrip. Wherever possible, borrow areas previously used for highway construction and

Notice of Intent 5157A	
Page No.	**Conditions**
	maintenance will be used to reduce the area of disturbance. Borrow pits will be progressively rehabilitated where ever possible.

Table A51: Draft Environmental Management Plan (NOI 5157G) November 2005

Notice of Intent 5157G	
Page No.	**Conditions**
3	Rehabilitation is to be carried out progressively, with full site closure planned to be achieved within 6 months of completion of mining.
10	• Rehabilitate disturbed areas to re-create natural habitats and promote faunal recolonisation;
10	**3.2 Decommissioning and Closure** Key Objective: Achieve environmentally and socially acceptable closure of the Coyote operations, ensuring prevention of adverse long-term environmental impact and re-creation of self-sustaining natural ecosystems. Management Strategies: • Consult with regulators, community groups and other stakeholders to determine acceptable outcomes;
10	• Allocate adequate funding and resources to ensure timely and effective site decommissioning and closure;
10	• Progressively rehabilitate disturbed areas to facilitate timely closure of the site.
11	**3.4 Ground and Surface Water Management** Key Objectives: Minimise erosion and prevent discharge of contaminated surface water to the surrounding environment. Ensure mining activities do not result in contamination of, or prolonged detriment to, the groundwater system. Management Strategies: • Prevent the direct or indirect release of contaminated runoff to surface waters;
12	• Rehabilitate disturbed areas as soon as practical following completion of exploration work.

Table A52: Bridging Document, Additional Information Requested NOI 5175B (December 2005)

Notice of Intent 5175B	
Page No.	**Conditions**
2	Approximately 3 million m3 of waste material will be produced by open pit mining, the majority of which is inert material. Approximately half of this material will be available to cap the vat leaches with a minimum 1 m depth of material.
2	Nutrient trials are not deemed necessary. Topsoil will be abundant and storage is planned to be short-term, therefore maintaining

Notice of Intent 5175B	
Page No.	**Conditions**
	biological activity in the soil. Topsoil requiring storage for longer than 6 months will be seeded with Acacia species to maintain natural nutrient levels.
2	Trials will be carried out to determine species selection and effective methods of rehabilitation.
3	Lead will not be an issue. Arsenic-containing material is expected to be encountered prior to the second lift of the waste dump commencing. The material will be encapsulated within the centre of the lower lift. Diagrams have not been developed at this stage.

Table A53: Notice of Intent for the Coyote Project, details of leach vats and tailings management (December 2005)

Notice of Intent 5157C	
Page No.	**Conditions**
3	The vats will be lined with HDPE, and will only be used once. The vats will therefore serve as permanent containment for the ore following the extraction of the gold. The vats will be located adjacent to the main waste rock dump, allowing the surface of the completed vats to be readily covered with waste rock as part of the permanent site closure plan.
4	The closure of the tailings storage and the vats at the end of the life of the Project will include the capping of the upper surface of the storage and the vats with a layer of waste rock.
9	The leach vats will be constructed adjacent to the waste rock dump. This will allow the progressive covering of the vats once the leaching of ore in each vat has been completed. At the end of the Project, the vats will blend into the waste rock dump.
22	By the end of the Project, only the upper surface of the tailings storage will need to be rehabilitated. The tailings beaches will be covered with waste rock. The decant mound will be flattened and the surface left dished. The capacity of the dish on the surface of the storage will be adequate to contain the most severe storm without the embankment being overtopped. Water will be allowed to evaporate from the surface (average evaporation is approximately nine (9) times average rainfall).
22	The leach vats will be progressively covered with a layer of waste rock. Individual vats will be allowed to drain before being covered. The final outer embankments will be buttressed with the outer slopes flattened to 1:3 (vert:horiz) for long term stability. A schematic arrangement showing the covering of the vats is given on Drawing 149-05-007.
22	A re-vegetation methodology will be developed as part of the overall Decommissioning and Closure Plan for the site including the waste dumps, cleared areas (for roads, drill lines etc.), the tailings storage and the leach vats.
22	A re-vegetation methodology will be developed as part of the overall Decommissioning and Closure Plan for the site including the waste dumps, cleared areas (for roads, drill lines etc.), the tailings storage and the leach vats.

Notice of Intent 5157C	
Page No.	**Conditions**
22	A variety of species will be used as a mix, with eucalypts providing the upper story and acacias (to fix nitrogen in the soil) providing the middle story. Smaller endemic shrubs and grasses will be used to supply the mulch necessary for the system to survive.
Appendix B (p4)	The foundation areas of the embankments and the borrow areas between the embankments shall be stripped of all loose material and other debris. • All stripped vegetation shall be placed into neat piles with a maximum height of 2 m, located downstream of the topsoil stockpiles. No burning of vegetation shall be permitted. • Topsoil shall be neatly stockpiled in the designated topsoil stockpile areas, as indicated on the Drawings or as directed by the Engineer. • The topsoil stockpile areas are to be protected from stormwater runoff by the construction of suitable open drains, protected from erosion damage by suitable shaping and windrowing during construction.

Table A54: Notice of Intent for the Coyote Project, details of airfield, camp facilities and environmental approvals (December 2005)

Notice of Intent 5157D	
Condition	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A55: Notice of Intent Addendum 3, details of the construction of evaporation ponds (December 2005)

Notice of Intent 5157F	
Page No.	**Conditions**
i	A draft Decommissioning and Closure Plan has been prepared and includes decommissioning and rehabilitation of the evaporation pond.
5	The evaporation pond is a temporary facility. As part of the rehabilitation/decommissioning of the facility, the evaporates within the evaporation pond will be removed and placed into a mined out (completed) pit.
5	The embankments will be flattened and rehabilitated at the end of operations.
5	The liner will be utilised for other purposes or disposed of in a landfill.
5	Alternatively, the facility could be used as water storage in association with another post operation land use.

Table A56: Addendum 2a to the Notice of Intent for the Coyote Project, Tanami Gold NL. Details of changes to airstrip design and material sourcing (January 2006)

Notice of Intent 5157E	
Page No.	**Conditions**
1	The material sourcing area is outside the area set by the DoE conditions and will therefore not impact on the identified Bilby habitat. A total area of 1.5 ha will be required to source approximately 30,000m^3 of material. Vegetation and topsoil will be stockpiled and the borrow pit(s) will be rehabilitated on completion.

Table A57: Email titled "Commitment to undertake further regional surveys" (NOI 5157H) written by Jeremy Shepherdson - Environmental Advisor Coyote Project, dated 2 February 2006 and retained on Department of Industry and Resources File No. E0075/200408 (February 2006)

Notice of Intent 5157H	
Page No.	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A58: Addendum 4 to the NOI: airstrip, accommodation camp access routes and mine layout (MP5284A) (March 2006)

Mining Proposal 5284A	
Page No.	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A59: Email titled "Re: Addendum 4 to Coyote Project NOI Commitment to undertake further regional surveys" (MP 5284B) written by Jeremy Shepherdson - Environmental Advisor Coyote Project, dated 8 April 2006 and retained on Department of Industry and Resources File No. E0074/200604 (April 2006)

Notice of Intent 5284B	
Page No.	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A60: Letter of Intent Variation to proposed plans for upgrading the mine camp access road, and details of proposed power line (May 2006)

Mining Proposal 5325	
Page No.	**Conditions**
2	Unused sections of the road will be rehabilitated.
3	No trees will be cleared for establishment of these borrow pits.
3	• on completion of gravel removal, the outer edges of the pit will be battered to achieve a slope of less than 10 degrees
3	• the overburden, topsoil and revegetation will be respread in the order that they were removed;
3	• the pits will be contour ripped to minimise water and wind erosion;
3	• all unused sections of the existing road will be rehabilitated to promote revegetation and minimise potential for future erosion;

Table A61: Mining Proposal Variation to areas of disturbance of pits, explosives magazine, tailings storage facility and airstrip (MP 5364) July 2006

Mining Proposal 5364	
Page No.	**Conditions**
4	Tanami has re-optimised the pit design resulting in a single, larger pit rather than the two originally designed. The area of disturbance has increased by 2.2ha to 16.2ha. The crest of the north-eastern end of the pit is located 55m from the closest point of the toe of the ROM. On completion of mining abandonment bund will be placed around the pit, outside the zone of potential instability as defined by the DoIR Guideline “Safety Bund Walls Around Abandoned Open Pit Mines”.
Appendix 1 Pg 3	The ore in the vats will also contain CN, however following several washing cycles, the levels will be very low. The lined vats will retain all the liquor generated during the active period of leaching. The liner will then form an impermeable barrier to ensure long term containment of the barren ore. Following the final flushing, the vats will be pumped dry.

Table A62: Mining Proposal Stage 2 Sandpiper and Kookaburra Open Pits August 2006

DoIR Ref E0074/200605;	
Page No.	**Conditions**
6	Environs Kimberley raised concerns regarding the abandonment of the open pits on completion of mining, suggesting that they be back-filled. Tanami will review the potential to do this nearing the end of mine life. However, given the significant underground potential of these pits, backfilling is currently not economic for the open pit stage of this operation.
6	Minimising disturbance and overall impact on the environment;

DoIR Ref E0074/200605;	
Page No.	**Conditions**
6	Progressive rehabilitation of disturbed areas;
6	Consultation on environmental matters with stakeholders, regulators and other interested parties.
13	A small exploration camp was located two kilometres north of the Sandpiper deposit. Most of the infrastructure was dismantled earlier this year and transferred to the Coyote accommodation camp. Two fuel tanks remain in place and will be moved to the Stage 2 laydown area for use during mining. The camp area will be rehabilitated when the tanks have been removed.
18	Topsoil (0 - 200mm) will be stripped and stockpiled for use in rehabilitation. As the topsoil is shallow and may be in short supply for rehabilitation, sub-soil (200 mm - 400mm} may also be stripped and blended with the topsoil to produce a suitable growing medium. The sub-soil is essentially the same sandy material as the topsoil but is devoid of organic matter.
47	Site preparation will involve topsoil and subsoil stripping to a depth of approximately 250mm in suitable areas using a scraper. Topsoil and subsoil will not be harvested separately. The material will be blended and stockpiled in strategic locations around the mine site.
47	Due to the small size of the site it is unlikely that direct placement of topsoil onto disturbed areas will be practical. Instead, topsoil will be stockpiled to a maximum height of 1m, then deep ripped to allow continued aeration of the soil. It is expected that most topsoil will be used in rehabilitation within 12 months of stripping.
47	Waste rock from both pits will be disposed in a dump located south of the Sandpiper open pit. The waste dump will have a footprint of 25 ha and a volume of 2,330,000 BCM. The dump will reach a maximum height of 20 m using 10 m lifts with 8 m wide berms. The outer faces of the waste dump will be battered to a maximum angle of 15° and then rehabilitated using the stockpiled topsoil and vegetative material. Topsoil will be applied using a scraper or by truck dumping and spreading with a bulldozer. Batters will be contour ripped to minimise water erosion.
51	The objective of mine closure is to return disturbed areas as close as possible to their original state. Mine closure will include: • removal of all infrastructure: • removal and treatment of any contaminated material (i.e. hydrocarbons); • removal and burial of bund liners; • rehabilitation of disturbed areas; • ensuring the pits are made safe to prevent accidental access; • closure of the abandonment bund; and • establishment of photographic monitoring sites at various locations around the site.

DoIR Ref E0074/200605;	
Page No.	**Conditions**
51	The waste dump will be rehabilitated progressively commencing with the lower batter. The following techniques will be used: • Faces will be battered down to an angle of not greater than 15° using a bulldozer; • An 8 m berm will be constructed at 10 m of vertical height and will be back sloped to enable containment of water. • Bunds will be constructed across the berm at regular intervals to form water holding compartments. • The final waste dump height will be no greater than 20 m; • A windrow will be constructed around the cuter perimeter of the upper surface of the waste dump to prevent runoff; • A layer of topsoil will be applied over the surface of the dump and will not exceed 200 mm to minimise erosion potential; • Vegetation will be spread over the top surface of the waste dump; • The waste dump will be contour ripped using a bulldozer equipped with a triple tine ripper; • It is expected that significant revegetation of endemic species will be achieved without the addition of seed. Seed will be applied at a later date if it is determined that particular flora species are missing. • Monitoring sites will be established at various points on the waste dump.
52	Bunded areas such as the fuel farm will be rehabilitated by: • Removal of the infrastructure; • Removal and appropriate treatment of any contaminated material; • Removal and burial of the liner; • Filling the bunded area by pushing the walls in to the centre; • Applying topsoil and • Contour ripping if necessary.
52	Compacted areas will be rehabilitated by respreading topsoil and deep contour ripping the area. Seed will be applied at a later date if necessary.
52	At this stage completion criteria cannot be set. There has been no prior mining activity or significant rehabilitation work carried out in the past and, as such, no comparative information. It has been observed that disturbed areas typically recover very quickly and that emerging vegetation closely resembles that in the surrounding undisturbed areas. Trial sites have been established at the Coyote mine site and will provide information that can then be used to determine suitable completion criteria.

Table A63: Response by mail addressed to Justin Robins and retained on DoIR. E0074/200605 (September 2006)

DoIR. E0074/200605	
Page no	**Conditions**
1	The gravel pit and road will be rehabilitated on completion of removal of gravel.
2	Tanami commits to the recommendations made in the Waste Characterisation report completed by MBS as follows: Section 5.2 - Zone B oxidised saprolites from the Sandpiper pit will be contained within the waste dump. Section 5. - Zone A saprolite and clays and Zone B oxidised saprolites from the Kookaburra pit will be contained within the waste dump.

Table A64: Ministerial Statement 749 September 2007

Ministerial Statement 749	
Condition	**Conditions**
7.1	The proponent shall implement the Decommissioning and Closure Plan contained within the proponent's Environmental Protection Statement submitted for the proposal and released on 30 July 2007. The Decommissioning and Closure Plan shall contain provision for update and review.
7.2	The proponent shall implement the Decommissioning and Closure Plan referred to in condition 7-1 until such time as the Minister for the Environment determines, on advice of the CEO, that the proponent's decommissioning responsibilities have been fulfilled.

Table A65: Coyote Mine Site Decommissioning and Closure Plan (2007)

Mine Closure Plan – Commitments	
Section	**Conditions**
5.2 Final Landform	Post mining landforms such as waste dumps will be constructed and rehabilitated to reflect the surrounding environment.
	Runoff from the disturbed areas will be directed to the main pit on closure of the site eventually resulting in a substantial fresh water body.
	Pits will be made safe to prevent accidental entry, although the main ramp will be retained to enable access and egress for fauna attracted to the water.
	Post mining landforms such as waste dumps will be constructed and rehabilitated to reflect the surrounding environment.
5.3 Flora and Fauna	Rehabilitation work will aim to achieve re-establishment of the existing vegetation communities and faunal habitats.
	Seed stock will be collected locally and monitoring will be ongoing for a period of time following closure of the site to determine the success of habitat re-establishment and faunal recolonisation.

Mine Closure Plan – Commitments	
Section	**Conditions**
	Fertilisers will not be used in rehabilitation of the Coyote site. Australian soils are typically nutrient—poor and native vegetation has evolved to suit the conditions.
5.4 Soil and Groundwater Contamination	Tanami aims to prevent any form of contamination occurring during the life of the Project. Prevention, containment and emergency measures suitable for the site will be planned in advance.
	Where contamination is suspected or identified investigation and remediation will commence as soon as practical.
	Groundwater will be closely monitored from various locations around the site for indications of contamination. Suitable remedial action will be taken if necessary.
7.1.3 Rehabilitation of Slopes	Rehabilitation techniques for sloped areas will include • battering of material to maximum angle of 15° • transfer and spreading of topsoil to achieve even coverage of approximately 150 mm; • contour ripping of slopes (guide line to be surveyed and pegged); and
	Installation of water management features including bund around top surface and back-sloped berms.
7.1.4 Rehabilitation of vats	The leaching operation was found to be ineffective and the vats have now been decommissioned. Rehabilitation of the vats will involve: • removal of ore from the vats; • puncturing of the liners to prevent water accumulation; and • covering with waste rock.
	The vats will be covered by a northward extension of the waste dump.
7.1.5 Rehabilitation of TSF	Rehabilitation of the TSF will involve: • stockpiling of suitable capping material in proximity to the TSF; • applying a 2 m layer of coarse rock over the tailings once dry. This will create a capillary break; • capping the TSF to create a “domed” structure that will enable surface water to be shed; • application of topsoil; and • light contour ripping.
7.1.6 Pits	The pits will remain open on completion of mining. The underground portal will be secured with a gate and the pit perimeter safety bund will be closed. The abandonment bund will also be closed. The ramp will be left intact to allow access and egress of wildlife attracted to water in the pit.
7.2 Site	Decommissioning will involve removal of all infrastructure including the processing plant, offices, power station, workshop and camp, and

Mine Closure Plan – Commitments	
Section	**Conditions**
Decommissioning	rehabilitation of all remaining site disturbance.
	All inert waste material will be buried within the waste dump. Any potentially toxic materials will be treated appropriately for onsite disposal (i.e. bioremediation), or removed for appropriate offsite disposal (i.e. chemical residue).
	Final site decommissioning is expected to take approximately 6 months and will include: • closure of abandonment bunds; • removal of infrastructure and associated underground services; • rehabilitation of hardstand areas; • rehabilitation of the evaporation pond; and • rehabilitation of roads, tracks and other disturbance.
7.3 Monitoring	Rehabilitated areas will be monitored for a period of time stipulated by DoIR, DEC and DoW, or until such time as the disturbance bonds for the leases are retired. Monitoring parameters will include: • Groundwater - level and quality (as per current monitoring requirements); • Vegetation - undisturbed (utilising existing monitoring sites); • Revegetation - flora diversity and coverage (monitoring sites to be established in selected rehabilitated areas); • Slope stability (utilising monitoring sites + visual inspection); and • Fauna (visual inspection for animals, tracks, scats, burrowing activity etc.). The results of monitoring will be reported in the project Annual Environmental Report.
7.5 Potentially Contaminating Materials	Tanami will ensure that appropriate containment measures are installed and that handling techniques are such that the potential for soil or water contamination is minimised.
	Prior to leaving the site any identified soil contamination will be removed for onsite treatment, or shipped off site for appropriate treatment elsewhere.
	Groundwater monitoring is conducted on a monthly basis as part of the project licence conditions, and will continue for the duration of the project.
	Should groundwater contamination be identified, appropriate measures will be implemented to treat the groundwater to achieve accepted levels.
9. The Consultative Process	Tanami will undertake regular consultation with the various stakeholders having interests in the Coyote Project. Meetings will be held at regular intervals, to be determined in consultation with the individual stakeholders.

Table A66: Programme of Works E80/3388, E80/3389 and E80/1481 EXP 7324 August 2007

POW 7324 File No: T2255/200402	
Page No.	**Conditions**
5	Immediately after drilling all holes plugged below ground and backfilled using excess drill spoil (not top soil) to approximately 20cm above natural ground surface.
5	All rubbish is removed to a central disposal pit at Coyote Mine.
5	Drill spoil is generally left to rehabilitate naturally; the spoil is generally spread by animals and dispersed by rain over 1-2 wet seasons and revegetated after 2-3 field seasons, however some drill chips can usually still be found up to 3-5 years after drilling which can be useful for re-logging/sampling purposes and this generally helps to reduce the necessity for re-drilling of the area by later explorers.
5	Spinifex and wattle regrowth after one wet season, and eucalypt and acacia regrowth after two - three wet seasons has been observed in RAB-AC drilled areas in the Western Tanami.
5	Heavy traffic areas may require ripping/scarifying to break-up compacted topsoil and allow re-germination.

Table A67: Mining Proposal 5782 Additional Information September 2007

Mining Proposal 5782	
Condition	**Conditions**
No Closure and Rehabilitation related conditions	

Table A68: Email titled ‘Coyote Stage 2 – Additional Information (September 2007)

Email to DMP September 2007	
Page No.	**Conditions**
2	This initial phase of mining will not extend to Zone C, as described in the MBS report. To enable containment of potentially dispersive Zone A and B waste, Tanami will undertake further analysis during mining to identify inert, competent material that can be used for encapsulating these substances in the waste dump. The mining plan will ensure that waste zones with high levels of any potentially contaminating substances are deposited in the centre of the waste dump and encapsulated with inert material.
2	There is currently no suitable material available for accurate analysis to be undertaken. Grade control drilling is planned to be undertaken when Ministerial approval has been received. Suitable ore material will then be analysed and results provided.

Table A69: Mining Proposal – Additional tailings storage TSF cell 2 (October 2007)

Mining Proposal 5782	
Page No	**Conditions**
37	The closure of the tailings storage at the end of the life of the Project will include the capping of the upper surface of the cell with a layer of waste rock.
38	Cell 2 of the tailings storage will be constructed to the east of the existing Cell 1. The two cells of the storage will initially be a stand-alone facility, however the waste rock dump will eventually buttress the southern embankments and will be used to cover the cells on completion of operation.
44	The site will be cleared of all vegetation. The lower part of the site was cleared during previous site work, however approximately 10 ha will need to be cleared and stripped of the useable topsoil. Vegetation will be pushed into piles away from the construction area, and used to assist in the rehabilitation of the embankment. The topsoil will be stockpiled along the northern side of the storage for later use in rehabilitation.
50	A substantial area of the outer banks of Cell 2 will be sheeted with topsoil and contour ripped on completion of wall construction. The remaining unrehabilitated area will allow access to the decant causeway and will be used for access to the upper surface during rehabilitation work.
50	At the end of the project the upper surface of the cell will be covered with waste rock to form a capillary break. A 500mm bund will be constructed around the outer perimeter of the structure to contain the rainfall without the embankment being overtopped. Water collecting in the centre of the dam will evaporate from the surface (average evaporation is approximately nine times average rainfall). The waste material will be covered with topsoil and deep ripped. The access way will be rehabilitated on completion of surface work.
51	Rehabilitation trials at the Coyote site have demonstrated that regrowth of native vegetation can be achieved without the addition of seed. A substantial seed bank is contained within top soil, which will be stockpiled and stored in accordance with DoIR guidelines and currently accepted topsoil management practices. Monitoring sites will be established to enable assessment of revegetation success. Seeding will be undertaken at a later date if required to introduce any missing endemic flora species.
71	Site preparation will involve topsoil and subsoil stripping to a depth of approximately 250mm in suitable areas using a scraper. Topsoil and subsoil will not be harvested separately. The material will be blended and stockpiled in strategic locations around the mine site. Figure 2.2 shows the location of existing topsoil stockpiles. Wherever possible direct placement of topsoil onto disturbed areas is practiced. Where this is not possible topsoil is stockpiled to a maximum height of 1m, then deep ripped to allow continued aeration of the soil.
71	Almost all waste from the underground mining operation will be disposed of underground to backfill stopes. A relatively small volume of waste material generated during construction of the portal and Page 71 Tanami Gold NL Mining Proposal – Coyote Project Upgrades decline will be stockpiled in the pit. It is likely that most, if not all of this material will eventually be used as underground

Mining Proposal 5782	
Page No	**Conditions**
	backfill
74	The objective of mine closure is to return disturbed areas as close as possible to their original state. Mine closure will include: • removal of all infrastructure; • removal and treatment of any contaminated material (i.e. hydrocarbons); • removal and burial of bund liners; • rehabilitation of disturbed areas; • rehabilitation of the tailings storage facility; • ensuring the pits are made safe to prevent accidental access; • closure of the abandonment bund; and • establishment of photographic monitoring sites at various locations around the site. The Coyote Project Decommissioning and Closure Plan was submitted to DoIR for review in March this year. As a result of the proposed changes to the operation the Closure Plan is currently being revised and will again be submitted when complete.
74	Tanami aims to return the disturbed areas as near as possible to the original state.
74	The plant area will be rehabilitated upon removal of all infrastructure. General rehabilitation practices will include: • Removal of any contaminated material for appropriate treatment; • Applying topsoil; and • Deep ripping of all roads, pads and hardstand areas.
74	The waste dump will be rehabilitated progressively commencing with the lower batter. The following techniques will be used: • Faces will be battered down to an angle of not greater than 15 0 using a bulldozer; • An 8m berm will be constructed at 10 m of vertical height and will be back sloped to enable containment of water. • Bunds will be constructed across the berm at regular intervals to form water holding compartments. • The final waste dump height will be no greater than 20m; • A windrow will be constructed around the outer perimeter of the upper surface of the waste dump to prevent runoff; • A layer of topsoil will be applied over the surface of the dump and will not exceed 200mm to minimise erosion potential; • Vegetation will be spread over the top surface of the waste dump; • The waste dump will be contour ripped using a bulldozer equipped with a triple tine ripper; • It is expected that significant revegetation of endemic species will be achieved without the addition of seed. Seed will be applied at a later date if it is determined that particular flora species are missing. • Monitoring sites will be established at various points on the waste dump.

Mining Proposal 5782	
Page No	**Conditions**
75	The TSF will be rehabilitated by: • Capping the facility with a layer of coarse inert waste; • Applying a layer of topsoil; and • Contour ripping the outer batters.
75	Bunded areas such as the fuel farm and evaporation dam will be rehabilitated by: • Removal of the infrastructure; • Removal and appropriate treatment of any contaminated material; • Removal and burial of the liner; • Filling the bunded area by pushing the walls in to the centre; • Applying topsoil; and • Contour ripping if necessary.
75	Compacted areas will be rehabilitated by respreading topsoil and deep contour ripping the area. Seed will be applied at a later date if necessary.
75	Completion criteria for closure of the mine site will be based on: • Data collected from vegetation monitoring sites established around the site; • Data collected from baseline vegetation surveys; and • The success of rehabilitation techniques employed during operations at Coyote mine site.
76	Flat areas at the Coyote mine site will be deemed to have achieved closure when the diversity and density of flora present are comparable with that of surrounding undisturbed areas.
76	As the soil structure and profile of the waste dump will be considerably different to that of natural slopes in the area, the species present on completion of revegetation are likely to be different to that existing on natural comparable landforms. Rehabilitation will aim to achieve stable landforms with flora diversity and density similar to that of the surrounding area.

Table A70: Mining Proposal Kookaburra and Sandpiper Pits – Evaporation Pond (November 2007)

Mining Proposal 5933	
Condition	**Conditions**
3	Vegetation monitoring sites will be established in undisturbed vegetation surrounding the evaporation dam and mine site. Baseline data will be collected prior to commencing construction with monitoring then being undertaken in March and August »'September each year to

Mining Proposal 5933	
Condition	**Conditions**
	determine whether the vegetation is being affected. Should vegetation stress be observed and determined to be the result of dewatering or other mining activities appropriate remedial action will be implemented in consultation with DoIR, DEC and/or appropriate specialists.
3	The closure of the evaporation pond at the end of the life of the Project will include the removal of the embankments, the cleaning up of any salts which have been precipitated over the base of the pond during the period of operation (the collected salts will be either placed in the mined out pits or buried in the waste rock dump), and the ripping and revegetation of foundation area.
12	The site will be cleared of all vegetation. which will then be stockpiled away from the construction area. The available topsoil will be stockpiled along the southern side of the evaporation pond for later use with the cleared vegetation in rehabilitation of the floor of the pond. once the embankments and any sediment (salt and settled silt etc.) have been removed.
17	At the end of the Project, or when there is no longer a need to de-water the open pits, the evaporation pond will be removed. The residual salts and silt which are expected to at least partially cover the floor of the pond, will be graded up into heaps and then loaded out and dumped either in one of the pits or in a sealed pocket in the waste rock dump.
17	The embankments will be removed and any contaminated material dumped into the open pits or into specific areas within the waste rock dump. The remainder of the embankment fill will either be dozed out over the former pond floor area or taken to the waste dump.
17	The topsoil, previously stockpiled downstream of the pond, will be spread over the area, The whole area will be lightly ripped and allowed to revegetate
17	A re-vegetation methodology will be developed as part of the overall Decommissioning and Closure Plan for the site including the waste dumps, cleared areas (for roads, drill lines etc.), and the evaporation pond.
17	Rehabilitation trials at the existing Coyote mine site have demonstrated very good results without the need to apply seed. Viable seed remains in the stockpiled topsoil and germination has been observed to occur shortly after the on-set of the wet season.
17	Trial sites have demonstrated good vegetative cover and diversity within 12 months of completion of rehabilitation earthworks.

Table A71: Mining Proposal 5933 Additional Information relating to Coyote Stage 2 Evaporation Dam (February 2008)

Mining Proposal 5933	
Condition	**Conditions**
No Closure and Rehabilitation related conditions on Section 46 Amendment.	

Table A72: Mining Proposal 5977 Stage 2 Waste Management Plan (February 2008)

Mining Proposal 5977	
Page No	**Conditions**
2	Based on these figures, a waste dump design has been developed that will allow for encapsulation of the potentially dispersive waste. Prior to commencing the waste dump, cleared vegetation and topsoil will be stockpiled around the perimeter. A stockpile of gravel and inert oxide waste gained from the base of the waste dump will then be pushed out to the perimeter.
2	Potentially dispersive material will be deposited in the centre of the dump with the encapsulating waste tipped in a ring around the inner perimeter of stockpiled oxide and topsoil.

Table A73: Programme of Works E80/1679 and E80/560 EXP 9109 May 2008

POW 9109 File No: T0571/200301	
Page No.	**Conditions**
3	Obsolete holes will be permanently capped immediately after drilling. Those to be used for reinjection will be temporarily capped until pipe work is fitted.
3	All rubbish will be removed to the waste disposal facility at Coyote mine site.
3	Sumps will be back-filled after evaporation of contained water.
3	Disturbed areas will be scarified on completion and allowed to revegetate naturally.

Table A74: TSF Lifts M80/559 (REG ID 24013) (September 2009)

Department of Mines and Petroleum File No. E0225/200901;	
Page No	**Conditions**
16	Closure of the tailings storage at the end of the life of the Project will include capping of the upper surface of the cells with a layer of waste rock, **followed by application of topsoil.**
18	At the end of the Project the upper surface of the cell will be covered with waste rock **to form a capillary break. The waste material will be covered with topsoil, deep ripped and seeded with local native species.** A 500mm bund will be constructed around the outer perimeter of the structure to contain rainfall without the embankment being overtopped. Water collecting on the surface will evaporate (average evaporation is approximately nine times the average rainfall), with the capillary break preventing the rise of salt.
18	Rehabilitation trials at the Coyote site have demonstrated that regrowth of native vegetation can be achieved without the addition of seed. A substantial seed bank is contained within top soil, which has been stockpiled at various locations around the site.

Department of Mines and Petroleum File No. E0225/200901;	
Page No	**Conditions**
	Vegetation monitoring sites will be established to enable assessment of revegetation success. Seeding will be undertaken at a later date if required to introduce any missing endemic flora species.

Table A75: Addendum to letter of intent Coyote Stage 2 Ground Water Management (REG ID 24517) November 2009

REG ID 24517	
Condition	**Conditions**
No Closure and Rehabilitation related conditions	

Table A76: Notice of Intent 5157 {Processing Capacity Increase (REG ID 29324) December 2010

REG ID 29324	
Condition	**Conditions**
No Closure and Rehabilitation related conditions	

Table A77: Email to DMP Justin Robbins REG ID 29516 April 2011

REG ID 29516	
Condition	**Conditions**
Preliminary Completion Criteria for Stage 2 Bald Hill – refer to this MCP for current completion criteria	

Table A78: Ministerial Statement 869 Section 46 July 2011

Ministerial Statement 869	
Condition	**Conditions**
No Closure and Rehabilitation related conditions on Section 46 Amendment.	

Table A79: Ministerial Statement 869 Section 46 (45C) July 2011

Ministerial Statement 869	
Condition	**Conditions**

No Closure and Rehabilitation related conditions on Section 46 Amendment.

Table A80: Amended Stage 2 Mining Proposal M80/563 October 2011

Department of Mines and Petroleum File No. EARS-MP-29516;	
Page No	**Conditions**
7	· Ongoing rehabilitation of disturbed areas;
7	4. Any portions of the embankment and local soils affected by the saline water stored in the water evaporation facility shall be removed at completion of the project and suitably rehabilitated. tenement conditions M80/563 are complied with
38	Tanami will comply with all applicable legislation during the operation and decommissioning/closure of Stage 2 of the Coyote Project.
41	The abandonment bund surrounds the perimeter of the pits to prevent flooding with surface water runoff. Drainage will be installed in appropriate locations beneath raised roads to prevent ponding of surface water runoff.
41	Topsoil and Soil Profiles - Topsoil and subsoil depths are variable within the Sandpiper and Kookaburra areas ranging from 0 to 800mm. Topsoil containing organic material is typically a thin layer, approximately 100mm in depth. The remaining subsoil is sandy loam to a depth of up to 800mm in some areas. Site preparation involved topsoil and subsoil stripping to a depth of approximately 250mm in suitable areas using a scraper. The material will be blended and stockpiled in strategic locations around the mine site. Figure 2.1 shows the location of topsoil stockpiles.
43	Waste rock from both pits is placed in a dump located south of the Sandpiper open pit. The waste dump will have a final footprint of 27.7 hectares and a volume of 4.35 million cubic metres. The dump will reach a maximum height of 20m using 10m lifts with 8m wide berms. The outer faces of the waste dump will be battered to a maximum angle of 15 degrees and then rehabilitated using the stockpiled topsoil and vegetative material. Topsoil will be applied using a scraper or by truck dumping and spreading with a bulldozer. Batters will be contour ripped to minimise water erosion.
43	The objective of mine closure is to return disturbed areas as close as possible to their original state. Mine closure will include: · removal of all infrastructure; · removal and treatment of any contaminated material (i.e. hydrocarbons); · removal and burial of bund liners; · rehabilitation of disturbed areas; · ensuring the pits are made safe to prevent accidental access; · closure of the abandonment bund; and · establishment of photographic monitoring sites at various locations around the site.
43	The waste dump will be rehabilitated progressively commencing with the lower batter. The following techniques will be used:

Department of Mines and Petroleum File No. EARS-MP-29516;	
Page No	**Conditions**
	· Faces will be battered down to an angle of not greater than 15 0 using a bulldozer; · An 8m berm will be constructed at 10 m of vertical height and will be back sloped to enable containment of water. · Bunds will be constructed across the berm at regular intervals to form water holding compartments. · The final waste dump height will be no greater than 20m; · A windrow will be constructed around the outer perimeter of the upper surface of the waste dump to prevent runoff; · A layer of topsoil will be applied over the surface of the dump and will not exceed 200mm to minimise erosion potential; · Vegetation will be spread over the top surface of the waste dump; · The waste dump will be contour ripped using a bulldozer equipped with a triple tine ripper; · It is expected that significant revegetation of endemic species will be achieved without the addition of seed. Seed will be applied at a later date if it is determined that particular flora species are missing. · Monitoring sites will be established at various points on the waste dump.
43	Bunded areas such as the fuel farm will be rehabilitated by: · Removal of the infrastructure; · Removal and appropriate treatment of any contaminated material; · Removal and burial of the liner; · Filling the bunded area by pushing the walls in to the centre; · Applying topsoil; and · Contour ripping if necessary.
43	Compacted areas will be rehabilitated by respreading topsoil and deep contour ripping the area. Seed will be applied at a later date if necessary.
43	Trial sites have been established at the Coyote mine site and will provide information that can then be used to determine suitable completion criteria.
43	A consultant will be engaged to establish completion criteria that satisfactorily enable a stable and self-sustaining environment during post closure.
43	A revised Closure Plan will be submitted in March of 2012 with the AER that will incorporate criteria that can be assessed to determine rehabilitation success.

Table A81: Mining Proposal REG ID: 33195 Tailings Management Cell 2 Stage 3 Construction (November 2011)

Mining Proposal REG ID: 33195	
Page No	**Conditions**
21	Closure of the tailings storage at the end of the life of the Project will include capping of the upper surface of the cells with a layer of waste rock, followed by application of topsoil.
23	At the end of the Project the upper surface of the cell will be covered with waste rock to form a capillary break. The waste material will be covered with topsoil, deep ripped and seeded with local native species. A 500mm bund will be constructed around the outer perimeter of the structure to contain rainfall without the embankment being overtopped. Water collecting on the surface will evaporate (average evaporation is approximately nine times the average rainfall), with the capillary break preventing the rise of salt.
23	Rehabilitation trials at the Coyote site have demonstrated that regrowth of native vegetation can be achieved without the addition of seed. A substantial seed bank is contained within top soil, which has been stockpiled at various locations around the site. Vegetation monitoring sites will be established to enable assessment of revegetation success. Seeding will be undertaken at a later date if required to introduce any missing endemic flora species.

Table A82: Letter of Intent REG ID: 33653 Installation of a fire break and ammonium nitrate storage area (December 2011)

Mining Proposal REG ID: 33653	
Page No	**Conditions**
3	All areas will be re-topsoiled, ripped and seeded upon completion of mining operations at the site.

Table A83: Coyote Project Cell 2 Stage 3 Lift (REG ID 33195) (January 2012)

Mining Proposal REG ID 33195	
Condition	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A84: Letter Titled Coyote Project Cell 2 Stage 3 Lift (REG ID 33195) (February 2012)

Mining Proposal REG ID: 33653	
Page No	**Conditions**
1	A final waste dump design for closure is currently being developed and will be included with the Coyote Mine Site Closure and Decommissioning Plan that will be submitted with the 2012 AER.

Table A85: Programme of Works E80/1679 and E80/1483 EXP 36889 September 2012

POW REG ID: 36889	
Page No.	**Conditions**
1	Vegetation stockpiled separately for use in rehabilitation when constructing drill pads
1	Topsoil and vegetation stockpiled separately for use in rehabilitation when constructing sumps and/or costeans
1	Drill holes secured immediately after drilling (capped/plugged)
1	Drill holes securely plugged below ground at minimum depth of 400mm within 6 months of drilling (If not using concrete, conical plugs, please specify type in Other)
1	Scarifing/Ripping of compacted areas on the contour
1	Blocking access to tracks
1	Drill sample piles rehabilitated or buried
1	All rubbish removed from site (including any hydrocarbon spills)
1	Excavations (e.g. sumps, costeans etc.) backfilled and respread with topsoil and cleared vegetation

Table A86: REG ID 37006 Amended Mining Proposal Stage 2L Sandpiper and Kookaburra Open Pits, Osprey and Haul Road (September 2012)

Mining Proposal REG ID: 37006 EARS-MP-37006	
Page No	**Conditions**
15	The water evaporation pond is in care and maintenance as it may be required for future underground mining activities at the site. The area surrounding the evaporation and its walls have been covered with topsoil and lightly ripped to encourage revegetation and stability during the rehabilitation program in May/June 2012. When sufficiently dried the contents remaining in the floor of the evaporation dam are to be windrowed up and trucked away to the pit to remove saline content. The content is to be placed in the Kookaburra Pit which already contains the saline water.
15	The floor of the evaporation dam is to be sampled for salinity both using field testing equipment and laboratory analysis. The sampling process will be repeated after 12 months to assess whether any more material needs to be removed before more permanent rehabilitation could occur, this would be due to capillary salt rise.
17	The project involves the removal of 17,000 tonnes of ore and any waste produced from the project will be contained in the small pit that is developed.
17	There is to be no waste rock dump construction from the materials from the Osprey Deposit and hence the clay content of the materials will not pose dispersion issue.
40	Tanami will comply with all applicable legislation during the operation and decommissioning/closure of Stage 2 of the Coyote Project.

Mining Proposal REG ID: 37006 EARS-MP-37006	
Page No	**Conditions**
43	• Topsoil and Soil Profiles - Topsoil and subsoil depths are variable within the Sandpiper and Kookaburra areas ranging from 0 to 800mm. Topsoil containing organic material is typically a thin layer, approximately 100mm in depth. The remaining subsoil is sandy loam to a depth of up to 800mm in some areas. Site preparation involved topsoil and subsoil stripping to a depth of approximately 250mm in suitable areas using a scraper. The material will be blended and stockpiled in strategic locations around the mine site. Figure 2.1 shows the location of topsoil stockpiles.
43	No Waste Rock will be generated by the mining of the Osprey deposit. The minor portions of waste to be mined to allow ramps to access the ore zones will be stockpiled internally within the pit. At the completion of mining the base of the Open cut will be filled by this waste. Effectively the small scale Osprey operation will resemble a borrow pit. The batters that remain with be at an angle that will allow a vehicle to drive in and out of it from any angle, if this is not achieved than an abandonment bund will be installed around the pit.
45	The objective of mine closure is to return disturbed areas as close as possible to their original state. Mine closure will include: • removal of all infrastructure; • removal and treatment of any contaminated material (i.e. hydrocarbons); • removal and burial of bund liners; • rehabilitation of disturbed areas; • ensuring the pits are made safe to prevent accidental access; • closure of the abandonment bund if required at Osprey; and • establishment of photographic monitoring sites at various locations around the site.
45	The open cut mining has been completed at the Kookaburra and Sandpiper Pits however the mining potential remains and is the subject to further feasibility work. The current plan involved rehabilitation in two stages and the first has been completed.
47	Stage 1: a) The horizontal area at the top (approximately 20m) is to be separated into cells that hold water; top soiled the cells and ripped. A bund along the top edge of the waste dump adjoin the batter will be constructed to a level that will contain a 1 in 100 year ARI event. b) The eastern side of the waste landform is to be completely rehabilitated. c) At the 8m level a back sloped berm is constructed to capture and hold water from the upper batter. d) Toe drain to be installed with cells to capture sediments and prevent the smothering of surrounding vegetation. e) All unused areas area to be top soiled if need be and ripped to reduce the mining disturbance. f) Lower batters of western side rehabilitated except ramps and other potential area that would be needed for operations. g) Fuel related infrastructure and all potential contaminants removed from site to limit potential for future spills and proper disposal or

Mining Proposal REG ID: 37006 EARS-MP-37006	
Page No	**Conditions**
	remediation of controlled wastes.
47	Stage 2: • All offices and other remaining infrastructure are to be removed. • Faces will be battered down to an angle of not greater than 15 degrees using a bulldozer. • If no more mining is to occur the mid-level batter from the 8m level to the 20m level running through the middle of the waste dump and facing east will be battered to the target slope and topsoil. This was to be the active tip head to bring the entire waste dump to the 20m level. All areas will then be topsoiled. • Bunds will be constructed across the berm at regular intervals to form water holding compartments and limit the potential volume and flow resulting from large rainfall events. • The final waste dump height will be no greater than 25m; • A windrow will be constructed around the outer perimeter of the upper surface of the waste dump to prevent runoff. The Bunds along the edge of each level are to be constructed to hold an ARI 72hr, 1:100 year event to prevent large gullies from drainage off the waste dump. • Bunded cells will be installed on the top of the waste dump and other flat areas to minimise the potential for water to accumulate in significant quantities and flow over down the batters; • A layer of topsoil will be applied over the surface of the dump and will not exceed 200mm to minimise erosion potential, ideally this amount is 50mm to encourage surface roughness and limit erosion potential; • Locally collected native seed will be spread over the top surface of the waste dump; • The waste dump will be lightly contour ripped using a bulldozer, large contour lines will be avoided as they can concentrate flow; • It is expected that significant revegetation of endemic species will be achieved without the addition of seed. Seed will be applied at a later date if it is determined that particular flora species are missing. • Monitoring sites will be established at various points on the waste dump using Land Function analysis methods.
48	The outer faces of the Open Cut will be battered to a maximum angle of 15 degrees and then rehabilitated using the stockpiled topsoil and vegetative material. Topsoil will be applied using a loader and spreading with the excavator. The batters will be contour to minimise water erosion then seeded. The maximum depth of the rehabilitated cut is expected to be less than 6m.
48	Bunded areas such as the fuel farm have already been rehabilitated by: • Removal of the infrastructure; • Removal and appropriate treatment of any contaminated material;

Mining Proposal REG ID: 37006 EARS-MP-37006	
Page No	**Conditions**
	• Removal and burial of the liner; • Filling the bunded area by pushing the walls in to the centre; • Applying topsoil; and • Bull dozer ripping.
48	Compacted areas will be rehabilitated by respreading topsoil and deep contour ripping the area. Seed will be applied at a later date if necessary. Road will only be ripped if it can be done in a manner that does not promote erosion i.e. rip lines along roads going down slopes is not appropriate. Where possible all ripping with be conducted in a manner that is against the flow of water.

Table A87: Mining Proposal Tailings Management Cell 1 Stage 3 and Cell 2 Stage 4 Construction (March 2013)

REG ID: 39026 EARS-MP-39026	
Page No	**Conditions**
24	Closure of the tailings storage at the end of the life of the Project will include capping of the upper surface of the cells with a layer of waste rock, followed by application of topsoil.
26	The downstream slopes of the final embankments of TSF 1 and TSF 2 will be covered with appropriate growth medium, contour ripped, seeded with native species and fertilised as appropriate. Once tailings deposition has been completed within the TSF and the top surface of the tailings has gained some bearing capacity, it will be capped with a layer of mine waste in order to minimise dust generation from the dried tailings and provide support for topsoil / growth medium for re-vegetation.
26	At final closure, the decant structures of all facilities will be sealed by: · removal of the slotted concrete pipes and filter rock to a level between 2 m and 3 m below the surrounding tailings; · backfilling of the remaining slotted concrete pipe void with dried tailings; · covering of the rock layer surrounding the decant structures with geofabric to prevent movement of the fine material through the rock voids; · backfilling of all excavations with tailings to the adjacent tailings level; · capping of the decant areas of the TSFs with clayey mine waste (to be validated with field trials or otherwise); and Upon decommissioning of the facilities, the rehabilitated surface of the facilities will follow the grade of the finished tailings surface and will therefore have the capacity to store a considerable volume of stormwater. Internal bunding may be constructed to distribute the storage of rainfall and to maximise at-source infiltration.
27	The capping waste material will be covered with topsoil, deep ripped and seeded with local native species. A 500mm bund will be

REG ID: 39026 EARS-MP-39026	
Page No	**Conditions**
	constructed around the outer perimeter of the structure to contain rainfall without the embankment being overtopped. Water collecting on the surface will evaporate (average evaporation is approximately nine times the average rainfall), with the capillary break preventing the rise of salt.
27	Rehabilitation trials at the Coyote site have demonstrated that regrowth of native vegetation can be achieved without the addition of seed. A substantial seed bank is contained within top soil, which has been stockpiled at various locations around the site. After discussion and subsequent site visits from Top End Seeds staff it was concluded that the low humidity results in higher seed viability for longer periods of time. Vegetation monitoring sites have been established to enable assessment of revegetation success.
27	To ensure rapid vegetation growth and reduced erosion of bare surfaces TGNL obtained permits from the DEC in 2012 and 2013 to gather seeds for the later rehabilitation of the TSF and waste landform. This will also ensure that the distribution of species can be tailored to resemble pre mining conditions or stability enhancing species can be encouraged to growth. Seed collection is seen as vital for the establishment of key fire resistant species such as eucalypt trees.

Table A88: Works Approval 5460 (M80/559) September 2013

Works Approval W5460/2013/1	
Condition	**Conditions**
No Closure and Rehabilitation related conditions.	

Table A89: Works Approval 5089 (M80/559) February 2012

Works Approval W5089/2011/1	
Condition	**Conditions**
No Closure and Rehabilitation related conditions.	

APPENDIX B

Stakeholder Consultation Register

Stakeholder Consultation Register

Stakeholder Consultation Register					
Date	**Stakeholders**	**Description of Consultation**	**Stakeholder comments/issue**	**Proponent Response and/or resolution**	**Stakeholder Response**
11th August 2006	• Environs Kimberley (EK) • Kimberley Lands Council (KLC)	Meeting to discuss concerns in regards to the Bald Hill Project	EK raised concerns regarding the abandonment of the open pits on completion of mining, suggesting that they be back-filled. KLC are supportive of the mining operation.	Tanami will review the potential to do this nearing the end of mine life. However, given the significant underground potential of these pits, backfilling is currently not economic for the open pit stage of this operation.	
17th August 2006	• Department of Industry and Resources (DoIR) (now DMP)	To discuss Stage 2 of the Coyote Project and seek advice on the details to be included in the Mining Proposal.		Advice given, Mining Proposal written accordingly.	
7th & 8th December 2006	• DoiR • Department of Environment and Conservation (DEC) • Department of Water (DoW)	To conduct the annual environmental inspection and view the Stage 2 area.	Hole capping to be undertaken at Sandpiper and Kookaburra. No further issues raised regarding Stage 2 operations.	Hole capping completed Dec 2006	
15th December 2006	• DoIR	2006 AER Site Inspection and Letter Report.	Letter report including a notification of matters requiring attending (**Appendix J**).		

Stakeholder Consultation Register					
Date	**Stakeholders**	**Description of Consultation**	**Stakeholder comments/issue**	**Proponent Response and/or resolution**	**Stakeholder Response**
17th January 2007	• DEC - EPA Service Unit	To discuss the requirements of the EPS.	Description of the issues to be addressed in the EPS provided to Tanami	EPS written accordingly	
25th January 2007	• Environs Kimberley (EK)	To inform EK of the requirement to produce and EPS and ask for input.	Advised that a site visit would be required before input could be provided		
8th February 2007	• Conservation Council of WA (CCWA)	To advise of the requirement to complete an EPS for Stage 2 and to provide a copy of the Mining Proposal	No input provided at this time.		
19th February 2007	• DEC - EPA Service Unit	TGNL submitted the Draft Environmental Protection Statement (EPS) including Draft Decommissioning and Closure Plan (DCP).	15 March 2007: Concerns raised regarding post mining pits and the potential for impact on the natural ecosystem.	4 April 2007: TGNL submitted a revised EPS.	1 May 2007: Comments received - extensive changes to the format of the DCP required. Further concerns regarding post mining pit voids.
1st March 2007	• EK • CCWA	Site Visit	7th March 2007: Draft EPS supplied for comment. 14 March 2007: Comments received from CCWA. Concerns raised regarding closure and completion criteria.	26th Mach 2007: CCWA Response to Draft EPS and site visit received. 28th March 2007: Comments received from EK. Concerns raised regarding post-mining pits and funding for mine closure	30th March: TGNL response to concerns raised sent via emailed letter. Issues raised addressed in the final June EPS document
26th March	• Department	Site Assessment and	Inspection report including	18 April 2010	

Stakeholder Consultation Register					
Date	**Stakeholders**	**Description of Consultation**	**Stakeholder comments/issue**	**Proponent Response and/or resolution**	**Stakeholder Response**
2010	of Mines and Petroleum (DMP)	Inspection Report	a notification of matters requiring attention. (**Appendix K**)	Letter response to the DMP. Formal response to action items within report. (**Appendix L**)	
30th July 2010	• DMP	Letter to Tanami Gold	Geotechnical Recommendations and submission of a stability report on the intended final TSF Design.	14th August 2010 Letter to Mr Justin Robbins (DMP – Senior Environmental Officer) Re: The requirement to commit to geotechnical recommendations and submission of a stability analysis of the intended final TSF design.	
3rd September 2011	• DMP	Meeting regarding Stage 2 amendments to Mining Proposal and closure plan lodged in 2010	Following this meeting formal correspondence was received indicating the submittal of the site's closure plan was required in 2012 and not 2014 as originally indicated under tenement conditions. The DMP's concern was the initial submission *"provided limited detail on site specific closure strategies for each mining feature…"* and	27th September: Closure plan meeting regarding format and methods	

Stakeholder Consultation Register					
Date	**Stakeholders**	**Description of Consultation**	**Stakeholder comments/issue**	**Proponent Response and/or resolution**	**Stakeholder Response**
			"allocation for the financial provision for the mill decommissioning". In order meet these needs it was agreed that the subsequent plan would be developed in accordance with the *"Guidelines for Preparing Mine Closure Plans, June 2011".*		
October 2011	• CCWA • EK • KLC • Tjurabalan Native Title Land Aboriginal Corporation (TNTLAC)	Letter - provided notice and details on a proposed Tailings Storage Facility 2m wall lift on Cell 2; installation of an oil water separator; concrete lining of the refuelling bay at Coyote; and the HDPE lining of the turkey's nest.	No responses or issues were raise by the parties notified.	Advertisement for the Application of a Works Approval with the DEC for the above projects was published in the Monday West Australian on 6th February 2012 (TGNL 2012c)	
12th February 2012	• Halls Creek Shire	Site visit Discussed proposed seed collection activities and proposed rehabilitation methods	Letter dated 13th February 2012. The Shire of Halls Creek is *"in total support of these works and commends Daniel and his team for understanding the requirements needed for rehabilitation works in such*		

Stakeholder Consultation Register					
Date	**Stakeholders**	**Description of Consultation**	**Stakeholder comments/issue**	**Proponent Response and/or resolution**	**Stakeholder Response**
			a sensitive area". (**Appendix M**)		
11th April 2012	• TNTLAC, • Billiluna Community	Meeting at Billiluna - Closure plan and stakeholders requests discussed at the AGM by TGNL Deputy Chairman	No major issues of concern were raised during the meeting and it was indicated that they preferred to leave the roads, airstrip and any water bores for their use post closure.	TGNL will endeavour to meet the Tjurabalan people's requests.	The Tjurabalan people advised that they will confirm their expectations in writing via Reece O'Brian, lawyer for the KLC.
16th February 2012	• DEC	Licence to Take Flora	Licence received for Tanami to collect flora for site rehabilitation.		

APPENDIX C

Flora Observed in the Coyote Project Area, August 2004 to August 2006

Flora Observed in the Coyote Project Area

August 2004 to August 2006

The following table lists the flora observed in the Coyote Project area and surrounding region. The list is a compilation of information obtained from a survey by MBS Environmental in 2004 and from incidental sightings and surveys by Ecotec (WA) Pty Ltd during 2006 and 2007.

Family	Genus	Species
Aizoaceae		
	Trianthema	*oxycalyptra*
	Trianthema	*pilosa*
	Trianthema	*portulacastrum*^*
	Trianthema	*triquetra*
	Zaleya	*galericulata**
Amaranthaceae		
	Ptilotus	*arthrolasius*
	Ptilotus	*astrolasius var. astrolasius*
	Ptilotus	*calostachyus*
	Ptilotus	*exaltatus*
	Ptilotus	*fusiformis*
	Ptilotus	*gomphrenoides subsp. conglomeratus*
	Ptilotus	*polystachyus*
	Ptilotus	*sp**
Apocynaceae		
	Carissa	*lanceolata*
Ascelepiadaceae		
	Rhyncharrhena	*linearis*
	Marsdenia	*australis*
Asteraceae		
	Flaveria	*australasica*
	Pluchea	*tetranthera*
	Pterocaulon	*serrulatum*
	Pterocaulon	*sphacelatum*
Bignoniaceae		
	Dolichandrone	*heterophylla*
Boraginaceae		
	Halgania	*solanacea*
	Heliotropium	*cunninghamii*
	Heliotropium	*pachyphyllum*

Family	Genus	Species
Byblidaceae		
	Byblis	*filifolia*
Caesalpiniaceae		
	Chamaecrista	*symonii**
	Petalostylis	*cassioides**
	Senna	*artemisioides subsp. oligophylla*
	Senna	*costata*
	Senna	*notabilis*
	Senna	*sericea*
Capparaceae		
	Cleome	*viscose**
Caryophyllaceae		
	Polycarpaea	*corymbosa^*
Chenopodiaceae		
	Maireana	*georgei*
	Salsoa	*tragus*
	Sclerolaena	*cornishiana*
Convolvulaceae		
	Evolvulus	*alsinoides*
	Ipomoea	*costata*
Cyperaceae		
	Bulbostylis	*barbata*
	Fimbristylis	*microcarya*
	Fimbristylis	*simulans*
Droseraceae		
	Drosera	*sp**
Euphorbiaceae		
	Euphorbia	*australis*
Goodeniaceae		
	Brunonia	*austalis*
	Dampiera	*candicans*
	Goodenia	*azurea*
	Goodenia	*microptera*
	Scaevola	*parvifolia*

Family	Genus	Species
Lamiaceae		
	Dicrastylis	*doranii*
	Dicrastylis	*exsuccosa*
	Lysiana	*spathulata**
	Newcastelia	*spodiotricha*
Lauraceae		
	Cassytha	*capillaries*
Loranthaceae		
	Lysiana	*spathulata*
Malvaceae		
	Abutilon	*macrum*
	Abutilon	*octocarpum*
	Gossypium	*australe*
	Hibiscus	*leptocladus*
	Sida	*arenicola*
	Sida	*fibulifera*
Meliaceae		
	Owenia	*reticulata*
Mimosaceae		
	Acacia	*adoxa*
	Acacia	*adsurgens*
	Acacia	*ancistrocarpa*
	Acacia	*bivenosa*
	Acacia	*coriacea*
	Acacia	*hilliana**
	Acacia	*lysiphloia*
	Acacia	*orthocarpa*
	Acacia	*stellaticeps*
	Acacia	*stipuligera*
	Acacia	*victoriae*
	Acacia	*wiseana*
Molluginaceae		
	Mollugo	*molluginis*

Family	**Genus**	**Species**
Myoporaceae		
	Eremophila	*latrobei*
	Eremophila	*longifolia*
Myrtaceae		
	Calytrix	*carinata*
	Corymbia	*opaca* (formerly *E. terminalis*)
	Eucalyptus	*aspera**
	Eucalyptus	*brevifolia*
	Eucalyptus	*gamophylla*
	Eucalyptus	*kingsmillii**
	Eucalyptus	*odontocarpa**
	Eucalyptus	*pachyphylla**
	Eucalyptus	*pruinosa**
	Eucalyptus	sp. (several hybrids)
	Melaleuca	*accacioides*
Papilionaceae		
	Aenictophyton	*reconditum**
	Crotalaria	*medicaginea*
	Indigofera	*brevidens*
	Indigofera	*colutea*
	Indigofera	*monophylla*
	Jacksonia	*aculeta*
	Leptosema	*anomalum*
	Mirbelia	*viminalis*
	Tephrosia	*uniovulata*
Poaceae		
	Aristida	*contorta*
	Aristida	*holathera*
	Aristida	*latifolia*
	Aristida	sp.
	Cenchrus	*biflorus*^*
	Cenchrus	*ciliaris*^*
	Chloris	*inflata*^*
	Cymbopogon	*bombycinus*

Family	Genus	Species
	Cynodon	*dactylon*^
	Digitaria	*brownii*
	Enneapogon	*caerulescens**
	Enneapogon	*polyphyllus*
	Enneapogon	*purpurascens**
	Eragrosits	*cumingii*
	Eragrostis	*eriopoda**
	Eragrostis	*setifolia*
	Eriachne	*aristidea*
	Eriachne	*ciliata*
	Eriachne	*melicacea*
	Eriachne	*obtusa*
	Schizachyrium	*fragile*
	Sporobolus	*australasicus*
	Triodia	*basedowii**
	Triodia	*intermedia*
	Triodia	*pungens*
	Triodia	*schinzii*
Portulacaceae		
	Portulaca	*oleracea*
Proteaceae		
	Hakea	*lorea*
	Hakea	*macrocarpa*
	Hakea	*suberea**
	Grevillea	*eriostachya*
	Grevillea	*refracta*
	Grevillea	*stenobotrya**
	Grevillea	*wickhamii**
Rubiaceae		
	Spermacoce	*auriculata*
Sapindaceae		
	Dodonaea	*coriacea*
Scrophulariaceae		
	Mimulus	*uvedaliae* var. *uvedaliae*

Family	Genus	Species
Solanaceae		
	Solanum	*chippendalei**
	Solanum	*diversiflorum*
	Physalis	*angulata**^
Stackhousiaceae		
	Macgregoria	*racemigera*
	Stackhousia	*intermedia*
Sterculiaceae		
	Keraudrenia	*nephrosperma*
	Melhania	*oblongifolia*
Stylidiaceae		
	Stylidium	*inaequipetalum*
Thymelaeaceae		
	Pimelea	*ammocharis**
Tiliaceae		
	Corchorus	*sidoides*
Violaceae		
	Hybanthus	*aurantiacus*
	Hybanthus	*enneaspermus*
Zygophyllaceae		
145	*Tribulus*	*occidentalis*

*Additional flora species found during 2006 surveys.

^Introduced flora species.

APPENDIX D

Fauna Observed in the Coyote Project Area, August 2004 to August 2006

Vertebrate fauna species observed or expected within the Western Tanami Area

August 2004 to August 2006

Birds

Family	Species	Common name	Observed
CASUARIIDAE (emus)			
	Dromaius novaehollandiae	Emu	+
PHASIANIDAE (pheasants and quails)			
	Coturnix ypsilophora	Brown Quail	+
ACCIPITRIDAE (kites, hawks and eagles)			
	Elanus caeruleus axillaris	Black-shouldered Kite	+
	Lopoictinia isura	Square-tailed Kite	
	Hamirostra melanosternon	Black-breasted Buzzard	+
	Milvus migrans	Black Kite	+
	Haliastur sphenurus	Whistling Kite	
	Accipiter fasciatus	Brown Goshawk	
	Accipiter cirrhocephalus	Collared Sparrowhawk	
	Aquila audax	Wedge-tailed Eagle	+
	Hieraaetus morphnoides	Little Eagle	+
	Circus assimilis (button quails)	Spotted Harrier	+
FALCONIDAE (falcons)			
	Falco subniger	Black Falcon	+
	Falco peregrinus	Peregrine Falcon	
	Falco hypoleucos	Grey Falcon	+
	Falco berigora berigora	Brown Falcon	+
	Falco cenchroides cenchroides	Australian Kestrel	+
	Falco longipennis	Australian Hobby	+
TURNICIDAE (button-quails)			
	Turnix velox	Little Button-quail	+
OTIDIDAE (bustards)			
	Ardeotis australis	Australian Bustard	+
BURHINIDAE (stone-curlews)			
	Burhinus grallarius	Bush Stone-curlew	+
GLAREOLIDAE (pratincoles)			
	Glareola maldivarum	Oriental Pratincole	

Fauna species observed or expected in the Western Tanami Region August 2004 – August 2006

Family	Species	Common name	Observed
	Stiltia isabella	Australian Pratincole	+
CHARADRIIDAE (plovers and dotterels)			
	Charadrius tricolor	Banded Lapwing	
	Vanellus miles	Masked Lapwing	
	Charadrius veredus	Oriental Plover	+
COLUMBIDAE (pigeons and doves)			
	Geopelia placida	Peaceful Dove	
	Phaps chalcoptera	Common Bronzewing	
	Phaps histrionica	Flock Bronzewing	+
	Ocyphaps lophotes	Crested Pigeon	+
	Geophaps plumifera	Spinifex Pigeon	+
	Geopelia cuneata	Diamond Dove	+
CACATUIDAE (cockatoos)			
	Cacatua sanguinea	Little Corella	+
	Cacatua leadbeateri	Major Mitchell's Cockatoo	+
	Cacatua roseicapilla	Galah	
PSITTACIDAE (lorikeets and parrots)			
	Nymphicus hollandicus	Cockatiel	+
	Platycercus zonarius zonarius	Australian Ringneck	+
	Melopsittacus undulatus	Budgerigar	+
	Polytelis alexandrae	Princess Parrot	
	Pezoporus occidentalis	Night Parrot	
CUCULIDAE (cuckoos)			
	Chrysococcyx basalis	Horsfield's Bronze Cuckoo	+
	Cuculus pallidus	Pallid Cuckoo	+
	Chrysococcyx osculans	Black-eared Cuckoo	
	Scythrops novaehollandiae	Channel-billed Cuckoo	
ACANTHIZIDAE			
	Acanthiza apicalis	Broad-tailed Thornbill	+
STRIGIDAE (hawk-owls)			
	Ninox novaeseelandiae	Boobook Owl	+

Family	Species	Common name	Observed
TYTONIDAE (barn owls)			
	Tyto alba	Barn Owl	
PODARGIDAE (frogmouths)			
	Podargus strigoides	Tawny Frogmouth	
AEGOTHELIDAE (owlet-nightjars)			
	Aegotheles cristatus	Australian Owlet-nightjar	
CAPRIMULGIDAE (nightjars)			
	Eurostopodus argus	Spotted Nightjar	+
APODIDAE (swifts)			
	Apus pacificus	Fork-tailed Swift	
HALCYONIDAE (forest kingfishers)			
	Todiramphus pyrrhopygia	Red-backed Kingfisher	+
	Todiramphus sanctus	Sacred Kingfisher	+
MEROPIDAE (bee eaters)			
	Merops ornatus	Rainbow Bee-eater	+
MALURIDAE (fairy wrens)			
	Malurus lamberti assimilis	Variegated Fairy-wren	+
	Malurus leucopterus leuconotus	White-winged Fairy-wren	+
	Stipiturus ruficeps ruficeps	Rufous-crowned Emu-wren	+
	Amytornis striatus	Striated Grasswren	
PARDALOTIDAE (pardalotes)			
	Gerygone fusca	Western Greygone	
	Pardalotus rubricatus	Red-browed Pardalote	+
	Pardalotus striatus uropygialis	Striated Pardalote	+
	Smicrornis brevirostris	Weebill	
MELIPHAGIDAE (honeyeaters)			
	Lichmera indistincta indistincta	Brown Honeyeater	+

Fauna species observed or expected in the Western Tanami Region August 2004 – August 2006

Family	Species	Common name	Observed
	Certhionyx niger	Black Honeyeater	+
	Certhioyx variegatus	Pied Honeyeater	+
	Lichenostomus virescens	Singing Honeyeater	+
	Lichenostomus keartlandi	Grey-headed Honeyeater	+
	Lichenostomus plumulus	Grey-fronted Honeyeater	
	Lichenostomus penicillatus	White-plumed Honeyeater	+
	Melithreptus gularis laetior	Black-chinned Honeyeater	+
	Phylidonyris albifrons	White-fronted Honeyeater	
	Manorina flavigula	Yellow-throated Miner	+
	Acanthagenys rufogularis	Spiny-cheeked Honeyeater	+
	Epthianura tricolor	Crimson Chat	
PETROICIDAE (Australian robins)			
	Petroica goodenovii	Red-capped Robin	
	Petroica cucullata	Hooded Robin	
POMATOSTOMIDAE (Australian babblers)			
	Pomatostomus temporalis	Grey-crowned Babbler	
PACHYCEPHALIDAE (whistlers)			
	Oreoica gutturalis	Crested Bellbird	+
	Pachycephala rufiventris rufiventris	Rufous Whistler	+
	Colluricincla harmonica brunnea	Grey Shrike-thrush	+
DICRURIDAE (flycatchers)			
	Rhipidura leucophrys leucophrys	Willie Wagtail	+
	Grallina cyanoleuca	Magpie-lark	+
	Myagra inquieta	Restless Flycatcher	
CAMPEPHAGIDAE (cuckoo-shrikes)			
	Coracina novaehollandiae subpallida	Black-faced Cuckoo-shrike	+
	Lalage tricolor	White-winged Triller	+
ARTAMIDAE (woodswallows)			
	Artamus leucorhynchus	White-breasted Woodswallow	
	Artamus personatus	Masked Woodswallow	+
	Artamus superciliosus	White-browed Woodswallow	

Family	Species	Common name	Observed
	Artamus cinereus melanops	Black-faced Woodswallow	+
	Artamus minor	Little Woodswallow	
	Gymnorhina tibicen	Australian Magpie	+
	Cracticus nigrogularis	Pied Butcherbird	+
CORVIDAE (ravens and crows)			
	Corvus bennetti	Little Crow	+
	Corvus orru	Torresian Crow	+
ALAUDIDAE (larks)			
	Mirafra javanica horsfieldii	Singing Bushlark	+
MOTACILLIDAE (pipits and true wagtails)			
	Anthus australis	Australian Pipit	
PASSERIDAE (finches and allies)			
	Emblema picta	Painted Firetail	
	Heteromunia pectoralis	Pictorella Mannikin	
	Taeniopygia guttata castanotis	Zebra Finch	+
DICAEIDAE (flower-peckers)			
	Dicaeum hirundinaceum hirundinaceum	Mistletoebird	+
HIRUNDINIDAE (swallows)			
	Cheramoeca leucosternus	White-backed Swallow	
	Hirundo nigricans	Tree Martin	
	Hirundo ariel	Fairy Martin	
SYLVIIDAE (Old World warblers)			
	Eremiornis carteri	Spinifex-bird	
	Cincloramphus mathewsi	Rufous Songlark	+
	Cincloramphus cruralis	Brown Songlark	+
	Cisticola exilis exilis	Golden-headed Cisticola	+

Fauna species observed or expected in the Western Tanami Region August 2004 – August 2006

Mammals

Family	Species	Common name	Observed
TACHYGLOSSIDAE (echidnas)			
	Tachyglossus aculeatus	Echidna	
DASYURIDAE			
	Dasycercus cristicauda	Mulgara	+
	Ningaui ridei	Ningaui	+
	Pseudantechinus macdonnellensis	Fat-tailed False Antechinus	+
	Sminthopsis macroura	Striped-faced Dunnart	+
	Sminthopsis youngsoni	Lesser Hairy Footed Dunnart	+
THYLACOMYIDAE (bilbies or rabbit-eared bandicoots)			
	Macrotis lagotis	Bilby	+
MACROPODIDAE (kangaroos and wallabies)			
	Lagorchestes conspicillatus	Spectacled Hare-wallaby	+
	Macropus robustus	Euro	
	Macropus rufus	Red Kangaroo	+
	Onychogalea unguifera	Northern Nail-tail Wallaby	+
MEGADERMATIDAE (leaf-nose bats)			
	Rhinonicteris aurantius	Orange Leaf-nose Bat	
EMBALLONURIDAE (sheathtail bats)			
	Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	
	Taphozous georgianus	Common Sheathtail Bat	
VESPERTILIONIDAE (vesper bats)			
	Chalinolobus gouldii	Gould's Wattled Bat	
	Nyctophilus geoffroyi	Lesser Long-eared Bat	
	Scotorepens balstoni	Inland Broad-nosed Bat	
	Scotorepens greyii	Little Broad-nosed Bat	
	Tadarida australis	White-striped Mastiff-Bat	+
	Vespadelus finlaysoni	Inland Cave Bat	
MURIDAE (rats and mice)			
	*Mus musculus**	House Mouse	+
	Notomys alexis	Spinifex Hopping Mouse	+

Fauna species observed or expected in the Western Tanami Region August 2004 – August 2006

Family	Species	Common name	Observed
	Pseudomys delicatulus	Delicate Mouse	+
	Pseudomys desertor	Desert Mouse	+
	Pseudomys hermannsburgensis	Sandy Inland Mouse	+
	Pseudomys nanus	Western Chestnut Mouse	+
	Pseudomys johnsoni	Pebble-mound Mouse	+
CANIDAE (foxes and dogs)			
	Canis lupus dingo	Dingo	+
	*Vulpes vulpes**	Red Fox	
FELIDAE (cats)			
	*Felis catus**	Cat	+
CAMELIDAE (horned ruminants)			
	*Camelus dromedarius**	Camel	+
EQUIDAE (horses and donkeys)			
	*Equus asinus**	Feral Donkey	
	*Equus caballus**	Feral Horse	

Reptiles and Amphibians

Family	Species	Common name	Observed
Myobatrachidae (ground frogs)			
	Crinia bilingua	Bilingual Froglet	
	Lymnodynastes ornatus	Ornate Frog	
	Neobatrachus aquilonius	Northern Burrowing Frog	+
	Notaden nichollsi	Desert Spadefoot	+
	Uperoleia borealis	Northern Toadlet	
	Uperoleia micromeles	Tanami Toadlet	+
Hylidae (tree frogs)			
	Cyclorana australis	Giant Frog	+
	Cyclorana longipes	Long-footed Frog	
	Litoria rubella	Desert Tree Frog	
Gekkonidae (geckoes)			
	Diplodactylus ciliaris		+
	Diplodactylus conspicillatus	Fat-tailed Gecko	+
	Diplodactylus stenodactylus	Sandplain Gecko	+
	Gehyra australis		
	Gehyra pilbara	Pilbara Delta	
	Gehyra purpurascens		+
	Gehyra variegata		+
	Heteronotia binoei	Bynoe's Gecko	+
	Nephrurus levis levis		+
	Rhynchoedura ornata		+
	Strophurus elderi		
	Strophurus jeanae		+
Pygopodidae (legless lizards)			
	Delma borea		+
	Delma nasuta		+
	Lialis burtonis	Burtons's Legless Lizard	+
	Pygopus nigriceps	Hooded Scaleyfoot	+
Agamidae (dragon lizards)			
	Amphibolurus gilberti		
	Cryptagama aurita		
	Ctenophorus caudicinctus		

Family	Species	Common name	Observed
	Ctenophorus isolepis isolepis		+
	Ctenophorus nuchalis		+
	Diporiphora arnhemica		
	Diporiphora bennettii		
	Diporiphora bilineata		
	Diporiphora lalliae		+
	Diporiphora winneckei		+
	Lophognathus longirostris		+
	Moloch horridus	Thorny Devil	+
	Pogona minor minor		+
Scincidae (skink lizards)			
	Carlia munda		+
	Carlia triacantha		+
	Cryptoblepharus plagiocephalus		
	Ctenotus grandis titan		+
	Ctenotus helenae		+
	Ctenotus inornatus		
	Ctenotus leonhardii		
	Ctenotus melanops		
	Ctenotus pantherinus ocellifer		+
	Ctenotus piankai		+
	Ctenotus quattuordecimlineatus		+
	Ctenotus saxatilis		
	Ctenotus schomburgkii		+
	Ctenotus tanamiensis		+
	Egernia kintorei	Giant Desert Skink	
	Egernia striata		
	Eremiascincus fasciolatus		+
	Lerista bipes		+
	Lerista greeri		+
	Lerista taeniata		
	Menetia greyii	Dwarf Skink	
	Morethia ruficauda ruficauda		+
	Notoscincus ornatus		
	Tiliqua multifasciata	Central Bluetongue	+

Fauna species observed or expected in the Western Tanami Region August 2004 – August 2006

Family	Species	Common name	Observed
Varanidae (monitors and goannas)			
	Varanus acanthurus	Ridge-tailed Monitor	+
	Varanus brevicauda		+
	Varanus eremius		+
	Varanus gilleni		
	Varanus gouldii	Gould's/Sand Monitor	+
	Varanus kingorum		
	Varanus mertensi		
	Varanus storri		
	Varanus tritis	Black-tailed Monitor	+
Boidae (pythons)			
	Antaresia childreni	Children's Python	
	Aspidites melanocephalus	Black-headed Python	+
	Aspidites ramsayi	Woma	+
Typhlopidae (blind snakes)			
	Ramphotyphlops diversus		+
	Ramphotyphlops grypus		+
	Ramphotyphlops guentheri		
Elapidae (front-fanged snakes)			
	Acanthophis pyrrhus	Desert Death Adder	
	Brachyurophis roperi		+
	Demansia olivacea	Olive Whip Snake	
	Furina ornata	Moon Snake	
	Pseudechis australis	Mulga Snake	+
	Pseudechis modesta	Ringed Brown Snake	+
	Pseudochis nuchalis	Gwardar/Western Brown Snake	+
	Simoselaps anomalus		+
	Suta punctata	Spotted snake	+

+ = observed
* = introduced species
Note: observations include sightings and evidence of the species (i.e. tracks, scats, burrows)

APPENDIX E

Fauna Codes and Terms Used to Describe Conservation Significance Status

Status	Code	Description
Categories used under the *EPBC Act*		
Critically Endangered	CR	Fauna that is considered to be facing an extremely high risk of extinction in the wild in the immediate future
Endangered	EN	Fauna that is considered to be facing a very high risk of extinction in the wild in the near future
Vulnerable	VU	Fauna that is considered to be facing a high risk of extinction in the wild in the medium-term future
Migratory	M	Species that migrate to, over and within Australia and its external territories.
Schedules used under the *WC Act*		
Schedule 1	S1	Fauna that is rare or likely to become extinct. Threatened fauna listed under Schedule 1 of the *WC Act* are further ranked by the DEC, according to the level of threat facing each species. The ranks are CR, EN and VU.
	CR	Critically endangered: considered to be facing an extremely high risk of extinction in the wild
	EN	Endangered: considered to be facing a very high risk of extinction in the wild
	VU	Vulnerable: considered to be facing a high risk of extinction in the wild
Schedule 2	S2	Fauna that is presumed to be extinct
Schedule 3	S3	Birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds
Schedule 4	S4	Fauna that is in need of special protection, other than for reasons mentioned above
DEC Priority Fauna List		
Priority 1	P1	Taxa with few, poorly known populations on threatened lands. These are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

Status	Code	Description
Priority 2	P2	Taxa with few, poorly known populations on conservation lands. These are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
Priority 3	P3	Taxa with several, poorly known populations, some on conservation lands. These are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
Priority 4	P4	Taxa in need of monitoring. These are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
Priority 5	P5	Taxa in need of monitoring. These are not considered threatened but are subject to a specific conservation programme, the cessation of which would result in the species becoming threatened within five years.

APPENDIX F

Completion Criteria that apply to the Features of each Domain

Coyote and Bald Hill Closure Objectives and Completion Criteria

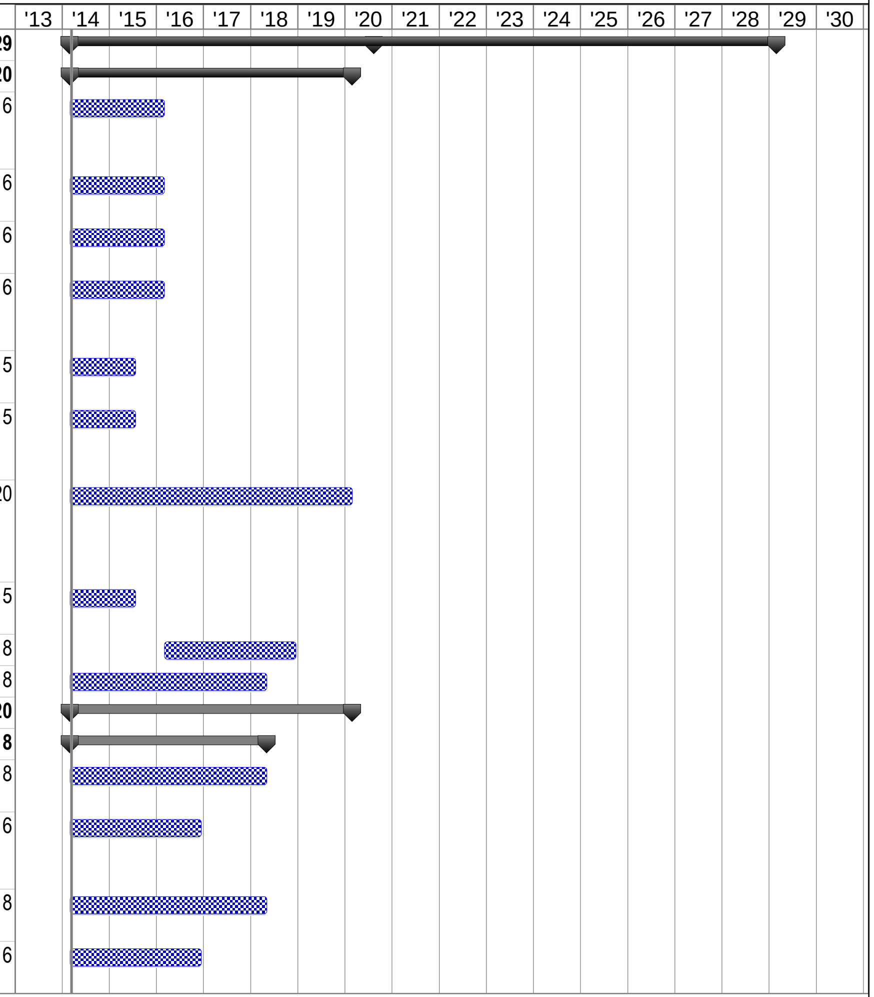
	Closure Objective	Completion criteria	Type of monitoring	Performance Indicators	1A. Coyote Landform Domain				1B. Bald Hill Landform Domain			2. Industrial Infrastructure	3. Water Containment Structures	4. Mining Infrastructure	5. Groundwater Infrastructure	6. Roads	7. Exploration Disturbance
1. Compliance					1.1 Coyote WRL	1.2 Coyote TSF	1.3 Coyote ROM Pad	1.4 Coyote Topsoil Stockpiles	1.1 Bald Hill WRL	1.2 Bald Hill ROM Pads and Stockpiles	1.3 Bald Hill Topsoil Stockpiles	All Coyote and Bald Hill Industrial Infrastructure	All Coyote and Bald Hill Water Containment Structures	All Coyote and Bald Hill Mining Infrastructure	All Coyote and Bald Hill Groundwater Infrastructure	All Coyote and Bald Hill Roads	All Coyote and Bald Hill Exploration Disturbance
1.1	All legally binding conditions and commitments relevant to rehabilitation and closure will be met.	All conditions and commitments are met.	Auditing.	All conditions and commitments are achieved.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
1.2	Infrastructure will be retained or removed in accordance with agreed post mining land use in consultation with relevant stakeholders.	Retained infrastructure will be left in a safe condition and transferred to a legally responsible entity. Infrastructure and equipment that is not retained will be removed in accordance with the post-mining land use of the area.	Inspections of retained features prior to handover. Signed asset transfer agreement in place prior to transfer of legal responsibility. Review against Decommissioning Plans.	Removal of all redundant surface infrastructure where required. Transfer of liabilities completed.								✔			✔	✔	
1.3	To rehabilitate using best practice rehabilitation techniques and within the constraints of the post mining environment.	Rehabilitation is conducted using leading practice rehabilitation techniques and within the limits of the expected post mining environment.	Qualitative assessment. Auditing.	Compliance with regulatory standards through audits.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
1.4	The application of rehabilitation material is prioritised over all areas requiring rehabilitation.	Survey volumes of topsoil and other rehabilitation material required. Prepare a plan to prioritise the application of available topsoil and other rehabilitation materials.	Verify against Mine Closure Plan and/or appropriate management plan. Auditing and verification of disturbance and rehabilitation for Mine Rehabilitation Fund and AER reporting.	Compliance with Mine Closure Plan.	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔
1.5	Surface drainage patterns prevent impact to the downstream environment	Surface drainage to downstream environments is not adversely affected by development and closure of the operation. Surface drainage patterns do not impact on the integrity of landforms.	Audit against appropriate management plan.	Compliance with appropriate management plan. Repairs are undertaken as necessary where site audits identify adverse impacts to landforms or downstream environment.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
1.6	Groundwater quality and levels to reflect original water chemistry as much as practicable.	Groundwater chemistry and levels fall within the seasonal variability as recorded during monitoring prior to and during early mine development.	Groundwater monitoring data compared against available data recorded prior to and during early mine development.	Compliance with legally binding documentation and legislature	✔	✔	✔		✔	✔		✔	✔		✔		
2. Landform																	
2.1	Establish a safe, non-polluting post mining landscape which supports vegetation growth and resistance to erosion.	Landforms are conducive to re-vegetation and are constructed to support local provenance vegetation.	Establishment of vegetation communities is monitored against target ecosystems.	Compliance with proposed completion criteria for vegetation.	✔	✔	✔		✔	✔							
		Final surfaces develop resistance to erosive forces. Final surface water management and drainage has been incorporated into the landform design. Establish rehabilitation profiles that promote soil stability.	Audit constructed landform for compliance against design specifications. Surface stability and erosion features of the landform will be monitored.	Full compliance with approved landform design. Rehabilitation area meets agreed standard. Re-work is undertaken as necessary where rehabilitation areas do not meet the agreed standard.	✔	✔	✔		✔	✔			✔				
2.2	Establish a safe and stable TSF.	Compliance with relevant TSF guidelines for landform safety and stability.	Audit of Tailings Storage Facility as per tenement conditions.	Full compliance with regulatory guidelines.		✔											
2.3	Appropriately manage mine waste throughout the life of mine.	Waste placement is according to design. Waste placement aligns with material characterisations. Mined waste materials with potential for adverse environmental impact are managed appropriately.	Audit of waste placement against material characterisations and landform design	Material characterisations align with waste placement according to design. Full compliance with placement and cover specifications in approved landform designs.	✔	✔	✔		✔	✔				✔			
3. Ecosystem Function																	
3.1	The rehabilitated ecosystem has function and resilience indicative of target ecosystem.	Establish rehabilitation profiles that promote soil stability and vegetation growth and are comparable with the surrounding environment.	Ecosystem function assessed to determine infiltration and nutrient cycling values.	Percentage (%) achieves an agreed proportion of the target ecosystem for stability, infiltration and nutrient cycling indices.	✔	✔	✔	✔	✔	✔	✔	✔	✔				
3.2	Vegetation in rehabilitated areas will have values indicative of target ecosystems.	Re-vegetation is represented by local provenance species assemblage. Re-vegetation demonstrates viability through propagule development, and effective recruitment, and is subject to colonisation by surrounding species. Re-vegetation demonstrates values that trend towards relevant target ecosystem sites.	Vegetation assessed to produce a native perennial species richness value.	Achievement of values that trend towards those of relevant analogue sites in terms of density, plant cover and species composition/ richness. Presence of an upper storey in areas where an upper storey is required.	✔	✔	✔	✔	✔	✔	✔	✔	✔				
3.3	The final landscape will have the ability to withstand or have the capacity to recover following stochastic occurrences.	Monitoring confirms that the recruitment of native perennial species reaches sexual maturity. Research trials demonstrate the potential of the rehabilitation to regenerate following fire. Monitoring has confirmed the rehabilitation can survive one or more season of drought. Presence of weed species does not exceed target ecosystems.	Qualitative assessment of vegetation health	Flowering, fruiting, soil seed bank or second generation seedlings Structurally dominant species have reached age sufficient to tolerate fire (defined through research, or review of published information). Recovery of plant populations to appropriate pre-drought levels. No weed species detected that are new to the local area	✔	✔	✔		✔	✔		✔	✔				
3.4	Where the completion criteria above are attained, fauna utilisation, abundance and diversity will trend towards original levels in the areas rehabilitated.	Fauna utilisation is indicative of agreed percentage of target ecosystem.	Frequency and type of habitat structures in rehabilitated areas Qualitative assessment and visual inspection	Fauna habitats demonstrate values trending toward those of relevant target ecosystem sites.	✔	✔	✔		✔	✔		✔	✔		✔	✔	✔
3.5	To monitor environmental performance during rehabilitation and post closure of the Project and take appropriate action until the specified completion criteria have been met.	Adherence to monitoring schedule within the Mine Closure Plan or other applicable management plans.	Audits and Qualitative assessment. Post closure monitoring will be undertaken in accordance with the Mine Closure Plan.	Compliance with approved completion criteria, and appropriate monitoring/ management plan.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
4. Key Stakeholders																	
4.1	Actively engage key stakeholders on a regular basis including attaining agreement on the post-mining land use of Traditional Indigenous Uses	All key stakeholders contacted and given the opportunity to comment on post-mining land use. A post-mining land use has been determined in consultation with key stakeholders. Key stakeholders will be informed on the Project status, and any proposed changes to the Project and Mine Closure Plan.	The post-mining land use has been documented and endorsed by the key stakeholder groups.	Compliance with stakeholder agreements. Priority outcomes of community and stakeholder consultation in relation to closure are taken into consideration in development and reviews of the Mine Closure Plan.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
5. Mining Infrastructure																	
5.1	Inadvertent public access to open pits will be prevented as far as is practicable.	Access points to open pits to be blocked off to conform to appropriate guidelines, regulations and existing approvals.	Audit against the Department of Industry and Resources (DoIR) Safety Bund Walls Around Abandoned Open Pit Mines Guideline. 1997 Visual assessment to ensure that the bund is in place across the open pit ramp.	Compliance with regulatory guidelines and Mine Closure Plan.										✔			
5.2	Declines will be made safe.	Inadvertent access to underground workings is prevented.	Establish process and conduct visual inspections prior to relinquishment.	Compliance with Mine Closure Plan. Risk assessment										✔			

APPENDIX G

Closure Implementation Schedule

Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
1	**Site Wide**	**3914 days**	**Sat 1/03/14**	**Thu 1/03/29**
2	**Research Investigations and Trials**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
3	develop a rehabilitation materials inventory detailing sources and volumes of suitable rehabilitation and cover materials and areas requiring rehabilitation;	522 days	Mon 3/03/14	Tue 1/03/16
4	investigate the requirement to harvest topsoil and/or laterite from roads and/or the firebreak;	522 days	Mon 3/03/14	Tue 1/03/16
5	identify any contaminated sites that may potentially fall within the parameters of the Contaminated Sites Act 2003	522 days?	Mon 3/03/14	Tue 1/03/16
6	assess quantitative landform monitoring results against monitoring reports (EFA) from TGNL Central Tanami site for any applicable targets for performance indicators;	522 days?	Mon 3/03/14	Tue 1/03/16
7	establish target ecosystems sites to provide targets for performance indicators	365 days	Mon 3/03/14	Fri 24/07/15
8	undertake EFA or an appropriate equivalent method which incorporates the selection of appropriate analogues to assess rehabilitation performance;	365 days	Mon 3/03/14	Fri 24/07/15
9	subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the p	1564 days?	Mon 3/03/14	Thu 27/02/20
10	identify which vegetative species will be established according to the limitations of the landform and growth medium	365 days	Mon 3/03/14	Fri 24/07/15
11	source seed based on investigation task, clean and store appropriately	727 days	Thu 3/03/16	Sun 16/12/18
12	survey landforms to ascertain the extent of remedial work required.	1090 days	Mon 3/03/14	Fri 4/05/18
13	**Coyote Waste Rock Landform**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
14	**Research and Investigation Trials**	**1090 days**	**Mon 3/03/14**	**Fri 4/05/18**
15	develop a final landform design incorporating surface water management on the WRL;	1090 days	Mon 3/03/14	Fri 4/05/18
16	assess rehabilitation trials utilising EFA or an appropriate equivalent method, and analyse results to apply any further lessons learnt to future rehabilitation strategies;	727 days	Mon 3/03/14	Tue 13/12/16
17	determine the quantity of seed required to augment the topsoil application; and	1090 days	Mon 3/03/14	Fri 4/05/18
18	assess the requirement to construct a toe bund to limit sedimentation off the WRL.	727 days	Mon 3/03/14	Tue 13/12/16

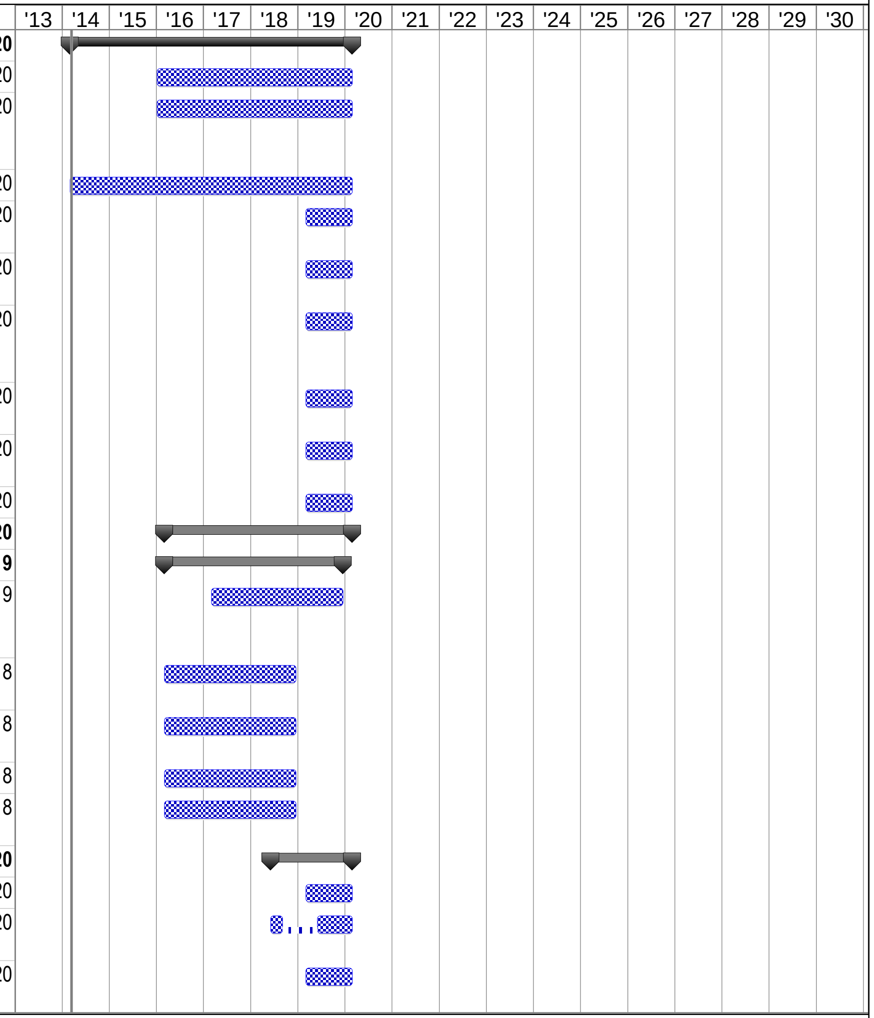


Coyote Mine Closure Plan
Closure Implementation Schedule

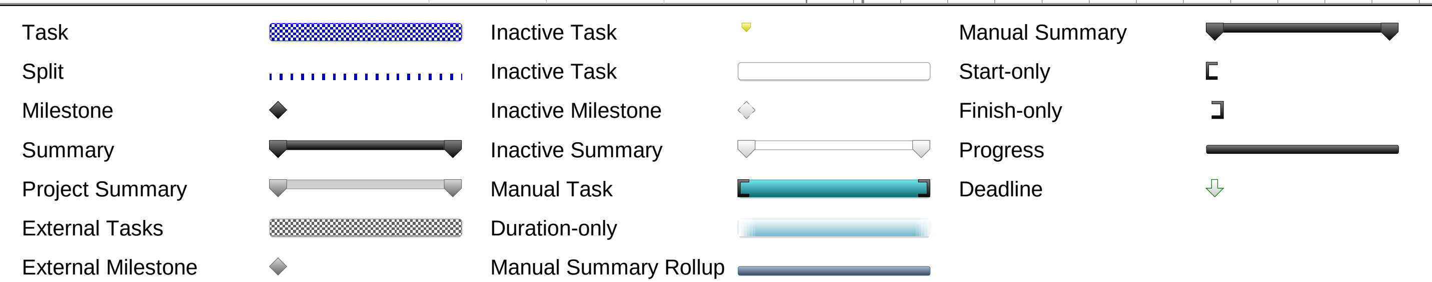
Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Progress
Deadline

Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
19	**Decommissioning**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
20	undertake remedial work required;	1081 days	Thu 7/01/16	Thu 27/02/20
21	pending the outcome of the investigative task above, construct toe bund and / or sediment catchment facility to prevent impact to surrounding vegetation;	1081 days	Thu 7/01/16	Thu 27/02/20
22	encapsulate any deleterious waste (Zone E material) within the WRL;	1564 days?	Mon 3/03/14	Thu 27/02/20
23	complete final landscaping, including shaping batters to a maximum of 15 degrees and install crest bunds;	259 days?	Mon 4/03/19	Thu 27/02/20
24	construct cell bunding on the upper surface for drainage control / water capture;	259 days?	Mon 4/03/19	Thu 27/02/20
25	rehabilitate access ramp to blend in with the WRL, ensuring water does not run down the ramp, where the ramp is not designed a rock lined spillway;	259 days?	Mon 4/03/19	Thu 27/02/20
26	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;	259 days?	Mon 4/03/19	Thu 27/02/20
27	shallow rip rehabilitation to mix topsoil into waste areas along the contour; and,	259 days?	Mon 4/03/19	Thu 27/02/20
28	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
29	**Coyote Tailings Storage Facility**	**1041 days?**	**Thu 3/03/16**	**Thu 27/02/20**
30	**Research and Investigation Trials**	**988 days**	**Thu 3/03/16**	**Mon 16/12/19**
31	develop a tailings decommissioning plan incorporating a detailed final cover design based on the characterisation of the final tailings bed profile and outer embankments;	727 days	Fri 3/03/17	Mon 16/12/19
32	develop a final landform design incorporating surface water management;	727 days	Thu 3/03/16	Sun 16/12/18
33	determine an appropriate timeframe for consolidation of the tailings prior to commencement of rehabilitation works;	727 days	Thu 3/03/16	Sun 16/12/18
34	assess the potential for seepage from the TSF post closure; and,	727 days	Thu 3/03/16	Sun 16/12/18
35	determine the quantity of seed required to augment the topsoil application.	727 days	Thu 3/03/16	Sun 16/12/18
36	**Decommissioning**	**453 days?**	**Tue 5/06/18**	**Thu 27/02/20**
37	decommission the decant and associated infrastructure;	259 days?	Mon 4/03/19	Thu 27/02/20
38	undertake recommendations detailed in the Tailings Decommissioning Plan;	259 days?	Tue 5/06/18	Thu 27/02/20
39	complete final landscaping, including shaping batters to a maximum of 15 degrees;	259 days?	Mon 4/03/19	Thu 27/02/20

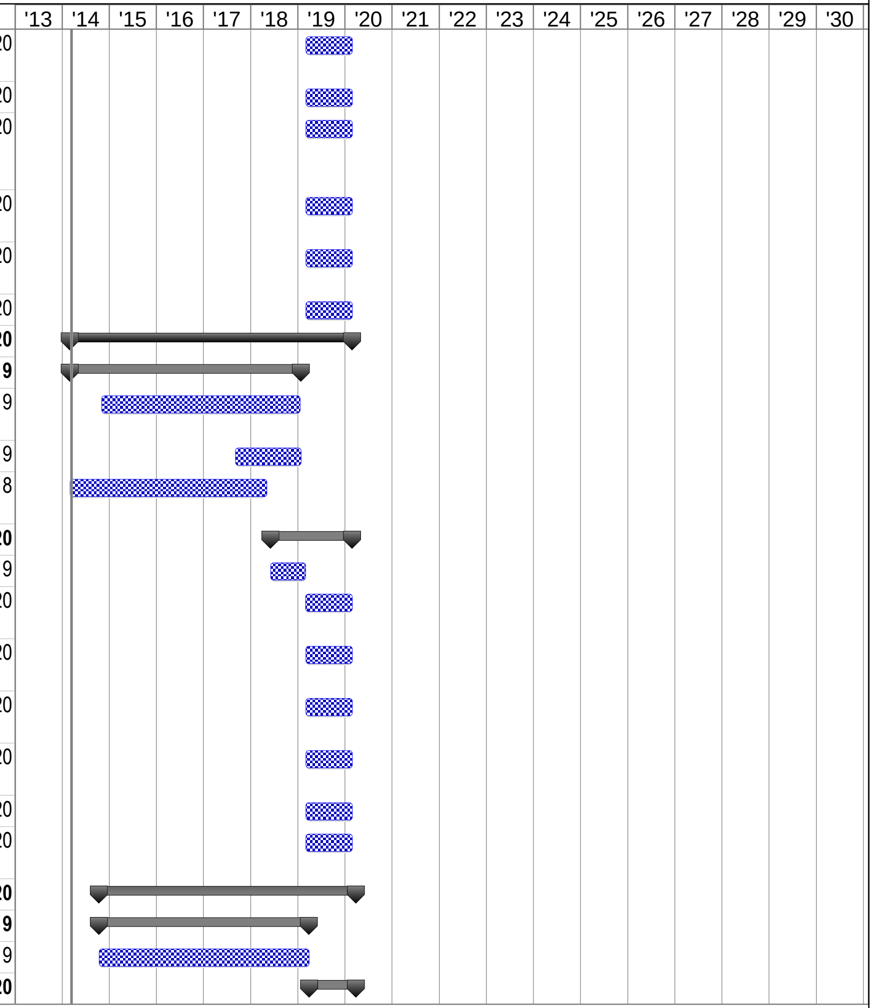


Coyote Mine Closure Plan
Closure Implementation Schedule



Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
40	apply suitable cover materials (capillary break and oxide rock) to the depth outlined in the final cover design;	259 days?	Mon 4/03/19	Thu 27/02/20
41	construct cell and crest bunding on the upper surface;	259 days?	Mon 4/03/19	Thu 27/02/20
42	complete final landscaping, including shaping batters to a maximum of 15 degrees in accordance with the integrated landform surface water design;	259 days?	Mon 4/03/19	Thu 27/02/20
43	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan;	259 days?	Mon 4/03/19	Thu 27/02/20
44	shallow rip rehabilitation to mix topsoil into waste areas along the contour; and,	259 days?	Mon 4/03/19	Thu 27/02/20
45	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
46	**Coyote Run-Of-Mine Pad**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
47	**Research and Investigation Trials**	**1280 days?**	**Mon 3/03/14**	**Fri 25/01/19**
48	determine volume of material suitable for processing from the top of the ROM Pad;	1100 days?	Mon 3/11/14	Fri 18/01/19
49	determine if any ROM Pad material is suitable for use in rehabilitation;	365 days?	Mon 4/09/17	Fri 25/01/19
50	develop a final landform design incorporating surface water management on the ROM Pad.	1090 days	Mon 3/03/14	Fri 4/05/18
51	**Decommissioning**	**454 days?**	**Mon 4/06/18**	**Thu 27/02/20**
52	process the volume of material identified as suitable.	195 days?	Mon 4/06/18	Sat 2/03/19
53	complete final landscaping, including shaping batters to a maximum of 15 degrees and construct crest bunds;	259 days?	Sat 2/03/19	Thu 27/02/20
54	construct cell bunding on the upper surface for drainage control / water capture;	259 days?	Mon 4/03/19	Thu 27/02/20
55	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;	259 days?	Mon 4/03/19	Thu 27/02/20
56	shallow rip rehabilitation to mix topsoil into waste areas along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
57	seed rehabilitated surfaces with provenance seed mix; and,	259 days?	Mon 4/03/19	Thu 27/02/20
58	install rock mulch / topsoil toe bund around perimeter of ROM Pad to prevent impact to surrounding vegetation.	259 days?	Mon 4/03/19	Thu 27/02/20
59	**Coyote Topsoil Stockpiles**	**1422 days?**	**Wed 15/10/14**	**Thu 26/03/20**
60	**Research and Investigation Trials**	**1163 days?**	**Wed 15/10/14**	**Fri 29/03/19**
61	assess the volume of topsoil stockpiles for use in rehabilitation	1163 days?	Wed 15/10/14	Fri 29/03/19
62	**Decommissioning**	**259 days?**	**Mon 1/04/19**	**Thu 26/03/20**

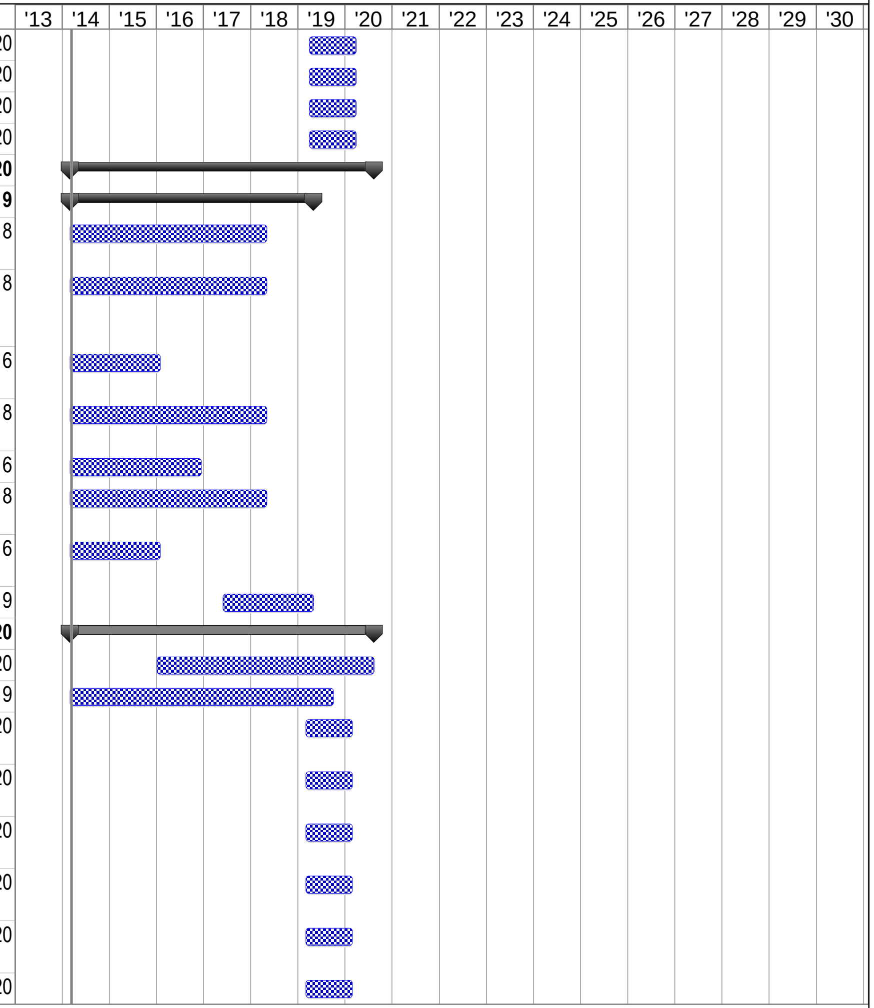


Coyote Mine Closure Plan
Closure Implementation Schedule

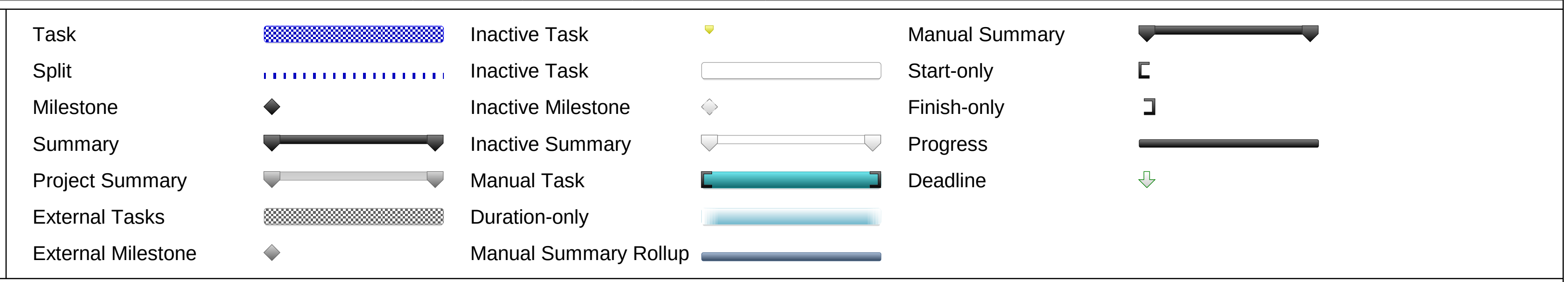
Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Progress
Deadline

Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
63	remove topsoil for use in rehabilitation;	259 days?	Mon 1/04/19	Thu 26/03/20
64	reshape footprint surface for drainage control,	259 days?	Mon 1/04/19	Thu 26/03/20
65	deep rip; and,	259 days?	Mon 1/04/19	Thu 26/03/20
66	seed with provenance seed mix.	259 days?	Mon 1/04/19	Thu 26/03/20
67	**Bald Hill Waste Rock Landform**	**1683 days?**	**Mon 3/03/14**	**Wed 12/08/20**
68	**Research and Investigation Trials**	**1348 days?**	**Mon 3/03/14**	**Wed 1/05/19**
69	determine the timeframe for completing the Bald Hill WRL in accordance with the final landform design;	1090 days	Mon 3/03/14	Fri 4/05/18
70	review the current landform design, against the approved landform design, to determine the extent of remedial works required (submit an amendment to the existing approvals if required);	1090 days	Mon 3/03/14	Fri 4/05/18
71	assess the extent of sediment loss from the WRL, and if there is any impact to the surrounding environment;	500 days?	Mon 3/03/14	Fri 29/01/16
72	determine whether any deleterious waste is exposed on the outer surfaces of the WRL;	1090 days	Mon 3/03/14	Fri 4/05/18
73	determine the rehabilitation requirements in areas not yet rehabilitated;	727 days	Mon 3/03/14	Tue 13/12/16
74	develop a rehabilitation materials inventory detailing the volumes of each type of available material and the areas requiring rehabilitation;	1090 days	Mon 3/03/14	Fri 4/05/18
75	assess physical and chemical properties of the toe bund and adequacy of design; and,	500 days?	Mon 3/03/14	Fri 29/01/16
76	ascertain quantity of seed required to augment the topsoil application.	500 days	Thu 1/06/17	Wed 1/05/19
77	**Decommissioning**	**1683 days?**	**Mon 3/03/14**	**Wed 12/08/20**
78	undertake repairs and maintenance as required;	1200 days	Thu 7/01/16	Wed 12/08/20
79	encapsulate any deleterious material within the WRL;	1460 days	Mon 3/03/14	Fri 4/10/19
80	complete final landscaping, including shaping batters to a maximum of 15 degrees and install crest bunds;	259 days?	Mon 4/03/19	Thu 27/02/20
81	construct cell bunding on the upper surface for drainage control / water capture;	259 days?	Mon 4/03/19	Thu 27/02/20
82	undertake earthworks in accordance with surface water management design on WRL;	259 days?	Mon 4/03/19	Thu 27/02/20
83	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the final landform design;	259 days?	Mon 4/03/19	Thu 27/02/20
84	shallow rip rehabilitation to mix topsoil into waste areas along the contour; and,	259 days?	Mon 4/03/19	Thu 27/02/20
85	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20

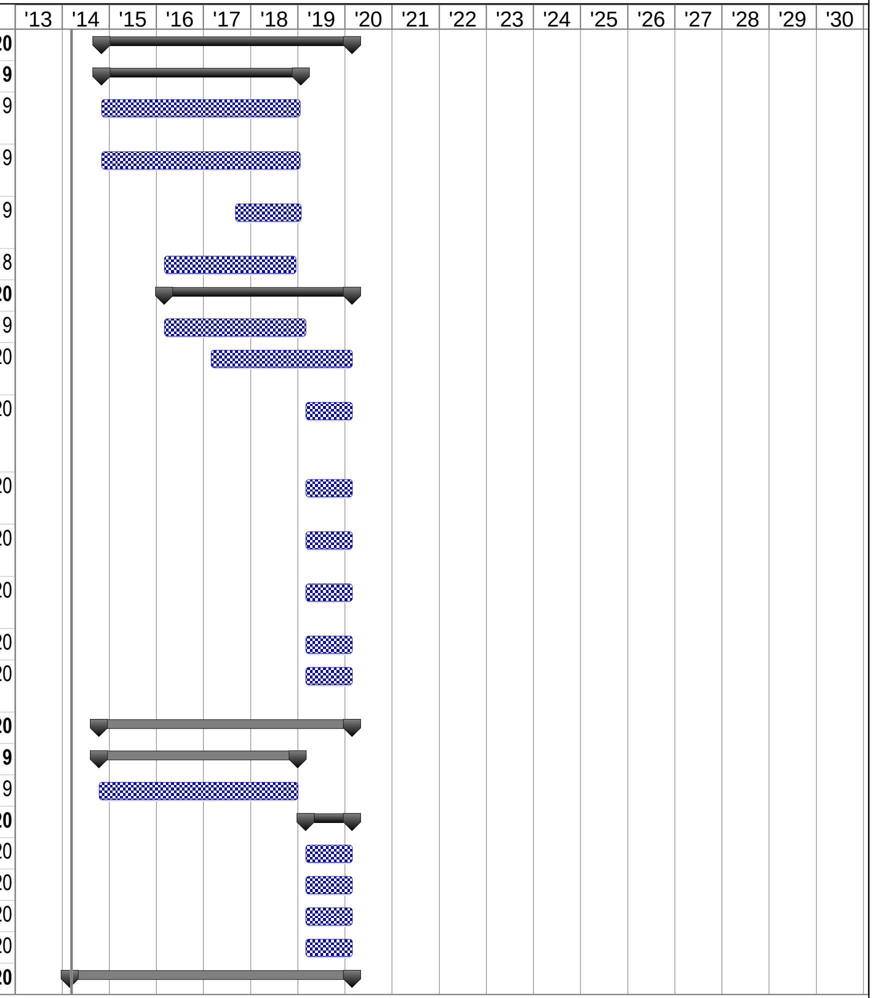


Coyote Mine Closure Plan
Closure Implementation Schedule

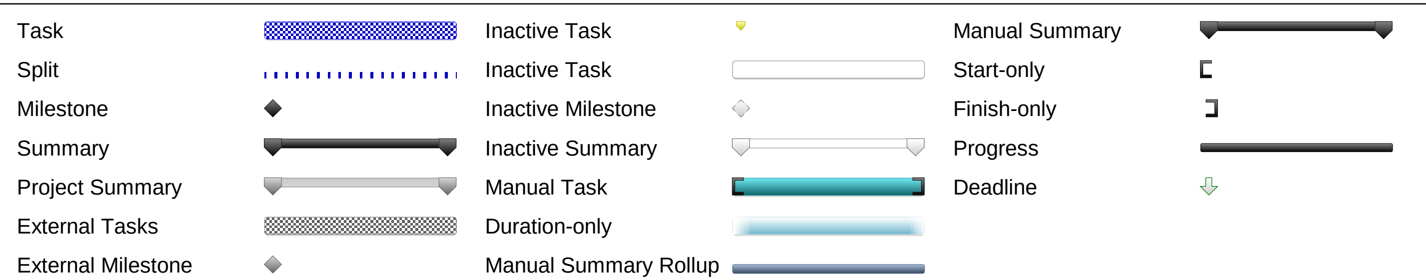


Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
86	**Bald Hill Run-Of-Mine Pads and Stockpiles**	**1389 days?**	**Mon 3/11/14**	**Thu 27/02/20**
87	**Research and Investigation Trials**	**1105 days?**	**Mon 3/11/14**	**Fri 25/01/19**
88	determine volume of material suitable for processing from the top of the ROM Pad;	1100 days?	Mon 3/11/14	Fri 18/01/19
89	assess the volume of material remaining within the ROM Pad post closure;	1100 days?	Mon 3/11/14	Fri 18/01/19
90	assess the suitability of remaining ROM Pad material for use in rehabilitation; and	365 days?	Mon 4/09/17	Fri 25/01/19
91	ascertain quantity of seed required to augment the topsoil application.	727 days	Thu 3/03/16	Sun 16/12/18
92	**Decommissioning**	**1041 days?**	**Thu 3/03/16**	**Thu 27/02/20**
93	process the volume of material identified as suitable.	783 days?	Thu 3/03/16	Mon 4/03/19
94	encapsulate any deleterious material within competent units within the Bald Hill WRL;	783 days?	Tue 28/02/17	Thu 27/02/20
95	if a final landform remains, complete final landscaping, including shaping batters to a maximum of 15 degrees and construct crest bunds;	259 days?	Mon 4/03/19	Thu 27/02/20
96	construct cell bunding on the upper surface for drainage control / water capture;	259 days?	Mon 4/03/19	Thu 27/02/20
97	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within final landform design;	259 days?	Mon 4/03/19	Thu 27/02/20
98	shallow rip rehabilitation to mix topsoil into waste areas along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
99	seed rehabilitated surfaces with provenance seed mix; and,	259 days?	Mon 4/03/19	Thu 27/02/20
100	construct toe bund and / or sediment catchment facility to prevent impact to surrounding vegetation.	259 days?	Mon 4/03/19	Thu 27/02/20
101	**Bald Hill Topsoil Stockpiles**	**1402 days?**	**Wed 15/10/14**	**Thu 27/02/20**
102	**Research and Investigation Trials**	**1100 days?**	**Wed 15/10/14**	**Tue 1/01/19**
103	assess the volume of topsoil stockpiles for use in rehabilitation	1100 days?	Wed 15/10/14	Tue 1/01/19
104	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
105	remove topsoil for use in rehabilitation;	259 days?	Mon 4/03/19	Thu 27/02/20
106	reshape footprint surface for drainage control,	259 days?	Mon 4/03/19	Thu 27/02/20
107	deep rip; and,	259 days?	Mon 4/03/19	Thu 27/02/20
108	seed with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
109	**Industrial Infrastructure Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**

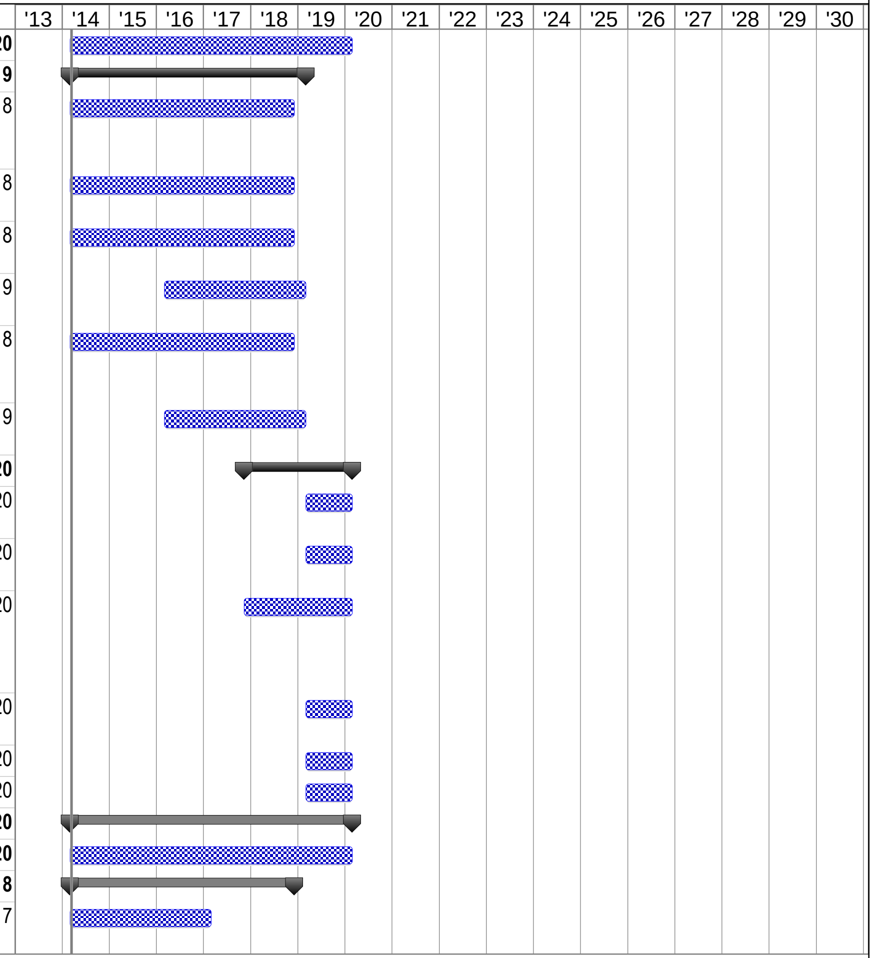


Coyote Mine Closure Plan
Closure Implementation Schedule

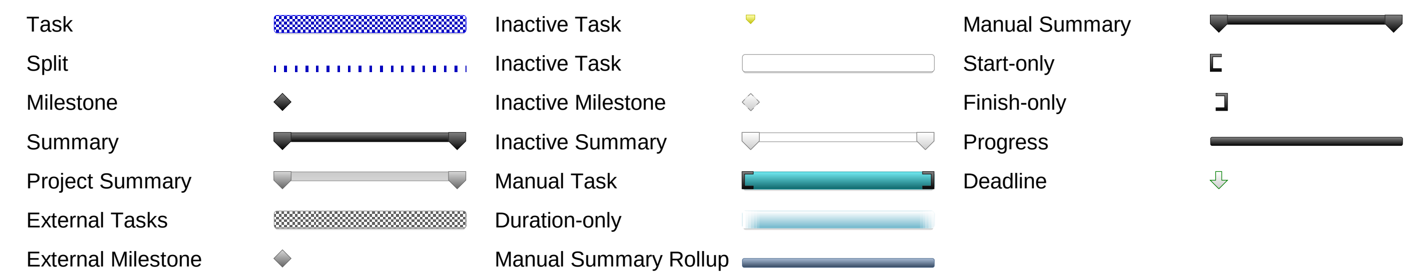


Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
110	**Industrial Infrastructure**	1564 days?	**Mon 3/03/14**	**Thu 27/02/20**
111	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
112	assess the volume of contaminated material to dispose of at closure, in particular around the Fuel storage facility, process plant, workshops and bioremediation area;	1242 days?	Mon 3/03/14	Tue 4/12/18
113	determine the volume of core to dispose of at closure and an appropriate disposal strategy;	1242 days?	Mon 3/03/14	Tue 4/12/18
114	assess opportunities to salvaging, recycling and re-using any industrial infrastructure features and/ or scrap;	1242 days?	Mon 3/03/14	Tue 4/12/18
115	determine the volume and types of materials to be disposed of and/or buried on site at closure;	783 days?	Thu 3/03/16	Mon 4/03/19
116	undertake stakeholder consultation to determine whether any third parties have an interest in retaining any infrastructure post closure; and,	1242 days?	Mon 3/03/14	Tue 4/12/18
117	if any infrastructure is to be retained, consult with the Halls Creek Shire and/or Kimberley Lands Council.	783 days?	Thu 3/03/16	Mon 4/03/19
118	**Decommissioning**	**600 days?**	**Fri 10/11/17**	**Thu 27/02/20**
119	remove all industrial infrastructure as detailed in the mine decommissioning plan	259 days?	Mon 4/03/19	Thu 27/02/20
120	if required, remove any contaminated soil and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
121	subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the p	600 days?	Fri 10/11/17	Thu 27/02/20
122	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan;	259 days?	Mon 4/03/19	Thu 27/02/20
123	deep rip rehabilitation areas along the contour	259 days?	Mon 4/03/19	Thu 27/02/20
124	seed rehabilitated surfaces with provenance seed mix	259 days?	Mon 4/03/19	Thu 27/02/20
125	**Mining Infrastructure Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
126	**Coyote Open Pit and Underground**	1564 days?	**Mon 3/03/14**	**Thu 27/02/20**
127	**Research and Investigation Trials**	**1242 days?**	**Mon 3/03/14**	**Tue 4/12/18**
128	determine the requirement for rehabilitation works to the backfilled section of the pit;	782 days?	Mon 3/03/14	Tue 28/02/17

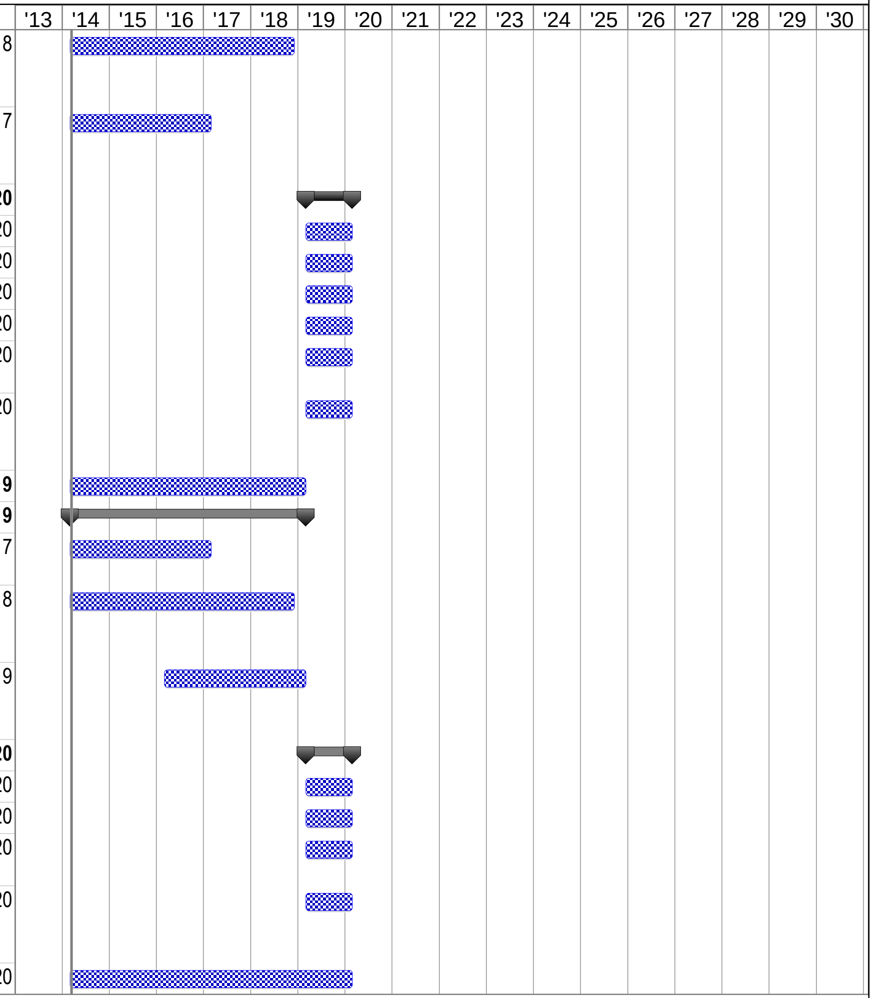


Coyote Mine Closure Plan
Closure Implementation Schedule



Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
129	assess the status of the abandonment bunds around all of the open pits in accordance with the DMP guidelines Safety Bund Walls around Abandoned Open Pit Mines 1997;	1242 days?	Mon 3/03/14	Tue 4/12/18
130	investigate requirement to limit access to the shallowest two adits (final pit water level versus depth to adit) and if the adits can be accessed in order to be closed off; and,	782 days?	Mon 3/03/14	Tue 28/02/17
131	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
132	undertake remedial work to the abandonment bunding;	259 days?	Mon 4/03/19	Thu 27/02/20
133	remove access to the underground mine;	259 days?	Mon 4/03/19	Thu 27/02/20
134	remove access to open pit ramp;	259 days?	Mon 4/03/19	Thu 27/02/20
135	rehabilitate backfilled pit section as required;	259 days?	Mon 4/03/19	Thu 27/02/20
136	establish fencing, lockable gates, signage and alternative bunding where required; and,	259 days?	Mon 4/03/19	Thu 27/02/20
137	remove all surface infrastructures remaining within abandonment bunds and open pits (such as pipelines, powerlines, and other support infrastructure).	259 days?	Mon 4/03/19	Thu 27/02/20
138	**Kookaburra and Sandpiper Open Pits**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
139	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
140	determine the potential to further mine the Kookaburra and Sandpiper Open Pits;	782 days?	Mon 3/03/14	Tue 28/02/17
141	review the potential to backfill the open pits nearing the end of mine life, as per agreement with Environs Kimberley and Kimberly Lands Council on the 11th August 2006; and,	1242 days?	Mon 3/03/14	Tue 4/12/18
142	assess the status of the abandonment bunds around all of the open pits in accordance with the DMP guidelines Safety Bund Walls around Abandoned Open Pit Mines 1997.	783 days?	Thu 3/03/16	Mon 4/03/19
143	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
144	remove access to open pit ramp;	259 days?	Mon 4/03/19	Thu 27/02/20
145	complete abandonment bunding;	259 days?	Mon 4/03/19	Thu 27/02/20
146	establish fencing, lockable gates, signage and alternative bunding where required; and,	259 days?	Mon 4/03/19	Thu 27/02/20
147	remove all surface infrastructures remaining within abandonment bunds and open pits (such as pipelines, powerlines, and other support infrastructure).	259 days?	Mon 4/03/19	Thu 27/02/20
148	**Osprey Pit and Laterite Re-handle Area**	1564 days?	Mon 3/03/14	Thu 27/02/20

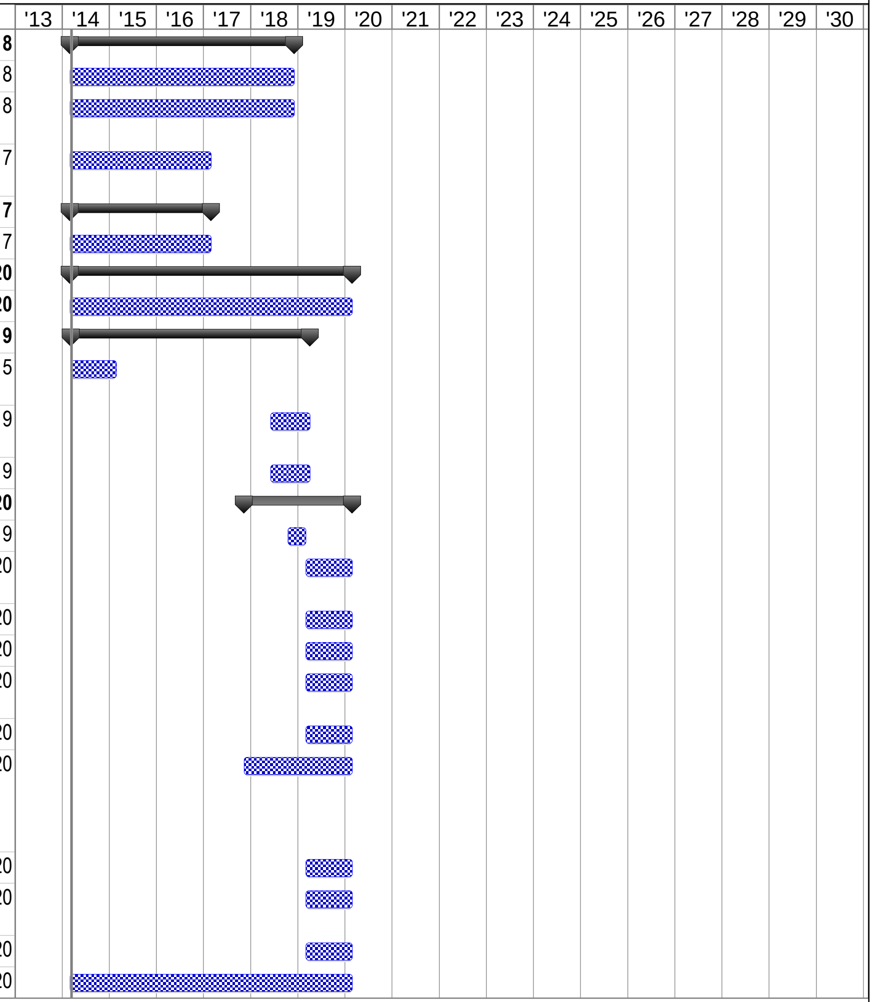


Coyote Mine Closure Plan
Closure Implementation Schedule

Task		Inactive Task		Manual Summary	
Split		Inactive Task		Start-only	
Milestone		Inactive Milestone		Finish-only	
Summary		Inactive Summary		Progress	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only			
External Milestone		Manual Summary Rollup			

Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
149	**Research and Investigation Trials**	**1242 days?**	**Mon 3/03/14**	**Tue 4/12/18**
150	determine the potential to further mining	1242 days?	Mon 3/03/14	Tue 4/12/18
151	determine whether laterite material could be sourced from the Osprey Pit and Laterite re-handle area for use in rehabilitation; and,	1242 days?	Mon 3/03/14	Tue 4/12/18
152	assess the requirement and extent to undertake rehabilitation monitoring.	782 days?	Mon 3/03/14	Tue 28/02/17
153	**Decommissioning**	**782 days?**	**Mon 3/03/14**	**Tue 28/02/17**
154	if required seed rehabilitated surfaces with provenance seed mix.	782 days?	Mon 3/03/14	Tue 28/02/17
155	**Water Containment Structures Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
156	**Evaporation and Raw Water Pond**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
157	**Research and Investigation Trials**	**1323 days**	**Tue 11/03/14**	**Thu 4/04/19**
158	assess the ability to maintain freeboard on the ponds during care and maintenance;	250 days	Tue 11/03/14	Mon 23/02/15
159	determine water quality of contained water and dispose of / treat appropriately; and	219 days	Mon 4/06/18	Thu 4/04/19
160	assess the integrity of HDPE liner and the potential for contamination.	219 days	Mon 4/06/18	Thu 4/04/19
161	**Decommissioning**	**600 days?**	**Fri 10/11/17**	**Thu 27/02/20**
162	drain water and dispose of appropriately or allow to evaporate	100 days	Tue 16/10/18	Mon 4/03/19
163	if required, remove any contaminated soil and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
164	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
165	remove any liners and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
166	deposit concrete rubble and contaminated material from the demolition of the processing plant and associated infrastructure;	259 days?	Mon 4/03/19	Thu 27/02/20
167	push in embankment to cover rubble forming a gentle sloping mound;	259 days?	Mon 4/03/19	Thu 27/02/20
168	subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the p	600 days?	Fri 10/11/17	Thu 27/02/20
169	shallow rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
170	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and	259 days?	Mon 4/03/19	Thu 27/02/20
171	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
172	**Leach Vats**	1564 days?	Mon 3/03/14	Thu 27/02/20

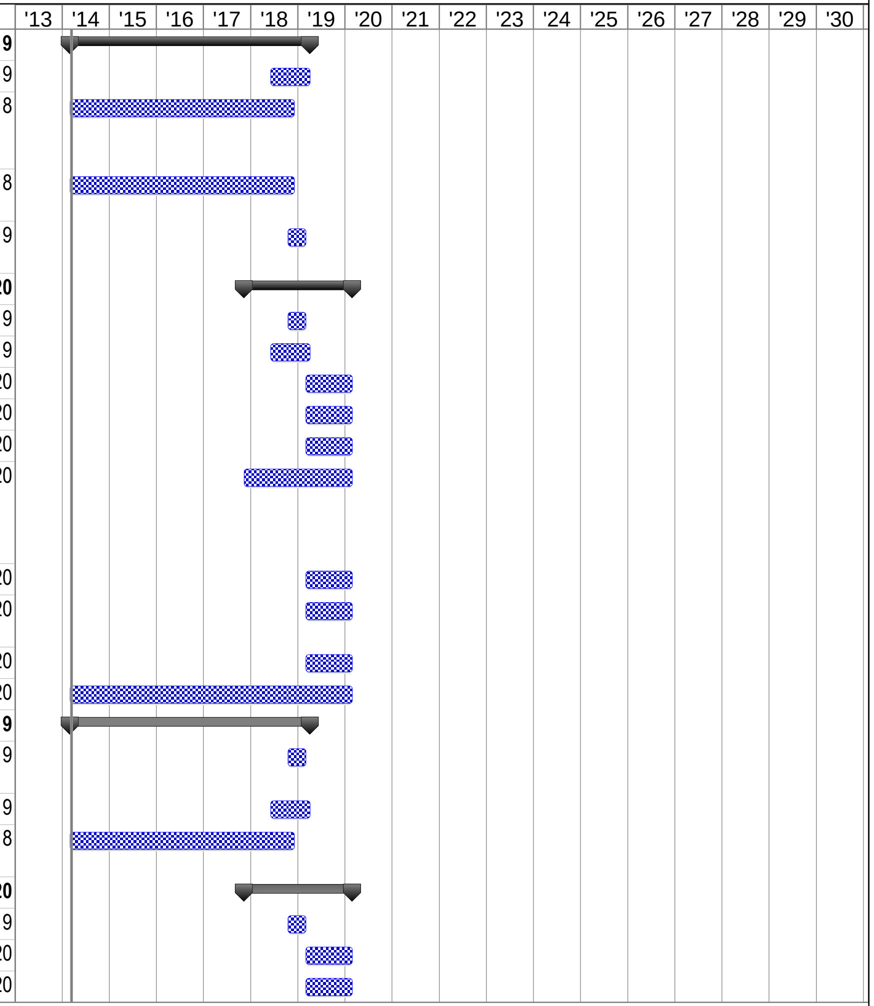


Coyote Mine Closure Plan
Closure Implementation Schedule

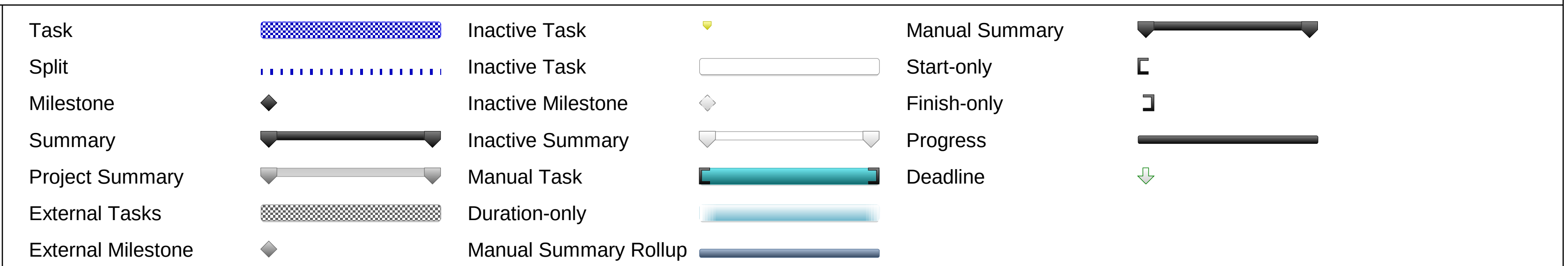
Task		Inactive Task		Manual Summary	
Split		Inactive Task		Start-only	
Milestone		Inactive Milestone		Finish-only	
Summary		Inactive Summary		Progress	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only			
External Milestone		Manual Summary Rollup			

Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
173	**Research and Investigation Trials**	**1329 days?**	**Mon 3/03/14**	**Thu 4/04/19**
174	assess the integrity of HDPE liners;	219 days	Mon 4/06/18	Thu 4/04/19
175	assess the potential for contamination underlying the rehabilitated leach vats, and if this falls within the parameters of the Contaminated Sites Act 2003;	1242 days?	Mon 3/03/14	Tue 4/12/18
176	determine water quality of contained water and dispose of or treat appropriately; and	1242 days?	Mon 3/03/14	Tue 4/12/18
177	develop a final landform design incorporating surface water management.	100 days	Tue 16/10/18	Mon 4/03/19
178	**Decommissioning**	**600 days?**	**Fri 10/11/17**	**Thu 27/02/20**
179	drain water and dispose of appropriately or allow to evaporate	100 days	Tue 16/10/18	Mon 4/03/19
180	remove and re-process economic tailings;	219 days	Mon 4/06/18	Thu 4/04/19
181	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
182	dispose of liner in the bottom of the vats;	259 days?	Mon 4/03/19	Thu 27/02/20
183	push in and leach vats and trench between vats and TSF;	259 days?	Mon 4/03/19	Thu 27/02/20
184	subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the p	600 days?	Fri 10/11/17	Thu 27/02/20
185	shallow rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
186	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and	259 days?	Mon 4/03/19	Thu 27/02/20
187	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
188	**Water Treatment Ponds and Turkeys Nest**	1564 days?	Mon 3/03/14	Thu 27/02/20
189	**Research and Investigation Trials**	**1329 days?**	**Mon 3/03/14**	**Thu 4/04/19**
190	determine water quality of contained water and dispose of or treat appropriately;	100 days	Tue 16/10/18	Mon 4/03/19
191	assess the integrity of HDPE liners; and	219 days	Mon 4/06/18	Thu 4/04/19
192	if contamination is identified, determine volume of contaminated material to be appropriately disposed.	1242 days?	Mon 3/03/14	Tue 4/12/18
193	**Decommissioning**	**600 days?**	**Fri 10/11/17**	**Thu 27/02/20**
194	drain water and dispose of appropriately or allow to evaporate	100 days	Tue 16/10/18	Mon 4/03/19
195	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
196	remove liner and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20

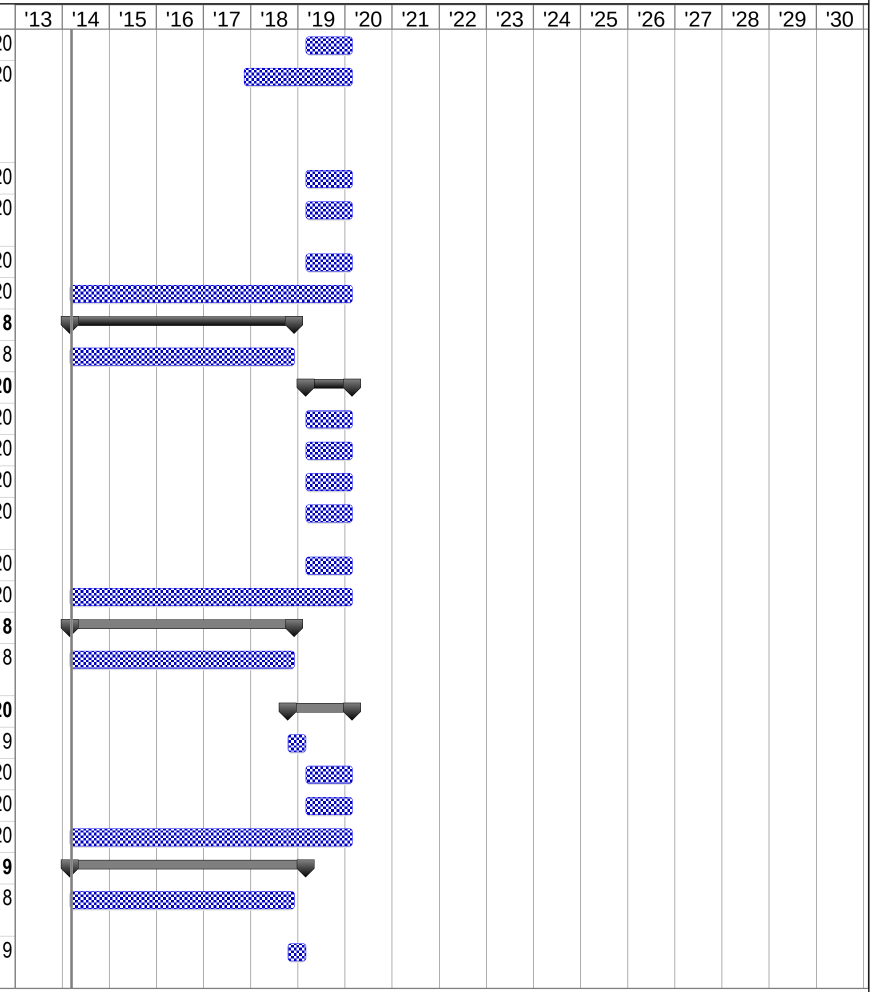


Coyote Mine Closure Plan
Closure Implementation Schedule

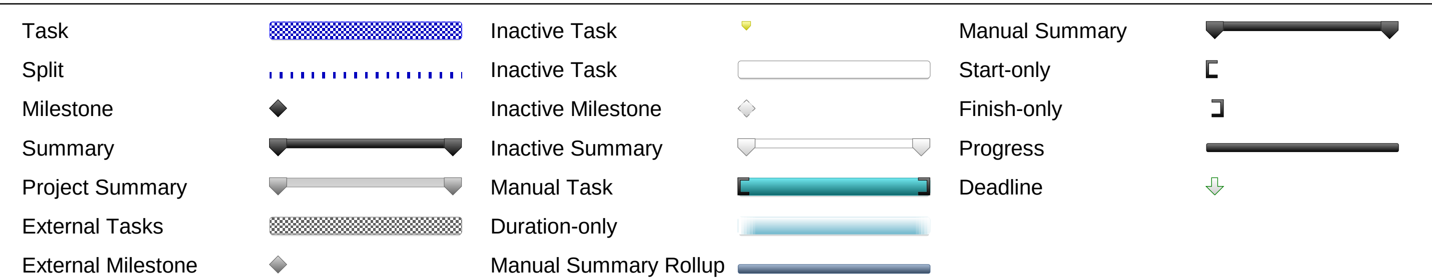


Closure Implementation Schedule

ID	Task Name	Duration	Start	Finish
197	push in and level;	259 days?	Mon 4/03/19	Thu 27/02/20
198	subsequent to the implementation of the recommended tasks undertake a review of the ground and surface water key objectives in the Environmental Management Plan, if required develop an appropriate site wide surface water management plan to address the p	600 days?	Fri 10/11/17	Thu 27/02/20
199	deep rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
200	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and	259 days?	Mon 4/03/19	Thu 27/02/20
201	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
202	**Bald Hill Evaporation Dam**	1564 days?	Mon 3/03/14	Thu 27/02/20
203	**Research and Investigation Trials**	**1242 days?**	**Mon 3/03/14**	**Tue 4/12/18**
204	assess the extent of any contamination/ seepage from the facility.	1242 days?	Mon 3/03/14	Tue 4/12/18
205	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
206	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
207	push in to form gentle sloping mound;	259 days?	Mon 4/03/19	Thu 27/02/20
208	deep rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
209	load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan; and	259 days?	Mon 4/03/19	Thu 27/02/20
210	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
211	**Bald Hill Turkeys Nest**	1564 days?	Mon 3/03/14	Thu 27/02/20
212	**Research and Investigation Trials**	**1242 days?**	**Mon 3/03/14**	**Tue 4/12/18**
213	determine the timeframe for decommissioning and rehabilitating the Bald Hill Turkeys Nest.	1242 days?	Mon 3/03/14	Tue 4/12/18
214	**Decommissioning**	**358 days?**	**Tue 16/10/18**	**Thu 27/02/20**
215	drain water and dispose of appropriately or allow to evaporate	100 days	Tue 16/10/18	Mon 4/03/19
216	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
217	remove liner and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
218	**Flood Diversion Drain and Bund**	1564 days?	Mon 3/03/14	Thu 27/02/20
219	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
220	confirm the requirement to retain the flood diversion bund at closure; and,	1242 days?	Mon 3/03/14	Tue 4/12/18
221	assess the requirement for re-work / upgrades required to flood diversion drain and bund to be maintained post closure.	100 days	Tue 16/10/18	Mon 4/03/19

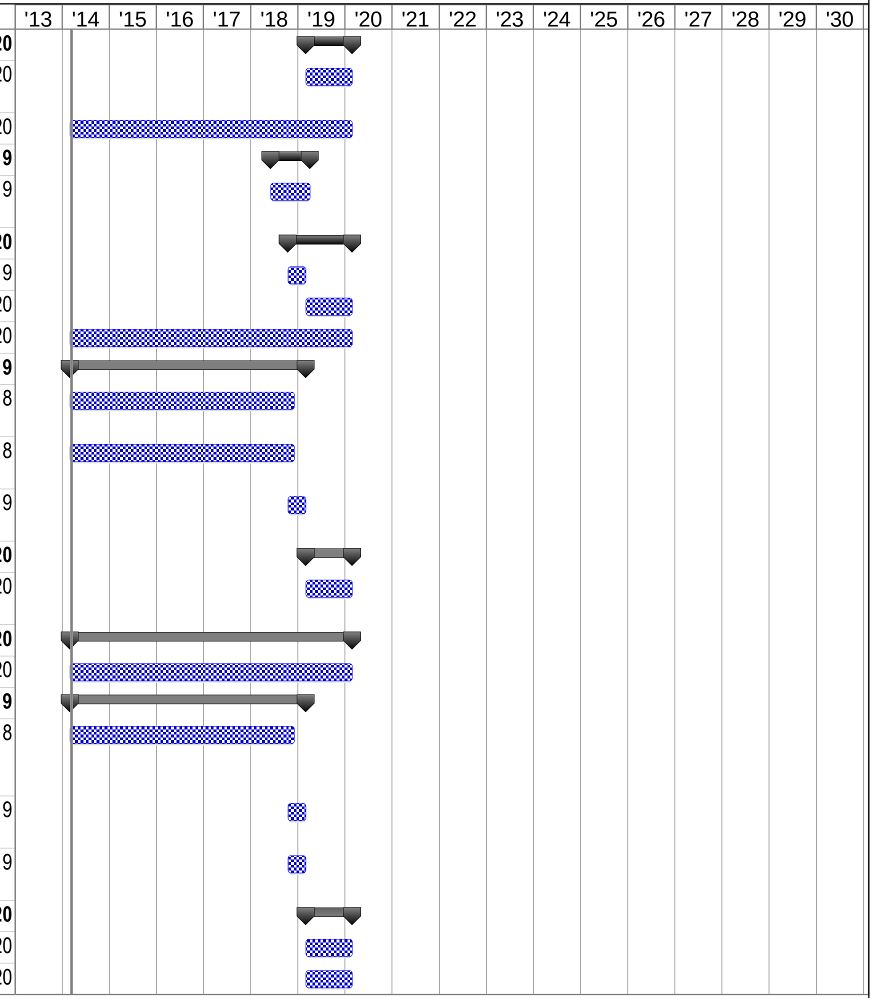


Coyote Mine Closure Plan
Closure Implementation Schedule

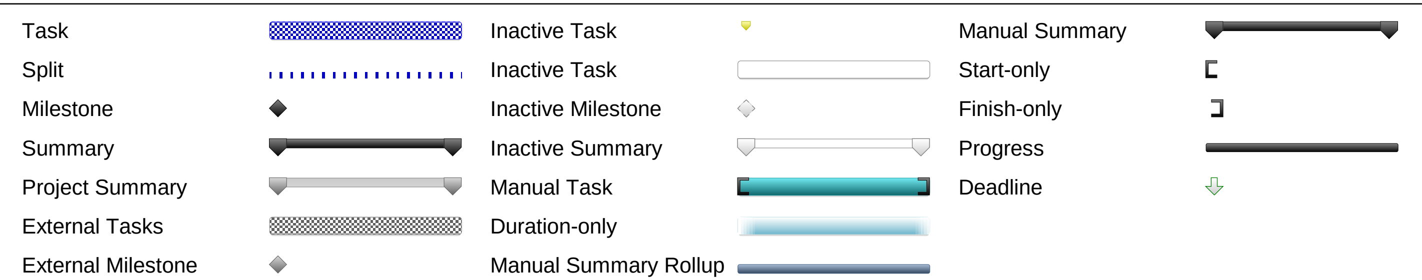


Closure Implementation Schedule

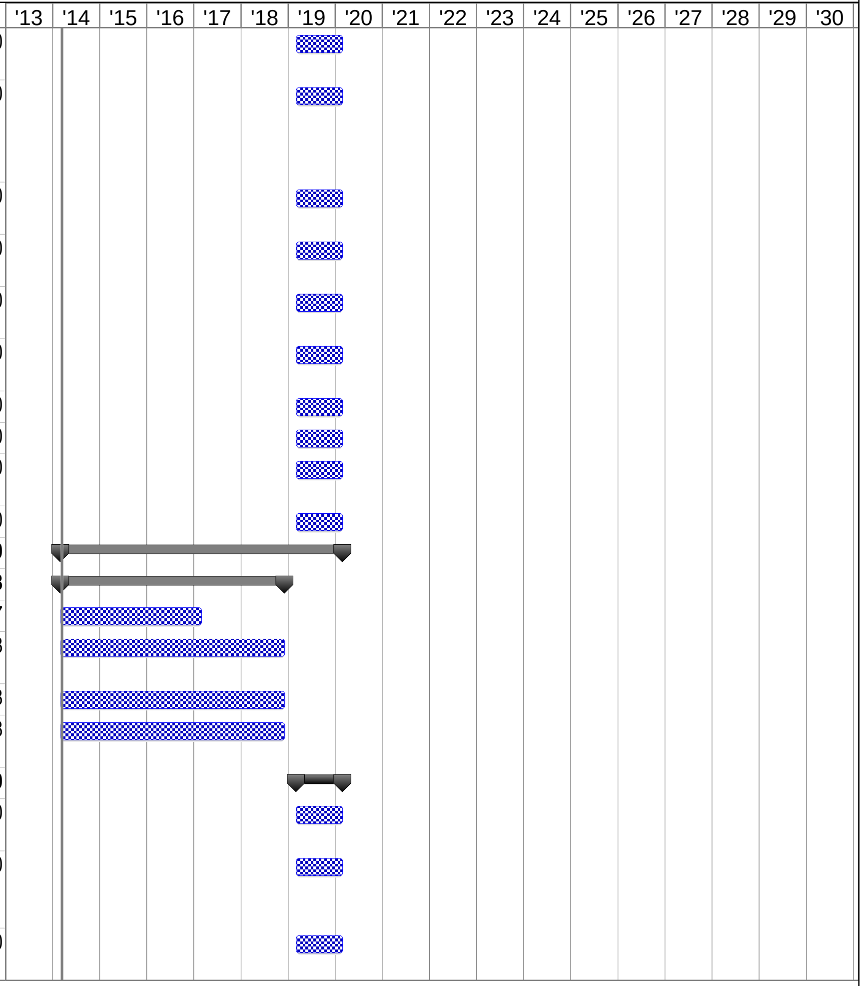
ID	Task Name	Duration	Start	Finish
222	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
223	undertake re-work / upgrades as required to flood diversion drain and bund.	259 days?	Mon 4/03/19	Thu 27/02/20
224	**Surface Water Sump**	1564 days?	Mon 3/03/14	Thu 27/02/20
225	**Research and Investigation Trials**	**219 days**	**Mon 4/06/18**	**Thu 4/04/19**
226	determine the extent of salt accumulation at the base of the sump; and an appropriate disposal strategy;	219 days	Mon 4/06/18	Thu 4/04/19
227	**Decommissioning**	**358 days?**	**Tue 16/10/18**	**Thu 27/02/20**
228	drain water and dispose of appropriately or allow to evaporate; and	100 days	Tue 16/10/18	Mon 4/03/19
229	all pipelines and pumps to be flushed and removed from site	259 days?	Mon 4/03/19	Thu 27/02/20
230	**Bald Hill Flood Protection and Abandonment Bund**	1564 days?	Mon 3/03/14	Thu 27/02/20
231	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
232	assess the potential to harvest any laterite material from the bund for use in rehabilitation;	1242 days?	Mon 3/03/14	Tue 4/12/18
233	confirm the requirement to retain the flood diversion bund at closure; and,	1242 days?	Mon 3/03/14	Tue 4/12/18
234	assess the requirement for re-work / upgrades required to flood diversion drain and bund to be maintained post closure.	100 days	Tue 16/10/18	Mon 4/03/19
235	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
236	undertake re-work / upgrades as required to flood diversion drain and bund.	259 days?	Mon 4/03/19	Thu 27/02/20
237	**Groundwater Infrastructure Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
238	**Monitoring and Dewatering Bores and Pipelines**	1564 days?	Mon 3/03/14	Thu 27/02/20
239	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
240	continue discussions with key stakeholders regarding end land use of the borefields and pipelines to determine any interest in retaining any of the groundwater infrastructure;	1242 days?	Mon 3/03/14	Tue 4/12/18
241	ensure legal requirements and processes for transfer of disturbance liability have been properly executed; and,	100 days	Tue 16/10/18	Mon 4/03/19
242	undertake an audit to assess the condition and rehabilitation requirements of groundwater infrastructure.	100 days	Tue 16/10/18	Mon 4/03/19
243	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
244	disconnect all services including power;	259 days?	Mon 4/03/19	Thu 27/02/20
245	remove, break up or bury concrete pads;	259 days?	Mon 4/03/19	Thu 27/02/20



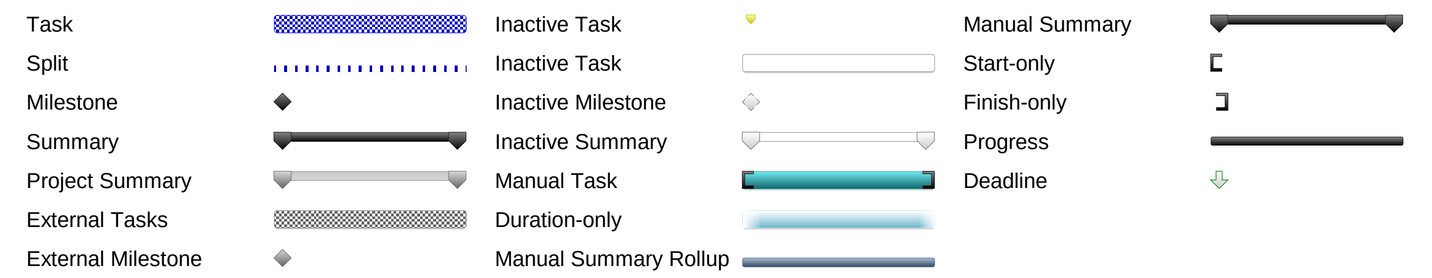
Coyote Mine Closure Plan
Closure Implementation Schedule



ID	Task Name	Duration	Start	Finish
246	decommission bores in accordance with regulatory requirements, plug, cap and deregister if required;	259 days?	Mon 4/03/19	Thu 27/02/20
247	remove groundwater infrastructure including bores and pipelines to be detailed in the demolition and decommissioning plan i.e. all above ground pipelines and pumps to be flushed prior to removal, underground pipelines to remain in place post closure;	259 days?	Mon 4/03/19	Thu 27/02/20
248	all above ground pipelines and pumps flushed and removed from site (underground pipelines will remain in place, post closure);	259 days?	Mon 4/03/19	Thu 27/02/20
249	if required, remove any contaminated soil and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
250	remove all rubbish including old couplings and dispose of in a designated landfill;	259 days?	Mon 4/03/19	Thu 27/02/20
251	re-establish natural surface water flows and drainage lines, without compromising the integrity of the landform features;	259 days?	Mon 4/03/19	Thu 27/02/20
252	remove access tracks;	259 days?	Mon 4/03/19	Thu 27/02/20
253	deep rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
254	place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the Topsoil Management Plan; and,	259 days?	Mon 4/03/19	Thu 27/02/20
255	seed rehabilitated surfaces with provenance seed mix.	259 days?	Mon 4/03/19	Thu 27/02/20
256	**Roads Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
257	**Research and Investigation Trials**	**1242 days?**	**Mon 3/03/14**	**Tue 4/12/18**
258	determine whether any roads will be retained for key stakeholders;	782 days?	Mon 3/03/14	Tue 28/02/17
259	ensure legal requirements and processes for transfer of disturbance liability have been properly executed;	1242 days?	Mon 3/03/14	Tue 4/12/18
260	identify and document the rehabilitation requirements for each road;	1242 days?	Mon 3/03/14	Tue 4/12/18
261	determine the potential for roads ways to restrict or significantly alter the course of surface water flow after mine closure;	1242 days?	Mon 3/03/14	Tue 4/12/18
262	**Decommissioning**	**259 days?**	**Mon 4/03/19**	**Thu 27/02/20**
263	if required, remove any contaminated soil and dispose of appropriately;	259 days?	Mon 4/03/19	Thu 27/02/20
264	salvage recyclable/ reusable commodities such as pipelines, culverts and rock gabions and dispose of unwanted material in accordance with state waste regulations;	259 days?	Mon 4/03/19	Thu 27/02/20
265	re-establish natural surface water flows and drainage lines, without compromising the integrity of the landform features	259 days?	Mon 4/03/19	Thu 27/02/20

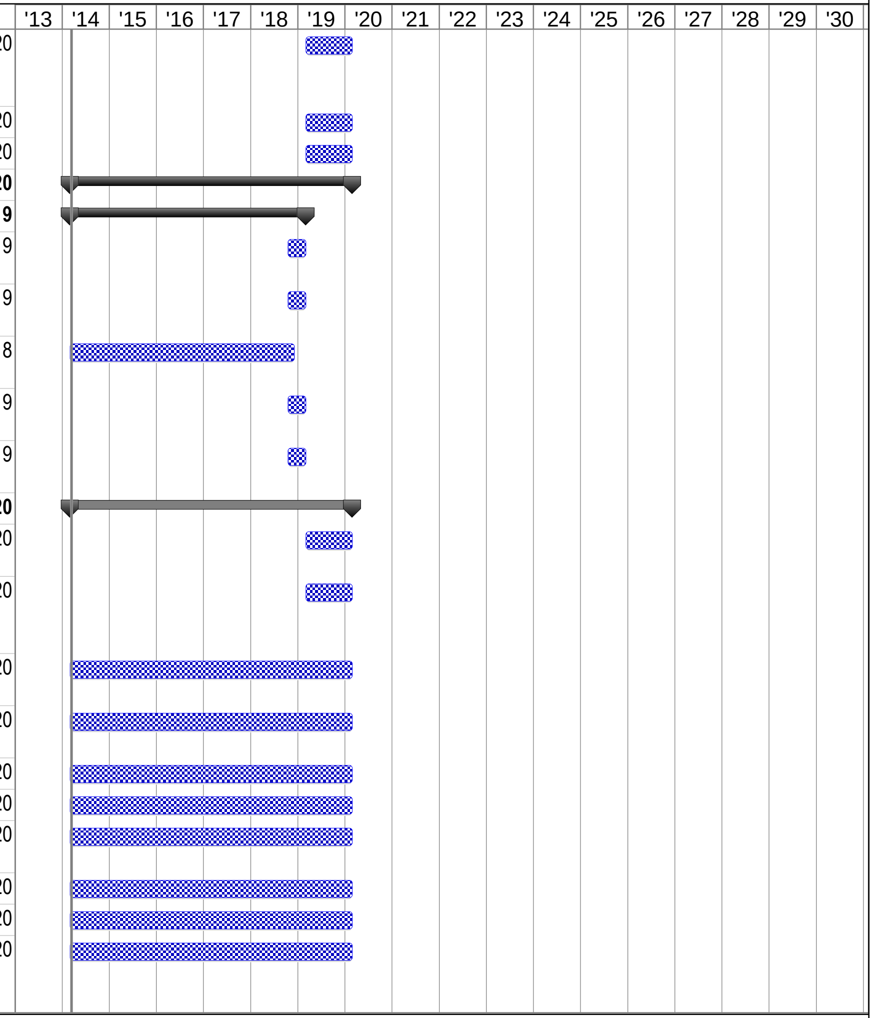


Coyote Mine Closure Plan
Closure Implementation Schedule

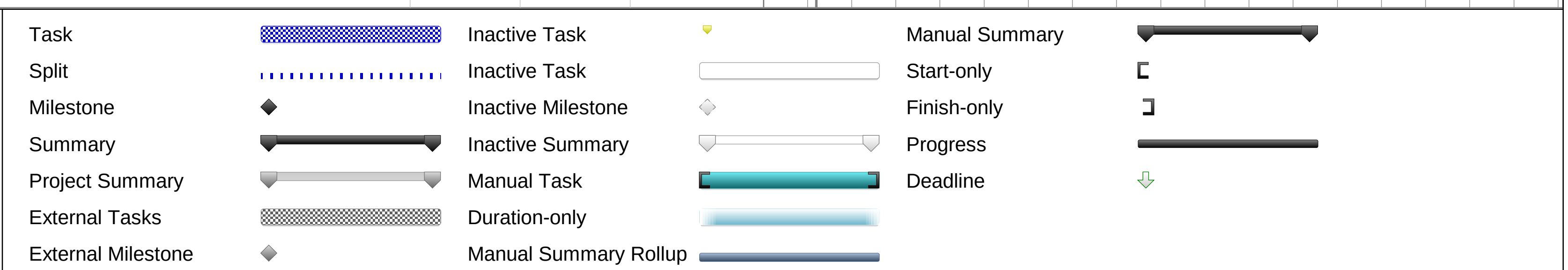


Closure Implementation Schedule

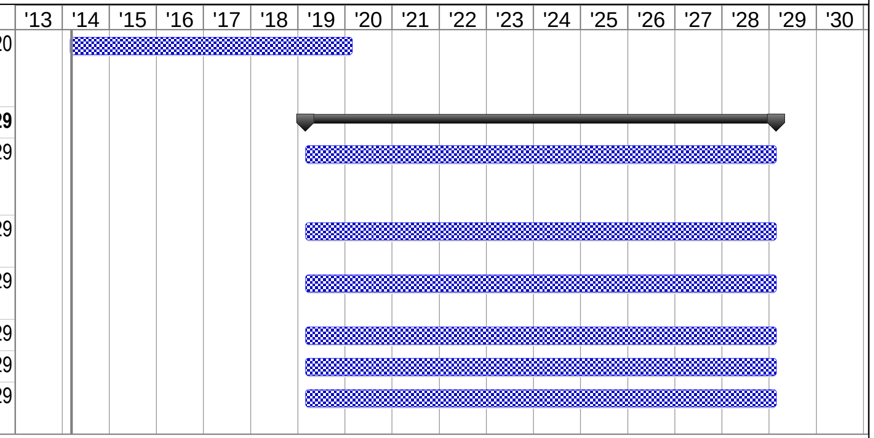
ID	Task Name	Duration	Start	Finish
266	load, haul and place available topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the decommissioning plan	259 days?	Mon 4/03/19	Thu 27/02/20
267	deep rip rehabilitation along the contour;	259 days?	Mon 4/03/19	Thu 27/02/20
268	seed rehabilitated surfaces with provenance seed mix	259 days?	Mon 4/03/19	Thu 27/02/20
269	**Exploration Disturbance Domain**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
270	**Research and Investigation Trials**	**1306 days?**	**Mon 3/03/14**	**Mon 4/03/19**
271	search all geology databases and compile a list of all drill sites and grid lines	100 days	Tue 16/10/18	Mon 4/03/19
272	undertake an audit to ascertain the extent of exploration rehabilitation required upon closure	100 days	Tue 16/10/18	Mon 4/03/19
273	develop an exploration disturbance database detailing type of disturbance and location	1242 days?	Mon 3/03/14	Tue 4/12/18
274	determine the volume of core to be disposed of at closure, and an appropriate disposal strategy; and,	100 days	Tue 16/10/18	Mon 4/03/19
275	review requirement to deep-rip hard stand areas based on rehabilitation success.	100 days	Tue 16/10/18	Mon 4/03/19
276	**Decommissioning**	**1564 days?**	**Mon 3/03/14**	**Thu 27/02/20**
277	remove all infrastructure as detailed in the mine decommissioning plan;	259 days?	Mon 4/03/19	Thu 27/02/20
278	establish surface water flows and drainage lines, as per surface water management plan without compromising the integrity of the landform features;	259 days?	Mon 4/03/19	Thu 27/02/20
279	if required, remove any contaminated soil and dispose of appropriately;	1564 days?	Mon 3/03/14	Thu 27/02/20
280	cut drill collars off at least 0.4 mbgl, plugging appropriately and backfilling to ensure surface water does not pond locally	1564 days?	Mon 3/03/14	Thu 27/02/20
281	remove sample bags, drill spoil, exploration pegs and other rubbish;	1564 days?	Mon 3/03/14	Thu 27/02/20
282	backfill sumps and re-contour drill pads	1564 days?	Mon 3/03/14	Thu 27/02/20
283	re-spread stockpiled topsoil, laterite, rock mulch and/ or vegetation mulch;	1564 days?	Mon 3/03/14	Thu 27/02/20
284	lightly rip compacted areas;	1564 days?	Mon 3/03/14	Thu 27/02/20
285	establish a photo monitoring and rehabilitation record for the database;	1564 days?	Mon 3/03/14	Thu 27/02/20
286	maintain a process of progressive closure and reduction of liability, with regular reporting to regulators and stakeholders informing and supporting that process; and,	1564 days?	Mon 3/03/14	Thu 27/02/20



Coyote Mine Closure Plan
Closure Implementation Schedule



ID	Task Name	Duration	Start	Finish
287	spread available vegetative material to improve resistance to erosion, act as a source of seeds and organic matter and provide fauna habitats;	1564 days?	Mon 3/03/14	Thu 27/02/20
288	**Closure Monitoring and Maintenance**	**2607 days?**	**Fri 1/03/19**	**Mon 26/02/29**
289	Vegetation and rehabilitation monitoring, annually for the post closure period to assess the development of and success against stable landforms and self-sustaining ecosystem targets	2607 days?	Fri 1/03/19	Mon 26/02/29
290	Erosion and surface water drainage monitoring, annually during the post closure period	2607 days	Fri 1/03/19	Mon 26/02/29
291	Geotechnical monitoring of the TSF and WRLs, annually for the first 5 years of post-closure	2607 days?	Fri 1/03/19	Mon 26/02/29
292	Ground water monitoring, annually for the first 5 years of post-closure	2607 days?	Fri 1/03/19	Mon 26/02/29
293	Surface water quality monitoring, annually for the first 5 years of post-closure	2607 days?	Fri 1/03/19	Mon 26/02/29
294	Satellite imagery and photographic assessment of rehabilitated areas, biennially over the post closure period	2607 days?	Fri 1/03/19	Mon 26/02/29



Coyote Mine Closure Plan
Closure Implementation Schedule

Task	Inactive Task	Manual Summary
Split	Inactive Task	Start-only
Milestone	Inactive Milestone	Finish-only
Summary	Inactive Summary	Progress
Project Summary	Manual Task	Deadline
External Tasks	Duration-only	
External Milestone	Manual Summary Rollup	

APPENDIX H

Coyote Gold Project Risk Assessment

Measures of Consequence

Level	Rating	Severity
1	**Insignificant**	a) No, or very minor environmental impact, on site release with no damage to natural resource b) Confined to immediate area c) No long term effect d) Rapid cleanup by site personnel e) $1000 to < $10,000 cost f) Very minor compliance issue, unlikely to attract a regulator response, reported internally only
2	**Minor**	a) Minor environmental impact, minor detrimental effect to on-site natural resource and promptly contained/cleaned b) Confined to operational area c) Short term effect < 1 year for remediation d) Rapid cleanup by site or contract staff e) $10,000 to < $100,000 cost f) Minor compliance issue, likely to attract a low level administrative regulator response, Regulators notified within 48 hours
3	**Moderate**	a) Moderate environmental impact, short term detrimental effect to natural resource within lease area with full recovery b) Confined to lease areas c) Cleanup by site or contract staff d) Mid-term effect: 1 to < 10 year for remediation e) $100,000 to < $1,000,000 cost f) Significant breach of regulation of compliance issue, or continued occurrence of Minor (Level 2) occurrence. Regulators notified within 24 hours, detailed internal investigation to prevent re-occurrence
4	**Major**	a) Major environmental impact, prolonged but reversible detrimental effect to off-site natural resource b) Impact may extend beyond lease boundary c) Clean-up effort requiring external specialist d) Long term effect 10 to < 100 year for remediation. e) $1,000,000 to < $10,000,000 cost f) Major breach of regulation or compliance issue which will results in external investigation. Regulators notified IMMEDIATELY g) Prosecution or penalties to be incurred
5	**Catastrophic**	a) Severe environmental impact, success of remediation to off-site natural resource uncertain b) Local or widespread species destruction c) Specialist clean-up effort requiring external means d) Very long term effect >100 year for remediation. e) ≥ $10,000,000 cost f) Major breach of regulation or compliance issue which will results in external investigation. Regulators notified IMMEDIATELY g) Prosecution or penalties to be incurred

Measures of Likelihood

Level	Rating	Occurrence
5	**Almost Certain**	Daily Occurrence or proven/expected to occur in most occasions (> 90%)
4	**Likely**	Weekly Occurrence or proven/expected to occur on many occasions (75 to 90%)
3	**Possible**	Yearly Occurrence or proven/expected to occur on some occasions (25 to < 75%)
2	**Unlikely**	1 in 10 Year Occurrence or proven to occur on infrequent occasions (10 to < 25%)
1	**Rare**	1 in 100 Year Occurrence or proven/expected to occur on rare occasions (< 10%)

Risk Potentials

	Consequence				
	1	2	3	4	5
Likelihood	*Insignificant*	*Minor*	*Moderate*	*Major*	*Catastrophic*
Almost Certain (5)	M	M	H	VH	VH
Likely (4)	L	M	H	H	VH
Possible (3)	L	L	M	H	H
Unlikely (2)	VL	L	L	M	H
Rare (1)	VL	VL	L	M	M

Risk Level	Priority	Example Action
Very High	1	Immediate action and formal documentation required. This level of risk is not tolerable, senior management responsibility and formal documentation required. Closure plan needs to implement new controls or detail investigative tasks designed to reduce residual risk to a level acceptable to all stakeholders. Upgrade corporate procedures / instructions if required.
High	2	This level of risk is not tolerable, senior management responsibility and formal documentation required. Closure plan needs to implement new controls or detail investigative tasks designed to reduce residual risk to a level acceptable to all stakeholders. Upgrade corporate procedures / instructions if required.
Moderate	3	Management responsibility must be specified in documents, this level of risk is acceptable provided all possible efforts have been made to implement proposed controls. Assess adequateness of existing controls in conjunction with key stakeholders, upgrade corporate procedures / instructions if required.
Low	4	This level of risk acceptable with standard management procedures / instructions that incorporate annual internal review.
Very Low	5	Manage by routine procedures; accept risk

Existing Controls		Proposed Controls	
MCP	Mine Closure Plan	**I-MCP**	Implement Mine Closure Plan
EMP	Environmental Management Plan	**O-SC**	Ongoing stakeholder consultation
WMP	Wildlife Management Plan	**PA-MCP**	Publicly Available Mine Closure Plan
SOP	Standard Operating Procedures	**CPR**	Continued Progressive rehabilitation
PM	Photo Monitoring	**MDP**	Mine Decommissioning Plan
RT & PR	Rehabilitation trials and progresive rehabilitation	**RMI**	Rehabilitation Material Inventory
SC-MD	Stakeholder Consultation during mine development	**SS-RMS**	Site survey of rehabilitation material stockpiles
HDPE	HDPE Liner	**I-SWMP**	Implement Surface Water Management Plan (if the production of such a plan is deemed necessary)
C-B	Concrete Bunding	**ILD**	Integrated Landform Design
ICC	Independent Closure Costing	**TU-MCP**	Triennial Update to Mine Closure Plan
CL	Clay Liner	**RMP**	Through Rehabilitation Monitoring Program
ED	Engineered design	**C-AB**	Complete Abandonment Bund / Close Pit Ramp
TAR	Triennial Aquifer Review	**S**	Signage
AB	Abandonment Bund	**R-A**	Restrict Access to Mine Site - rehabilitate roads where possible
S	Signage	**BD**	Bores / Drill Holes Decommissioned
BC	Bores / Drill Holes Capped once drilled	**FPC**	Financial Provisioning for Closure and allocation of funds for closure
EXMP	Exploration Management Plan	**IC-TSF**	Install Cover on TSF upon closure, following consolidation of the tails

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***			
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**
0.1	Site Wide - Coyote and Bald Hill	Inappropriate closure planning	ENVIRO - rehabilitation failure	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	4 - Major	3 - Possible	H	I-MCP, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	2 - Unlikely	M	Operational and Post Closure
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - inadequate risk assessment											
				CORPORATE - changes to Life of Mine Plan											
				ENVIRO - climate variations, drought, flood, fire											
				ENVIRO - compaction											
				OPERATIONS - inadequate data management											
				LANDFORM - inadequate monitoring											
0.2		Inappropriate closure planning	ENVIRO - downstream impacts due to surface water flow from project areas	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP,MDP, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - changes to Life of Mine Plan											
				LANDFORM - design oversight and / or changes											
				OPERATIONS - insufficient surface water management											
				ENVIRO - climate variations, drought, flood, fire											
0.3		Inappropriate closure provision	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP,PM, RT & PR,	P - Partial	4 - Major	4 - Likely	H	I-MCP,MDP, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	P - Partial	4 - Major	3 - Possible	H	Operational and Post Closure
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - changes to Life of Mine Plan											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - poor closure prescriptions and closure cost estimation											
0.4		Life of Mine plan changes	COMPLIANCE - failure to achieve relinquishment	COMPLIANCE - inadequate closure planning	MCP, EMP,PM, RT & PR, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, O-SC, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP	P - Partial	4 - Major	2 - Unlikely	M	Operational and Post Closure
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - poor closure prescriptions and closure cost estimation											
				CORPORATE - inadequate risk assessment											
				OPERATIONS - poor operational controls											
				STAKEHOLDERS - unacceptable outcome											
				OPERATIONS - inadequate data management											
0.5		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, RT & PR, SOP	P - Partial	4 - Major	4 - Likely	H	I-MCP / TU-MCP, MDP, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	3 - Possible	H	Decommissioning and Post Closure
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - poor closure prescriptions and closure cost estimation											
				STAKEHOLDERS - unacceptable outcome											
				OPERATIONS - poor operational controls											
				REHABILITATION - insufficient monitoring											
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion											
				SOIL - Dispersive and sodic materials											
				REHABILITATION - inadequate trial methodology, monitoring or analysis of results											
0.6		Inability to develop quantitative completion criteria	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP,PM, RT & PR, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, O-SC, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP. FPC	P - Partial	4 - Major	3 - Possible	H	Operational and Post Closure
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - changes to Life of Mine Plan											
				OPERATIONS - inadequate data management											
				STAKEHOLDERS - unacceptable outcome											
				REHABILITATION - insufficient monitoring											
0.7		Unsafe facilities	HEALTH - sickness / injury / death (human)	COMMUNITY - lack of stakeholder consultation	MCP, EMP,SOP, RT & PR, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, O-SC, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP	P - Partial	4 - Major	1 - Rare	M	Decommissioning and Post Closure
				COMPLIANCE - inadequate closure planning											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - changes to Life of Mine Plan											
				LANDFORM - slumping/ failure of open pit walls											
				SAFETY - inappropriate fencing and access control											
0.8		Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, EMP,SOP, RT & PR, SC-MD, PM	P - Partial	4 - Major	3 - Possible	H	PA-MCP, I-MCP / TU-MCP, MDP, O-SC, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	P - Partial	4 - Major	2 - Unlikely	M	Post Closure
				COMMUNITY - lack of stakeholder consultation											
				COMPLIANCE - inadequate closure planning											
				COMPLIANCE - unknown expectations/requirements											
				CORPORATE - inadequate closure planning and ineffective closure implementation											
				CORPORATE - changes to Life of Mine Plan											
				CORPORATE - poor closure prescriptions and closure cost estimation											
				CORPORATE - inadequate risk assessment											
				OPERATIONS - inadequate data management											

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
1.1.1	Coyote WRL	Inappropriate closure planning	ENVIRO - rehabilitation unable to meet closure criteria	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, ILD, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - inadequate trial methodology, monitoring or analysis of results												
				REHABILITATION - insufficient monitoring												
				OPERATIONS - inadequate data management												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.1.2		Dispersive and sodic materials	LANDFORM - surface erosion / sedimentation by water	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP ,	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - inadequate trial methodology, monitoring or analysis of results												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.1.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	5 - Almost Certain	H	I-MCP, MDP, ILD, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	E - Effective	3 - Moderate	4 - Likely	H	Operational	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - lack of information/ knowledge												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.1.4		Insufficient rehabilitation materials	ENVIRO - insufficient rehabilitation materials to meet prescriptions / design	COMPLIANCE - inadequate closure planning	RT & PR, MCP, EMP	P - Partial	3 - Moderate	3 - Possible	M	SS-RMS, RMI, ILD, CPR, I-SWMP, RMP, I-MCP, EMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
1.1.5		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, WMP, PM, RT & PR	P - Partial	4 - Major	3 - Possible	H	I-MCP, MDP, ILD, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
				STAKEHOLDERS - unacceptable outcome												
				REHABILITATION - inadequate trial methodology, monitoring or analysis of results												
1.2.1	Coyote TSF	Inappropriate closure planning	ENVIRO - rehabilitation unable to meet closure criteria	COMPLIANCE - inadequate closure planning	RT & PR, PM, MCP, ICC, EMP, WMP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, ILD, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				ENVIRO - saline water rising into root zone												
1.2.2		Dispersive and sodic materials	LANDFORM - surface erosion / sedimentation by water	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.2.4		Elevated metals in waste/ tailings	WATER - alteration of groundwater quality	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				ENVIRO - insufficient baseline data												
1.2.5		Elevated metals in waste/ tailings	WATER - alteration of surface water quality	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				ENVIRO - insufficient baseline data												
1.2.6		Inappropriate closure planning	LANDFORM - excessive tailings drying time	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				OPERATIONS - TSF used as water storage / evaporation pond												
1.2.7		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, EMP, SOP	P - Partial	3 - Moderate	5 - Almost Certain	H	I-MCP / TU-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP, FPC	P - Partial	3 - Moderate	4 - Likely	H	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												

				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.2.8		Insufficient rehabilitation materials	ENVIRO - insufficient rehabilitation materials to meet prescriptions / design	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, RT & PR, SOP	P - Partial	3 - Moderate	3 - Possible	M	SS-RMS, RMI, I-MCP / TU-MCP, MDP, ILD, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
1.2.9		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, RT & PR, SOP	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, ILD, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				STAKEHOLDERS - unacceptable outcome												
				SOIL - Dispersive and sodic materials												
1.2.10		Dust emissions	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, RT & PR, SC-MD	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, ILD, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP, IC-TSF	E - Effective	3 - Moderate	1 - Rare	L	Decommissioning and Post Closure	
				COMMUNITY - lack of stakeholder consultation												
				COMPLIANCE - inadequate closure planning												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - changes to Life of Mine Plan												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
1.2.11		Geotechnical instability	LANDFORM - TSF failure	COMPLIANCE - inadequate closure planning	MCP, EMP, RT & PR, SOP	P - Partial	5 - Catastrophic	2 - Unlikely	H	I-MCP / TU-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP	E - Effective	5 - Catastrophic	1 - Rare	M	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - changes to Life of Mine Plan												
				EMPLOYEE - lack of knowledge of Standard Operating Procedure												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				LANDFORM - inadequate flood protection												
				OPERATIONS - TSF used as water storage / evaporation pond												
				OPERATIONS - poor operational controls												
1.2.12		Diversion Bund Failure	WATER - flooding	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - water ponding at toe of landform impacting integrity												
				OPERATIONS - insufficient surface water management												
1.3.1	Coyote ROM Pad	Inappropriate closure planning	ENVIRO - rehabilitation unable to meet closure criteria	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
1.3.2		Dispersive and sodic materials	LANDFORM - surface erosion / sedimentation by water	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.3.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, SOP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, ILD, SS-RMS, RMI, I-SWMP, RMP, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
1.3.4		Insufficient rehabilitation materials	ENVIRO - insufficient rehabilitation materials to meet prescriptions / design	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, RT & PR, SOP	P - Partial	2 - Minor	3 - Possible	L	SS-RMS, RMI, I-MCP / TU-MCP, MDP, ILD, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
1.3.5		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, RT & PR, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, ILD, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
1.4.1	Coyote Topsoil Stockpiles	Inappropriate closure planning	SOIL - loss of topsoil integrity	COMPLIANCE - inadequate closure planning	MCP, EMP, RT & PR, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
1.5.1	Bald Hill WRL	Inappropriate closure planning	ENVIRO - rehabilitation unable to meet closure criteria	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	4 - Major	4 - Likely	H	I-MCP, MDP, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	2 - Unlikely	M	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
1.5.2		Dispersive and sodic materials	LANDFORM - surface erosion / sedimentation by water	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, PM, RT & PR	P - Partial	4 - Major	4 - Likely	H	I-MCP, MDP, EMP, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	E - Effective	4 - Major	3 - Possible	H	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												

				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.5.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, SOP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, SS-RMS, RMI, I-SWMP, RMP, FPC	E - Effective	3 - Moderate	4 - Likely	H	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
1.5.4		Insufficient rehabilitation materials	ENVIRO - insufficient rehabilitation materials to meet prescriptions / design	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, RT & PR, SOP	P - Partial	3 - Moderate	4 - Likely	H	SS-RMS, RMI, I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
1.5.5		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, RT & PR, SOP	P - Partial	4 - Major	4 - Likely	H	I-MCP / TU-MCP, MDP, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	E - Effective	4 - Major	3 - Possible	H	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				STAKEHOLDERS - unacceptable outcome												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
				SOIL - Dispersive and sodic materials												
				REHABILITATION - inadequate trial methodology, monitoring or analysis of results												
1.5.6		Dispersive and sodic materials	ENVIRO - impacts to surrounding vegetation	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, RT & PR, PM	P - Partial	4 - Major	4 - Likely	H	I-MCP / TU-MCP, MDP, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	4 - Major	2 - Unlikely	M		
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				SOIL - dispersive and sodic materials												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - erosion resulting in sediment fans beyond the landform toe												
				LANDFORM - inadequate monitoring												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
1.6.1	Bald Hill ROM Pads	Inappropriate closure planning	ENVIRO - rehabilitation unable to meet closure criteria	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, PM, RT & PR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.6.2		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, SS-RMS, RMI, I-SWMP, RMP, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.6.3		Insufficient rehabilitation materials	ENVIRO - insufficient rehabilitation materials to meet prescriptions / design	COMPLIANCE - inadequate closure planning	MCP, ICC, EMP, RT & PR, SOP	P - Partial	3 - Moderate	3 - Possible	M	SS-RMS, RMI, I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				OPERATIONS - poor operational controls												
1.6.4		Ineffective decommissioning	COMPLIANCE - failure to achieve relinquishment	CORPORATE - changes to Life of Mine Plan	MCP, ICC, EMP, RT & PR, SOP	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP, FPC	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				REHABILITATION - insufficient monitoring												
				LANDFORM - inadequate surface drainage control - resulting in piping and excess erosion												
1.7.1	Bald Hill Topsoil Stockpiles	Inappropriate closure planning	SOIL - loss of topsoil integrity	COMPLIANCE - inadequate closure planning	MCP, EMP, RT & PR, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, O-SC, SS-RMS, RMI, CPR, I-SWMP, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				OPERATIONS - poor operational controls												

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
2.1.1	Coyote Processing Plant	Hazardous materials	WATER - alteration of surface water quality	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, C-B, ED	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, ILD, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.1.2		Hazardous materials	ENVIRO - soil contamination	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, C-B, ED	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.1.3		Hazardous materials	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, C-B, ED, SC-MD	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, O-SC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.1.4		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP, C-B, ED	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.1.5		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP, C-B	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.2.1	Offices workshop and Stores	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, TAR	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, EMP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.2.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	4 - Likely	M	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	3 - Possible	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.2.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.2.4		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.3.1	Power House, Fuel Storage and Refuelling bay	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, ED, TAR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.3.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, ED	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.3.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP, C-B, ED	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.3.4		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP, C-B	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.4.1	Reverse Osmosis Plant	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, ED	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.5.1	Coreyard and Workshop	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, TAR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.5.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.5.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP, C-B	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.6.1		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	5 - Almost Certain	H	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	4 - Likely	M	Operational and Post Closure	

				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.6.2	Coyote Laydown	Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.7.1	Boneyard	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	5 - Almost Certain	H	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	4 - Likely	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.7.2		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.8.1	TSF Laydown	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	4 - Likely	M	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	3 - Possible	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.8.2		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.9.1	Explosives Magazine	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.9.2		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	1 - Rare	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.10.1	Putrescible and Inert Landfills	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, TAR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.10.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	4 - Likely	M	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	3 - Possible	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.10.3		Elevated metals / solutes in solution	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP	P - Partial	3 - Moderate	5 - Almost Certain	H	I-MCP, MDP	P - Partial	3 - Moderate	4 - Likely	H	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.10.4		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.10.5		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.11.1	Bioremediation Area	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	5 - Almost Certain	H	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	3 - Possible	L	Decommissioning and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.12.1	Sewage Treatment Facility	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, ED, TAR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.12.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, ED	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.12.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP, C-B, ED	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.12.4		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP, C-B	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	2 - Minor	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.13.1	Airstrip	Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Decommissioning and Post Closure	
				COMMUNITY - unknown expectations/requirements												
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				FAUNA - conservation significant fauna present												
2.13.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.13.3		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP, PM	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	

				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				FAUNA - conservation significant fauna present												
				REHABILITATION - earthworks not to prescription / design												
2.13.4		Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, SC-MD	P - Partial	3 - Moderate	4 - Likely	H	PA-MCP, MDP, OSC	P - Partial	3 - Moderate	3 - Possible	M	Post Closure	
				COMMUNITY - lack of stakeholder consultation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - inadequate risk assessment												
2.14.1	Accommodation Village	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.14.2		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.14.3		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	2 - Minor	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.15.1	Bald Hill Administration	Hazardous materials	WATER - alteration of groundwater quality	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP, C-B, ED, TAR	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, EMP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.15.2		Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.15.3		Inappropriate closure provision	CORPORATE - unplanned closure costs	COMPLIANCE - inadequate closure planning	MCP, EMP, ICC, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, O-SC, RMI, FPC	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
2.15.4		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	2 - Minor	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												
2.16.1	Bald Hill Storage Compound and Laydown	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
2.16.2		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP	E - Effective	2 - Minor	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
3.1.1	Coyote Open Pit	Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, AB, SC-MD	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, C-AB, O-SC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
3.1.2		Unsafe facilities	SAFETY - public injury	SAFETY - inappropriate fencing and access control	MCP, EMP, WMP, AB, S, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, C-AB, O-SC, S, R-A	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				MINE PIT LAKES - alteration of water quality												
3.1.3		Acid Mine (and Metalliferous) Drainage	WATER - alteration of pit lake water quality	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, AB, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, I-SWMP, C-AB, O-SC	E - Effective	4 - Major	2 - Unlikely	M	Post Closure	
				MINE PIT LAKES - physical mixing, chemical and biological reaction												
				OPEN PIT - inadequate or no bund across the open pit ramp.												
				GEOCHEMISTRY - elevated metals												
				MINE PIT LAKES - alteration of water quality												
3.2.1	Coyote Underground	Unsafe facilities	HEALTH - sickness / injury / death (human)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, AB, SC-MD	P - Partial	4 - Major	2 - Unlikely	M	I-MCP / TU-MCP, MDP, C-AB, O-SC, S, R-A	E - Effective	4 - Major	1 - Rare	M	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
3.2.2		Unsafe facilities	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, AB, SC-MD	P - Partial	2 - Minor	3 - Possible	L	MCP, EMP, WMP, C-AB	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				GEOTECHNICAL - instability												
3.3.1	Sandpiper Open Pit	Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	Mine Closure Plan, Stakeholder Consultation	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, C-AB, O-SC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
3.3.2		Unsafe facilities	SAFETY - public injury	SAFETY - inappropriate fencing and access control	MCP, EMP, WMP, AB, S, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, C-AB, O-SC, S, R-A	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				MINE PIT LAKES - alteration of water quality												
3.3.3		Elevated metals in groundwater	MINING - formation of pit lake	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, AB, SC-MD	P - Partial	4 - Major	3 - Possible	H	MCP, EMP, WMP, C-AB, SC-MD	E - Effective	4 - Major	2 - Unlikely	M	Post Closure	
				MINE PIT LAKES - physical mixing, chemical and biological reaction												
				OPEN PIT - inadequate or no bund across the open pit ramp.												
				GEOCHEMISTRY - elevated metals												
				MINE PIT LAKES - alteration of water quality												
3.4.1	Kookaburra Open Pit	Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	Mine Closure Plan, Stakeholder Consultation	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, C-AB, O-SC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				CORPORATE - changes to Life of Mine Plan												
3.4.2		Unsafe facilities	SAFETY - public injury	SAFETY - inappropriate fencing and access control	MCP, EMP, WMP, AB, S, SC-MD	P - Partial	4 - Major	3 - Possible	H	I-MCP / TU-MCP, MDP, C-AB, O-SC, S, R-A	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				MINE PIT LAKES - alteration of water quality												
3.4.3		Elevated metals in groundwater	MINING - formation of pit lake	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, AB, SC-MD	P - Partial	4 - Major	3 - Possible	H	MCP, EMP, WMP, C-AB, SC-MD	E - Effective	4 - Major	2 - Unlikely	M	Post Closure	
				MINE PIT LAKES - physical mixing, chemical and biological reaction												
				OPEN PIT - inadequate or no bund across the open pit ramp.												
				GEOCHEMISTRY - elevated metals												
				MINE PIT LAKES - alteration of water quality												
3.5.1	Osprey Pit and Laterite Re-handle Area	Unsafe facilities	HEALTH - sickness / injury / death (human)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, AB, S, SC-MD	P - Partial	3 - Moderate	2 - Unlikely	L	I-MCP / TU-MCP, MDP, C-AB, O-SC, S, R-A	E - Effective	3 - Moderate	1 - Rare	L	Decommissioning and Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
3.5.2		Unsafe facilities	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, AB, SC-MD	P - Partial	2 - Minor	2 - Unlikely	L	MCP, EMP, WMP, C-AB	E - Effective	2 - Minor	1 - Rare	VL	Decommissioning and Post Closure	
				GEOTECHNICAL - instability												
3.5.3		Ineffective decommissioning	ENVIRO - rehabilitation failure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, RT & PR, FPC	P - Partial	3 - Moderate	2 - Unlikely	L	I-MCP / TU-MCP, RMI, RMP	E - Effective	3 - Moderate	1 - Rare	L	Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				MINE PIT LAKES - physical mixing, chemical and biological reaction												

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
4.1.1	Evaporation and Raw Water Pond	Elevated metals / solutes in solution	WATER - alteration of surface water quality	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				ENVIRO - insufficient baseline data												
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - poor operational controls												
4.1.2		Elevated metals / solutes in solution	WATER - alteration of groundwater quality	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, TAR	P - Partial	4 - Major	3 - Possible	H	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	4 - Major	2 - Unlikely	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.1.3		Elevated metals / solutes in solution	ENVIRO - soil contamination	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.1.4		Elevated metals / solutes in solution	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
4.1.5		Elevated metals / solutes in solution	ENVIRO - impacts to surrounding vegetation	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, PM	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, ILD, CPR	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.1.6		Stochastic events (drought, fire, flood etc)	ENVIRO - downstream impacts due to mine runoff	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, PM	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, I-SWMP, ILD, CPR, RMI	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - insufficient baseline data												
				COMPLIANCE - inadequate closure planning												
4.1.7		Ineffective decommissioning	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.1.8		Inappropriate closure planning	CORPORATE - unplanned closure costs	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, TU-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.1.9		Inappropriate closure planning	ENVIRO - rehabilitation failure	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, HDPE, ED, CL, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.2.1	Leach Vats	Elevated metals / solutes in solution	WATER - alteration of surface water quality	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				ENVIRO - insufficient baseline data												
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - poor operational controls												
4.2.2		Elevated metals / solutes in solution	WATER - alteration of groundwater quality	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, TAR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.2.3		Elevated metals / solutes in solution	ENVIRO - impacts to surrounding vegetation	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, ILD	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.2.4		Elevated metals / solutes in solution	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	5 - Almost Certain	H	I-MCP, MDP, EMP	P - Partial	3 - Moderate	4 - Likely	H	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
4.2.5		Stochastic events (drought, fire, flood etc)	ENVIRO - downstream impacts due to mine runoff	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, PM	P - Partial	4 - Major	3 - Possible	H	I-MCP, MDP, EMP, I-SWMP, ILD, CPR, RMI	E - Effective	4 - Major	2 - Unlikely	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - insufficient baseline data												
				COMPLIANCE - inadequate closure planning												
4.2.6		Ineffective decommissioning	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.2.7		Inappropriate closure planning	CORPORATE - unplanned closure costs	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, TU-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.2.8		Inappropriate closure planning	ENVIRO - rehabilitation failure	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, HDPE, ED, CL, PM, RT & PR	P - Partial	3 - Moderate	4 - Likely	H	I-MCP / TU-MCP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.3.1		Elevated metals / solutes in solution	WATER - alteration of surface water quality	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				ENVIRO - insufficient baseline data												
				ENVIRO - spill of polluting fluid/substance												
				OPERATIONS - poor operational controls												

4.3.2	Water Treatment Ponds and Turkeys Nest	Elevated metals / solutes in solution	WATER - alteration of groundwater quality	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, TAR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.3.3		Elevated metals / solutes in solution	ENVIRO - impacts to surrounding vegetation	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.3.4		Elevated metals / solutes in solution	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, HDPE, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
4.3.5		Stochastic events (drought, fire, flood etc)	ENVIRO - downstream impacts due to mine runoff	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, PM	P - Partial	4 - Major	3 - Possible	H	I-MCP, MDP, EMP, I-SWMP, CPR, RMI	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - insufficient baseline data												
				COMPLIANCE - inadequate closure planning												
4.3.6		Ineffective decommissioning	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.3.7		Inappropriate closure planning	CORPORATE - unplanned closure costs	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, TU-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.3.8		Inappropriate closure planning	ENVIRO - rehabilitation failure	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, HDPE, ED, CL, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.4.1	Bald Hill Evaporation Dam	Elevated metals / solutes in solution	WATER - alteration of groundwater quality	OPERATIONS - poor operational controls	MCP, EMP, SOP, ED, CL, TAR	P - Partial	2 - Minor	4 - Likely	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	2 - Minor	3 - Possible	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.4.2		Elevated metals / solutes in solution	ENVIRO - impacts to surrounding vegetation	OPERATIONS - poor operational controls	MCP, EMP, SOP, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				COMPLIANCE - inadequate closure planning												
4.4.3		Elevated metals / solutes in solution	ENVIRO - contaminated sites register	GEOCHEMISTRY - elevated metals	MCP, EMP, SOP, ED, CL	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP	E - Effective	3 - Moderate	3 - Possible	M	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
4.4.4		Stochastic events (drought, fire, flood etc)	ENVIRO - downstream impacts due to mine runoff	OPERATIONS - poor operational controls	MCP, EMP, SOP, ED, CL, PM	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, EMP, I-SWMP, CPR, RMI	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - insufficient baseline data												
				COMPLIANCE - inadequate closure planning												
4.4.5		Ineffective decommissioning	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.4.6		Inappropriate closure planning	CORPORATE - unplanned closure costs	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, TU-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density												
4.4.7		Inappropriate closure planning	ENVIRO - rehabilitation failure	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ED, CL, PM, RT & PR	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, RMI, RMP	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
				LANDFORM - inadequate surface drainage control												
				REHABILITATION - insufficient growth of vegetation / inappropriate cover density						I-MCP, MDP, EMP, I-SWMP						
4.5.1	Bald Hill Turkeys Nest	Elevated metals / solutes in solution	WATER - alteration of groundwater quality	OPERATIONS - poor operational controls	MCP, EMP, SOP, HDPE, ED, CL, TAR	P - Partial	2 - Minor	3 - Possible	L		E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - climate variations, drought, flood, fire												
				ENVIRO - spill of polluting fluid/substance												
4.5.2		Ineffective decommissioning	CORPORATE - unplanned closure	COMPLIANCE - inadequate closure planning	MCP, EMP, SOP, ICC	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, EMP, I-SWMP, FPC	E - Effective	2 - Minor	2 - Unlikely	L	Operational	
				ENVIRO - climate variations, drought, flood, fire												
4.5.3		Inappropriate closure planning	CORPORATE - unplanned closure costs	COMPLIANCE - unknown expectations/requirements	MCP, EMP, SOP, ICC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, TU-MCP, MDP, CPR, RMI, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Operational and Post Closure	
				ENVIRO - spill of polluting fluid/substance												
				ENVIRO - climate variations, drought, flood, fire												
4.6.1	Flood Diversion Drain and Bund	Stochastic events (drought, fire, flood etc)	WATER - disruption of natural surface hydrology	COMPLIANCE - unknown expectations/requirements	MCP, EMP	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, EMP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - inadequate closure planning												
				ENVIRO - climate variations, drought, flood, fire												
4.7.1	Surface Water Collection Sump	Inappropriate closure planning	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, AB	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP,C-AB	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				FAUNA - uptake of contaminated water/vegetation												
4.8.1	Bald Hill Flood Protection and Abandonment Bund	Stochastic events (drought, fire, flood etc)	WATER - disruption of natural surface hydrology	COMPLIANCE - unknown expectations/requirements	MCP, EMP	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, EMP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - inadequate closure planning												
				ENVIRO - climate variations, drought, flood, fire												

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
5.1.1	Monitoring Bores	Ineffective decommissioning	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, SOP, BC	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, CPR, BD, FPC	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - uncapped bores and unrehabilitated drill sites												
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
				FAUNA - animals stepping in holes/on stakes/pegs												
5.2.1	Dewatering Bores and pipelines	Ineffective decommissioning	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, SOP, BC	P - Partial	2 - Minor	3 - Possible	L	I-MCP, MDP, CPR, BD, FPC	E - Effective	2 - Minor	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - uncapped bores and unrehabilitated drill sites												
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
				FAUNA - animals stepping in holes/on stakes/pegs												
5.2.2		Inappropriate closure planning	COMPLIANCE - failure to comply with Regulatory Guidelines	COMPLIANCE - uncapped bores and unrehabilitated drill sites	MCP, EMP, WMP, SOP, BC	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, CPR, BD	**E - Effective**	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												

Tanami Gold NL

CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
6.1.1	Site Roads	Ineffective decommissioning	ENVIRO - rehabilitation failure	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, TU-MCP, MDP, CPR, FPC	E - Effective	3 - Moderate	3 - Possible	M	Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
6.1.2		Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, SC-MD	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, O-SC	E - Effective	4 - Major	2 - Unlikely	M	Decommissioning and Post Closure	
				COMMUNITY - lack of stakeholder consultation												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
6.2.1	Bald Hill Haul Road	Ineffective decommissioning	ENVIRO - rehabilitation failure	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP	P - Partial	3 - Moderate	4 - Likely	H	I-MCP, TU-MCP, MDP, FPC	E - Effective	3 - Moderate	3 - Possible	M	Post Closure	
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
6.2.2		Inappropriate closure planning	COMMUNITY - unacceptable closure outcome	COMMUNITY - unknown expectations/requirements	MCP, EMP, WMP, SC-MD	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, O-SC	E - Effective	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				COMMUNITY - lack of stakeholder consultation												
				FAUNA - conservation significant fauna present												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												

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CLOSURE RISK ASSESSMENT

Risk Team Members: Brett Montgomery, Michael Thomson, Max Viscovich, Kim Bennett, and Ben Leonard

Date: Week of the 10th February 2014

	Project Area:						***Initial risk with existing controls***					***Residual Risk with proposed controls in place***				
Risk Number	**Feature**	**Risk or Hazard** (SOURCE)	**Unwanted Event** (RECEPTOR)	**Factors Contributing to Unwanted Event** (PATHWAYS)	**Existing Controls**	**Effectiveness of existing controls**	**Consequence**	**Likelihood**	**Risk**	**Proposed Controls/ treatments**	**Effectiveness of proposed Controls**	**Consequence**	**Likelihood**	**Risk**	**when proposed controls will be implemented**	**person responsible**
7.1.1	Drill pads, Sumps and Tracks	Ineffective decommissioning	FAUNA - sickness / injury / death (fauna)	COMPLIANCE - inadequate closure planning	MCP, EMP, WMP, SOP, BC, EXMP	P - Partial	2 - Minor	4 - Likely	M	I-MCP, MDP, CPR, BD, FPC	E - Effective	2 - Minor	3 - Possible	L	Decommissioning and Post Closure	
				COMPLIANCE - uncapped bores and unrehabilitated drill sites												
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
				CORPORATE - changes to Life of Mine Plan												
				FAUNA - animals stepping in holes/on stakes/pegs												
7.1.2		Inappropriate closure planning	COMPLIANCE - failure to comply with Regulatory Guidelines	COMPLIANCE - uncapped bores and unrehabilitated drill sites	MCP, EMP, WMP, SOP, BC, EXMP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP, MDP, CPR, BD	**E - Effective**	3 - Moderate	2 - Unlikely	L	Decommissioning and Post Closure	
				COMPLIANCE - unknown expectations/requirements												
				CORPORATE - inadequate closure planning and ineffective closure implementation												
				CORPORATE - poor closure prescriptions and closure cost estimation												
7.2.1	Exploration Coreyard	Hazardous materials	ENVIRO - soil contamination	ENVIRO - spill of polluting fluid/substance	MCP, EMP, SOP	P - Partial	2 - Minor	3 - Possible	L	I-MCP / TU-MCP, MDP, I-SWMP	E - Effective	2 - Minor	2 - Unlikely	L	Operational and Post Closure	
				OPERATIONS - insufficient surface water management												
				OPERATIONS - poor operational controls												
				ENVIRO - climate variations, drought, flood, fire												
7.2.2		Inappropriate closure planning	ENVIRO - rehabilitation failure	CORPORATE - changes to Life of Mine Plan	MCP, EMP, SOP	P - Partial	3 - Moderate	3 - Possible	M	I-MCP / TU-MCP, MDP, I-SWMP, RMI, RMP, FPC	E - Effective	3 - Moderate	2 - Unlikely	L	Post Closure	
				ENVIRO - compaction												
				ENVIRO - climate variations, drought, flood, fire												
				REHABILITATION - earthworks not to prescription / design												

APPENDIX I

Closure Cost Assumption Report

Mike Slight & Associates

Tanami Gold Ltd

Coyote Project

FINAL DRAFT

Closure Cost Estimate Assumptions and Criteria Report.

Location:	**Tanami Desert, WESTERN AUSTRALIA**
Prepare Date:	**February 2014**
FINAL DRAFT Date:	
Predicted Closure Date:	**Assumed 2019**

Project Areas	Site Breakdown Features	Assumptions – Criteria – Basis for Closure Cost Estimate
	General assumptions regarding closure The Coyote project is a mature gold operation currently in a care and maintenance operating mode over two locations (Coyote and Bald Hill) within the Tanami Desert region of WA. The closure cost model has been developed based on the current (estimated) mine life with closure planned for 2019. The closure cost model has included all relevant mine closure activities associated with the open pit mining operations at the Coyote and Bald Hill sites, and the underground operation and processing facilities and associated infrastructure including tailings storage facilities at the Coyote site. Closure costs have been estimated for all aspects of the operations including waste rock landforms (WRL), Run of Mine (ROM) facilities, mining areas, industrial infrastructure, water containment infrastructure, exploration activities, closure monitoring and owners management costs. The closure execution phase earthworks for the current project disturbance footprint are assumed to be undertaken over a 30 week period commencing in 2019 and the post closure monitoring period is assumed to be for ten years, commencing 2020 out to 2029 when relinquishment of tenements are assumed to be successfully approved. It has been assumed that there will be sufficient rehabilitation and construction materials including rock cover and topsoil available and located on or adjacent to various rehabilitation locations. The total estimated volume required is 0.437 Million m^3 including 125K m^3 of topsoil (or suitable growth media).	
1.0	**Landforms** Landform closure and rehabilitation earthworks includes excavation, load, haul and placement of suitable waste rock and topsoil materials for cover and rehabilitation of the waste rock landforms, ROMs, tailings storage facilities and other stockpiles associated with the operations of the project. Costs have included activities for sourcing rehabilitation materials, excavation, load, haul and dump, reshaping slopes and flats on the landforms, re-establishing natural drainage across impacted footprints and down slopes and includes rip-rap rock sourcing and placement, erosion protection rock armouring placement, contour ripping, and revegetation as required and specified within the mine closure plan.	
	General	• All earthworks costs including dozing, load, haul, and dump are based on the estimator's industry experience and on Western Australia rehabilitation earthmoving contractor rates. • It has been assumed that the contractor rates include; monthly equipment ownership (rental) costs, operator and maintenance labour, supervision, fuel, ground engaging tools (GET), tyres,

		contractor's profit and contractor's administration costs.
		• The rehabilitation and earthworks equipment productivities are based on first principle estimates utilising the Caterpillar handbook with efficiency factors applied and adjusted for the lower productivities expected and the estimators experience with closure and rehabilitation activities.
		• The equipment operating costs are based on total monthly operating hours of 259 hours made up of 12 hours per day (day shift only), 7 days per week, with an 85% equipment availability and utilisation factor applying.
		• The diesel fuel price (ex-rebate) is set at $1.20 per litre delivered on site (Tanami desert) and has been applied to the equipment hourly hire rates based on an estimated consumption for each piece of equipment.
		• The operator labour cost is assumed at $85/hour inclusive of all on-costs and overheads.
		• One way haulage distance for all rehabilitation activities has been assumed to range from 0.5km to 1.5 km, unless specified otherwise.
		• The Coyote tailings storage facility is made up of two cells and is currently in a care and maintenance mode. The TSF embankments are assumed to be stable and require topsoiling and revegetation only. The majority of the rehabilitation works are required to cover and stabilise the tailings surface with a store and release rock cover.
		• The assumed rehabilitation fleet has been based on the following major equipment items:
		  • 2 x CAT D10 dozers
		  • 1 x PC1250 excavator
		  • 3 x CAT 777 haul trucks
		  • CAT 14H grader
		  • CAT 773 water truck

Landforms	Coyote TSF Coyote WRL Bald Hill WRL Coyote ROM Bald Hill ROM	• The Coyote TSF embankments are considered to be established at 15-18 degrees and stable and costs have only been included to complete the required placement of 100mm topsoil and revegetation on the embankments. • The tailings surface has yet to be covered and costs have been provided for completion of the installation of the store and release cover. The cover design includes the placement of a 300 mm capillary break rock layer placed directly onto the prepared tailings surface, a 500 mm oxide rock protection layer placed on the capillary break and a 100 mm topsoil cover for revegetation. It

		has been assumed that the tailings surface of the Coyote TSF will be sufficiently dry and consolidated to undertake the required cover works. • The capillary break rock material is assumed to be sourced from the underground waste rock dump stockpiles within the Coyote open pit and is to be screened to +25 mm to 200 mm particle size. Screening, loading, haulage (1500 m) and placement costs have been included in the costs. A total of 65,130 m^3 of rock is required for the capillary break. • Suitable and sufficient Run of Mine oxide waste is assumed to be available from within the Coyote WRL for the 500 mm thick store and release cover to be placed over the capillary break. Total volume required is 119,405 m^3 for a haulage distance of 500 m. • Surface cells (two cells per Ha) and crest bunding (1500 mm high) are to be installed to assist with water management and prevention of overtopping of the facility, the store and release function of the cover and drainage control generally over the facility. • The access ramps up onto the tails facility are to be rehabilitated to form a riprap rock lined overflow spill way down to natural surface. • A toe bund and inside spoon drain is to be installed around the TSF facility where and as required to contain any erosional silt and prevent toe damage from surface water flows around the facility. • Other TSF works costed include removal of any decant infrastructure (pumps, pipes, power cables etc.) and the decant areas sealed off with backfilling rock material and any clean up and contaminated material removed from around the TSF facility. The decant access roads are to be dozed out over the capillary break as a part of the oxide rock cover (500 mm thick) once all clean up and contaminated material has been deposited into the decant area and rock backfilled and sealed off. • All of the waste rock landforms have had partial rehabilitation works undertaken and costs have been included to complete these works as well as undertake any erosion repairs as required. Activities costed include shaping the unrehabilitated dump slopes to 15 degrees, and load, haul and dump costs for suitable topsoil material for placement on slopes and top at 100 mm thick. • All the unrehabilitated WRL top surfaces are to be reshaped for drainage control works to manage and control surface water flows on the dump and placement of store and release oxide rock protection covers.

		• Works include placement of a 1000 mm oxide waste rock encapsulation layer over the uncovered WRL surfaces (Bald Hill only to comply with approved encapsulation design), installing 1.5 m high crest bunds to prevent overtopping of the dumps, installation of cell bunding (two cells per Ha) to control top drainage and assist with the store and release function of the cover, installation of rock lined drainage channels at appropriate locations, on the dump tops and down the dump access ramp (to act as a spill way) to allow surface flows down to natural surface. It has been assumed that a 100 mm topsoil layer will be placed over the rehabilitated surfaces and contour ripping of the slopes and top surfaces is included. • Toe bunds and inside spoon drains are to be installed around the WRL's where and as required to contain any erosional silt and prevent toe damage from surface water flows around each landform. • All surfaces are to be ripped and revegetated • All WRL ramps are to be reshaped and rock lined to form a surface overflow spillway from the top surface down to natural ground level. • It has been assumed that any ore stocks located on the Coyote and Bald Hill ROM pads will be removed for processing prior to closure. • It has been assumed that all ROM pads will require reshaping of the slopes to 15 degrees, shaping and levelling of the top surfaces, installation of crest and cell bunding to prevent overtopping and control and manage drainage across the surfaces, rehabilitation of the ROM access ramps to form a riprap rock lined overflow spillway drain down to natural surface, top soiling (100 mm), ripping and revegetation as required. Toe bunds and inside spoon drains are to be installed around the ROM toes where and as required to contain any erosional silt and prevent toe damage from surface water flows around each landform.
Topsoil stockpiles	Coyote Topsoil Stockpiles Bald Hill Topsoil Stockpiles	• It is assumed that all topsoil stocks will be removed from the stockpile areas and used for rehabilitation purposes. Rehabilitation of the footprint includes reshaping for drainage control, deep ripping and revegetation as required.
	Landform weed eradication	• Weed eradication and maintenance is assumed to be undertaken during the closure and post closure monitoring period and is based on industry experience in the Goldfields and the Pilbara.
	Landform maintenance	• It is assumed that a declining annual maintenance program is in

<table>
<tr><td></td><td>and repair</td><td>place to repair any erosion, or revegetation during the post closure monitoring period.</td></tr>
<tr><td>2.0</td><td colspan="2">Industrial Infrastructure
There is one ore processing facility for the project located at the Coyote site. Infrastructure at the site includes the processing facilities (crushing and grinding, CIP/CIL tanks, gold recovery facilities and support and services infrastructure). Other support infrastructure for the open pit and underground operations are in place and includes power, water, mine ventilation, administration and workshops.
Cost estimates are based on the following:
• Demolition and removal off-site of the processing plant major equipment, and associated infrastructure and buildings including all infrastructure support related components (power, water, buildings etc.).
• Closure and rehabilitation of structures and building foundations, including concrete slab break-up and removal for burial within the Coyote evaporation pond and breaking down (using excavator mounted shears) and removal of scrap steel for burial and disposal within the Coyote open pit.
• Clean up and removal of contaminated material for burial in the Coyote evaporation pond.
• Closure and rehabilitation of all infrastructure footprints including storage areas where located, lay downs, landfills, borrow pits, etc.
Estimated costs for the demolition of the Coyote processing plant are based on the estimator’s industry experience. No salvage value is included in the cost estimate.
Cost allowances have been made for contamination detection and removal, demolition contractor owner’s administration overheads and mob/demob.
It has been assumed that the decommissioning and demolition of infrastructure facilities and support infrastructure will be undertaken when all ore processing is completed and in a staged approached as the closure earthworks are completed.</td></tr>
<tr><td>Industrial infrastructure</td><td>• Coyote Processing Plant
• Power station, transformer compound, switch room
• Workshops
• Administrations, stores and car parks
• Fuel storage and fuel farm
• Sewage treatment facilities
• Airstrip</td><td>• The demolition costs for the Coyote processing facilities have been based on the following assumed materials estimate for similar sized gold plants;
  • Concrete quantity 1,000 m^3
  • Structural and plate steel 500 tonnes.
  • The plan footprint area totals 2.53 Ha.
• Any infrastructure and non-recyclable materials not removed from site will be demolished, broken up and placed within the Coyote and Bald Hill evaporation ponds (whichever is closer) prior to their final rehabilitation. All processing plant steel not removed from site for recycling is to be broken down into a manageable size using an excavator mounted set of demolition shears and disposed of within the Coyote open pit.
• The demolition costs have allowed for decontamination and clean-up of associated “delivery to the plant” pipelines for the Cyanide and LPG facilities. It has been assumed that the storage</td></tr>
</table>

	• Accommodation village • Power Line corridors • Laydowns, landfills, storage compounds	facilities have been completely emptied of all cyanide and LPG product and decontaminated (by the CN and LPG supplier) prior to their decommissioning and removal from site. • Power is sourced from the onsite power station and will require disconnection prior to removal of the sites power reticulation system and associated infrastructure. The cost estimate includes decommissioning and removal off site, of all switching substations, transformers, reticulation aerials and MCC facilities. Site power requirements will reduce during the closure period, however it is assumed that sufficient portable power generation will remain in place during the closure period to ensure that office and workshop facilities will continue to operate. • Decommissioning, demolition and removal of specific ancillary facilities including offices, workshops, fuel storage and refuelling facilities, communications facilities, power and water lines etc are costed with estimates based on actual costs for similar facilities in the Goldfields and Pilbara. • All buildings associated with the administration, workshops, stores and accommodation village are to be removed from the site to Alice Springs (800 km). All associated concrete foundations, slabs and pathways are to be broken up and removed for burial within the evaporation ponds prior to their final rehabilitation. • The fuel storage tanks are assumed to be emptied and removed from site and all foundations and bunding removed prior to rehabilitation of their footprints. Adequate portable refuelling pods will be required for supply to the rehab contractor during the works. • It has been assumed that there will be some contamination around the workshop, fuel farm and fuel storage areas and costs have been included for removal of 500 mm layer of contaminated material to the evaporation ponds for disposal. • All other disturbed footprints are assumed to be generally free of contamination due to ongoing management during operations. However the estimate has assumed an allowance for remediation of contamination for the processing plant and infrastructure footprint, and generally across the entire disturbance footprint. It includes costs for contamination investigation and reporting, removal and burial within the evaporation ponds as required, footprint reshaping, contour ripping, and revegetation using the closure and rehabilitation fleet. • All laydown, hardstand and cleared areas associated with the Coyote and Bald Hill facilities are assumed to be free of

		contamination, however a contamination survey of the areas will be required. • Laydown areas costs have been included to generally regrade and doze the footprints to re-establish drainage across 50% of the footprints, ripping and revegetation. The remaining 50% of the footprints are assumed to be unimpacted and require no rehabilitation works. • The inert landfill is to be covered with a 500 mm oxide rock cover using waste dozed from the Coyote WRL. Costs have assumed a 100 m dozer push from the landform slope over the landfill, re-establishing drainage across the footprint, topsoiling and revegetation. • It has been assumed that the airstrip will not be required by the community post closure and rehabilitation works costed have included, dismantling and removal offsite of the AVGAS fuel storage facilities, demolition of the airstrip passenger shelter, shaping and re-establishing of drainage across the strip, ripping of runway surface, grading topsoil across the footprint and revegetation as required.
	• Demolition contract administration and mobilisation	• The processing plant decommissioning and demolition cost estimate assumes a suitably qualified demolition contractor is used for all demolition works and the cost estimate has included the contractor mobilisation/demobilisation and administration and overhead costs. Demolition works are assumed to take eight weeks to complete.
	• Removal of contaminated soils	• An allowance has been made for general contamination clean up assuming 5% of the Coyote sites total infrastructure footprint. A total of 1,095 m^3 of material will be removed to an average depth of 250 mm and hauled to the Coyote evaporation pond for burial. • Rehabilitation of the decontamination foot print includes placement of 100 mm of topsoil, deep contour ripping and revegetation as required.
	• Feral animal control	• No allowance has been included for feral animal control across the Coyote site for the post closure period due to minimal feral animal presence.
	• Final contamination report	• Costs have been included for contamination surveys to be undertaken across the footprints of all infrastructure. • A final contamination investigation and report has been allowed for once all rehabilitation activities have been completed and the report will be required as a part of the relinquishment report.

3.0	**Mining Infrastructure** The Coyote project is currently mining from underground resources; in addition there are a number of open pits that have been mined out and will no longer require access. The underground portal has been established from within the Coyote open pit; there are also a number of ventilation shafts associated with the underground mine all within the open pit and will not require sealing works. The works required will include completion of abandonment bunding around the open pits, removal of the ventilation fan, and sealing off of the underground decline and portal.	
Open pits	• Coyote Open pit • Kookaburra Open Pit • Sandpiper Open pit • Osprey Open pit	• All of the open pits have adequate abandonment bunding in place however final close-off of the bunds is required at the Coyote, Kookaburra, and Sandpiper pits. All bunds are assumed to be located at least 10 m outside the area of influence of the potentially unstable rock mass associated with each open pit wall and the bund dimensions are as per DMP guidelines and set at; height 2 m, base 5 m and 5 m^3 per meter length of bund. • The bunds are assumed to be constructed from suitable free draining rock, which is assumed to be available from the underground or open pit waste rock dumps. • The volume of suitable rock required is assumed to be 5 m^3 per linear metre of bund and it has been assumed a total bund length of 270 m and estimated volume of suitable rock required of 1,350 m^3 to complete the abandonment bund works. • Haulage of suitable rock is assumed to be within 2000 m utilising the rehabilitation fleet.
Underground Mines	• Coyote Underground	• The costed lump sum estimates for closure of the underground infrastructure and facilities are based on industry experience and practice. • The decline is to be backfilled with suitable rock to the decline "backs" to 50 m below portal to enable future access if required, the portal is to be gated, locked and signage put in place. • Allowances have been made for removal of the ventilation fan and disposed of offsite.
4.0	**Water Containment Facilities** This cost area covers the closure and rehabilitation of all site water storage facilities and drainage control structures using the closure fleet and includes turkey's nests, evaporation ponds, process raw water ponds, collection ponds and diversion channels and drains. All works are assumed to be undertaken during the closure period.	
	• Coyote Evaporation Pond • Bald Hill Evaporation Pond • Leach Vats	• It has been assumed that all ponds are empty and dry prior to works commencing. • It is assumed that tailings are removed from the leach vats for re-processing, and that the area will be levelled prior to site decommissioning. • The cost estimate has assumed that any HDPE plastic lining in

	• Coyote Water Treatment Ponds • Coyote Turkeys Nest • Bald Hill Turkeys nest • Surface water collection sumps (within confines of open pit) • Coyote flood protection / abandonment bund • Coyote diversion drain	the ponds and sumps is to be cut up and buried within the base of each pond. • It has been assumed that any contaminated material above and below the HDPE plastic has either been removed during operations or will be buried within the base of the each pond. • The pond embankments are to be breached by dozer and pushed over the pond including the HDPE plastic to back fill the pond and re-establish drainage across the footprint. • A 100 mm cover layer of topsoil is to be placed over each pond footprint after embankment dozing and shaping. Final contour ripping and seeding as required has been included in the costs. • The Coyote evaporation pond is to be used as a depository of all concrete rubble and contaminated material from the demolition of the processing plant and associated infrastructure. Once all rubble has been placed within the pond, the embankments will then be breached and dozed over the rubble to ensure burial. The final footprint is to be reshaped to establish natural drainage, contour ripped and revegetated as required. • A diversion drain is to be constructed between the evaporation pond and the Coyote WRL to prevent erosion and disturbance of the rehabilitated areas. • An allowance has been made for an engineering assessment of the stability of the site drainage system prior to closure. However no allowance has been included to undertake any repairs or upgrades of the facilities that might be needed. • Topsoiling and revegetation where required has also been included in the costs.
5.0	**Groundwater Infrastructure** This cost area accounts for the cost of closure and rehabilitation of all dewatering bores and monitoring wells as well as removal of any water pipe lines and associated infrastructure. All costs used are based on industry experience and include removal of exposed bore-hole casings and providing suitable plugs and caps and minor rehabilitation works at each of the bore sites as well as decommissioning and removal of pipelines and associated infrastructure off site.	
	• Coyote production and monitor bores • TSF VWP and other monitoring bores	• There are a total of 12 production and monitor bores across the sites requiring works. Works include bore hole plugging, grouting and capping, clean up and rehab around the bore heads. • An allowance has been made for surface infrastructure removal works including removal and disposal off-site of any and all transfer tanks, generators, pumps, pipes and support infrastructure. • An allowance has been included for removal of any contamination around the bore hole infrastructure for burial within the

		evaporation ponds (maximum 3 km haulage distance). • The above ground pipe lines, (assumed 102 mm pipe diameter, and a total length of 2,000 m) is to be dismantled in sections and removed off site. • There are a total of 11 (Vibrating Wire Piezometers and monitoring) bores requiring rehabilitation associated with the TSF.
6.0	**Roads** This cost category covers the closure and rehabilitation of all haul roads, access roads and tracks. Earthworks include de-compaction, re-contouring, culvert removal if any, top soil haulage and placement were required, and revegetation of road footprints.	
	• Site haul roads • Site access tracks	• It has been assumed that all open pit and underground mining area haul road foot prints will remain in place where they lie within the confines of the open pit abandonment bunding. Any other haul roads outside of the mining areas will have 25% of their footprints rehabilitated. • All site access roads and tracks will have 25% of their footprint rehabilitated and the remaining footprint left in place to provide access around the site for post closure monitoring purposes and land owner access. • Earthworks activities costed include removal of any culverts (as required) and road furnishings, decompaction ripping, reshaping of footprints to re-establish drainage across the roads and tracks, rock covers (100 mm) as required for drainage, spillways stabilisation and topsoil (using soil reserves beside the roads and tracks), and revegetation as required.
7.0	**Exploration Disturbance** This cost category covers the closure and rehabilitation of any exploration disturbance and activities including drill holes, sumps, exploration tracks and gridlines.	
	• Exploration	• Costs have assumed that an exploration audit will be undertaken in order to confirm the success of previously completed rehabilitation undertaken during exploration programs and operations and any other unrehabilitated exploration activity. • No allowance has been made for any rehabilitation of exploration boreholes and sumps required following the audit however all other exploration disturbance including tracks and gridlines that have yet to be rehabilitated will be completed at closure. Works include shaping to re-establish natural drainage, light ripping with the grader and revegetation as required.

8.0	**Water Treatment – Post Closure** This cost centre is established for those activities associated with any TSF seepage management during the closure and post closure period. Costs include power, labour, equipment (purchase or rental costs), maintenance and spare parts and infrastructural removal at the end of the pumping period.	
	• Coyote TSF	• It has been assumed that there will be no seepage emanating from the Coyote TSF's (currently the case during care and maintenance) and therefore no costs have been allowed for water treatment during the post closure period.
9.0	**Post Closure Monitoring** This cost centre provides for rehabilitation monitoring during the post closure period. This monitoring is required to provide evidence of satisfactory performance with agreed closure objectives and criteria for the site prior to relinquishment.	

	Post closure monitoring	• Monitoring activities assumed and included in the costs include:
		  • Annual vegetation and rehabilitation monitoring for the post closure period to assess the development of and success against stable landforms and self-sustaining ecosystem targets,
		  • Annual erosion and surface water drainage monitoring during the post closure period,
		  • Annual geotechnical monitoring of the TSF and WRLs for the first 5 years of post-closure,
		  • Annual ground water monitoring for the first 5 years of post-closure,
		  • Annual surface water quality monitoring for the first 5 years.
		  • Satellite imagery and photographic assessment of rehabilitated areas over the post closure period and undertaken biennial.
		• Post closure monitoring is to be undertaken in accordance with the mine closure and performance monitoring plans and current tenement conditions and commitments.
		• During monitoring site visits, other site inspections to be undertaken include gate damage and repairs, erosion and drainage issues and reporting and a general site inspection for unauthorised site access and damage especially associated with the Coyote underground workings. In addition landform weed eradication and maintenance, landform maintenance and repair and feral animal control will be undertaken as a part of the post closure monitoring activity.

<table>
<tr><td>10.0</td><td colspan="2">Owners management
This cost centre provides for personnel to manage the closure works during the closure period and includes supervisory and environmental support. In addition costs are allocated for other closure obligations the site may have including stakeholder engagement, consultant services including legal fees, and tenement holding costs (not included in the closure provision estimate).</td></tr>
<tr><td></td><td>Project management</td><td>• The costs have assumed the following resources are required on a two weeks on one week off roster, with costs based on both industry and current site experience:
• Regional Environmental support over the closure and post closure periods (11 years).
• Project Manager/site coordinator (30 weeks).
• Snr Engineer/Surveyor/environmental officer (30 weeks).
• Administration support (30 weeks).
• Safety/environmental officer (30 weeks).
• Electrical and mechanical support (30 weeks).
• Earthmoving contractor workforce of 25 including supervision, maintenance personnel and operators (30 weeks)
• Demolition contractor workforce of 8 personnel including supervision, maintenance and operators (8 weeks)
• Light vehicle maintenance costs.
• Camp and FIFO costs including power and water supply, catering for all project personnel and contractors, and weekly commute flights from Alice Springs</td></tr>
<tr><td></td><td>Socio-economic costs</td><td>• An allowance has been made during the closure works and relinquishment periods for community consultation with the Kimberly Land Council (KLC) and Traditional Owners (TO's) of the area of the mine. An additional allowance has been assumed for ongoing community consultation during the post closure monitoring period.</td></tr>
<tr><td></td><td>Consultant services</td><td>• The assumed consultant requirements during the closure and post closure monitoring period include:
• Annual environmental reporting requirements;
• Preparation of as-builts and engineering sign-off of final rehabilitated structures and relinquishment reporting requirements;
• Undertake a final wild life survey prior to relinquishment;
• Annual ground and surface water reporting (five years);
• Annual legal cost allowance;
• Monitoring data management costs.</td></tr>
</table>

	Mob-demob	• Assumed allowance for rehabilitation closure contractor mob-demob of rehabilitation equipment as per fleet requirements. • Assumed equipment will be mobilised-demobilised from Coyote to Alice Springs a total distance of 800 km.
	Tenement holding costs	• These costs are associated with keeping in good standing all mineral lease rents and shire rates. These costs are only included in the life of mine closure cost estimate and not in the closure provision estimate. Annual cost supplied totals $?? and will significantly increase the cost for closure if these costs are not included within other corporate budgets. Note that these costs will be reduced as non-impacted tenements are progressively relinquished during the closure and post closure periods and negotiations are undertaken with the relevant authorities to reduce the rents and rate quantum.
11.0	**Contingency** It is typical to include a contingency to be applied across each closure cost element to allow for any potential and/or unforeseen events or risks that may exist in each of the closure activities, due to limited availability or accuracy of data, the lack of detailed engineering designs for the specific closure elements, or any unforeseen circumstances that may occur during the mine life that could impact on closure costs.	
	Contingency	• The estimate has assumed a 15% contingency for all activities.
12.0	**Sudden Closure Care and Maintenance (C&M) Costs** It is a requirement under the DMP guidelines for mine closure planning submission that a cost estimate is made for sudden closure and costs associated with a C&M activities for a period of at least two years. This estimate for two years of care and maintenance has been done for the project.	
	Labour	• Care and Maintenance staffing requirements are assumed to include: o Two C&M caretaker/supervisor and two maintenance personnel responsible as site contacts and for statutory requirements, maintenance requirements and general security activities. • Costs have been allocated to allow for run-up of major equipment and to maintain access to the underground workings. • Other duties will include primarily site safety and environmental inspections and general asset protection.
	Camp and FIFO cost	• Camp and FIFO costs have been included.
	Maintenance and Support costs	• Costs have been included for care and maintenance of all assets across the site.

13.0	**Other closure study costs prior to closure** To prepare for closure it is recommended that a number of relevant technical studies are undertaken prior to closure to inform the closure plan and update the likely closure outcomes and costs. Typically cost estimates are included for technical, engineering, and social studies and rehabilitation trials that should be undertaken during the operations period to assist in informing and updating the closure plan and cost estimates. Much of this requirement can be considered for Research and Development tax treatment.	
	Technical studies	• Assumed studies are to be undertaken during operations that will inform and provide updates to the closure planning process include: o Hydrogeological/Ground Water Modelling; o Contamination/Ecotox/Hazard studies o Landform erosion modelling studies o Landform design and engineering; o Development of landform decommissioning plans; o Waste characterisation and rehabilitation material balance studies; o Surface water drainage assessment studies; o Wild life survey as per requirements; and o Data Management system requirements during the closure and post closure periods.
	Social studies	• In addition to technical information, social studies will be required as a part of the development of the stakeholder engagement strategy to ensure tenement relinquishment meets community (KLC and TO's) expectation criteria. • Studies required include: o Social Impact Assessments o Post Closure land management plan
	Rehabilitation trials	• Rehabilitation trials to demonstrate the successful closure of the mining areas and landforms should be considered at all mining projects. However no costs have been allocated for the Coyote project due to the existing rehabilitation land forms already undergoing monitoring.

APPENDIX J

Department of industry and Resources letter 12th December 2006

Department of Industry and Resources
Government of Western Australia

Our ref: E0029/200502

Enquiries: Justin Robins - 92223090

Justin.robins@doir.wa.gov.au

JEREMY SHEPHERDSON
ENVIRONMENTAL ADVISOR
TANAMI GOLD NL
PO BOX 1892
WEST PERTH WA 6872

Dear Sir

TANAMI 2006 AER INSPECTION

Thank you for the opportunity to inspect the site and for Jeremy Shepherdson, Mike Casey, Dave Wilkie and Roger Bannister to take the time to accompany me during the inspection.

Please find my inspection report attached including a notification of matters requiring attention.

Yours sincerely

Justin Robins
Environmental Officer
ENVIRONMENTAL DIVISION

Monday, 12 December 2006

CC: Tanami Exploration NL, PO Box 1892, WEST PERTH WA 6872

XDIRL001

Inspection Report

Location	Coyote Gold Project
Tenements	M80/559, M80/560, M80/561, M80/562, M80/563, L80/45 and L80/51
Inspection date	7 and 8 December 2006
Inspected by	Justin Robins, DoIR Perth, Environmental Officer Gary Humphreys, DoW Perth, Senior Hydrogeologist Jacinta Thompson, DoW Kununurra, Program Manager Water Allocation Meghan Barnes, DoW Kununurra, Water Allocation Officer Keith Hockey, DEC Kununurra, A/Regional Manager Sarah Greenwood, DEC Kununurra, Environmental Services Native Vegetation Protection Joanne Nicol, DEC Kununurra, A/Environmental Services Coordinator
Accompanied by	Jeremy Shepherdson, Mike Casey, Dave Wilkies, Roger Bannister and Veron Wilson
Reason for Inspection	Annual Environmental Inspection
AER Due Date	February 2007

Please note this report is by exception and only details environmental issues that need attention. As the visit was a joint inspection between Department of Industry and Resources (DoIR), Department of Conservation and Environment and the Department of Water, a range of other environmental issues were also noted. To prevent duplication between government agencies, I request you to refer to the other agencies reports for completness.

Vat Leach Operation

During the inspection it was noted that the filling of the two most eastern Vat Leach cells with crushed ore has resulted in a loss of freeboard. Due to the irregular beaching of ore into the cells, it was difficult to ascertain the amount of freeboard which remains (Photo 1).

Photo 1: Irregularly loaded vat leach.

Action

1. With the monsoon approaching DoIR requires Tanami Gold NL to immediately regain freeboard in the loaded vat leaches to ensure that enough capacity is available. The vat leaches should have enough capacity that when loaded with ore, the addition of cyanide solution and monsoonal rainfall do not result in overtopping and release of water into the environment.

2. Can a copy of the Vat Leach Operating Manual (which incorporates the pregnant and intermediate ponds) that has been devised for the Coyote Project please be supplied to DoIR for our records. The Operating Manual should have a similar format to as detailed in "Guidelines on the Development of an Operating Manual for Tailings Storage". This document can be accessed by the following link: http://www.doir.wa.gov.au/documents/environment/shed_safety_guide_tailingsmanual.pdf

Abandonment Bund

Part of an abandonment bund has been constructed around the opencut pit that has a width of three paddock dumped 777 loads. This width is well in excessive of the minimum requirements of a width of 5 metres and height of 2 metres. After discussion with Department of Consumer and Employee Protection, Resources Safety Division, an abandonment needs to be constructed of unoxidised material that will not disperse overtime.

Action

3. To ensure that excessive clearing and adequate material is used for the abandonment bund, please provide details as to why the abandonment bund is being constructed in such a manner.

Sandpiper and Kookaburra Drilling

No drill hole capping of the definition drilling at Sandpiper and Kookaburra has has not been undertaken (Photo 2).

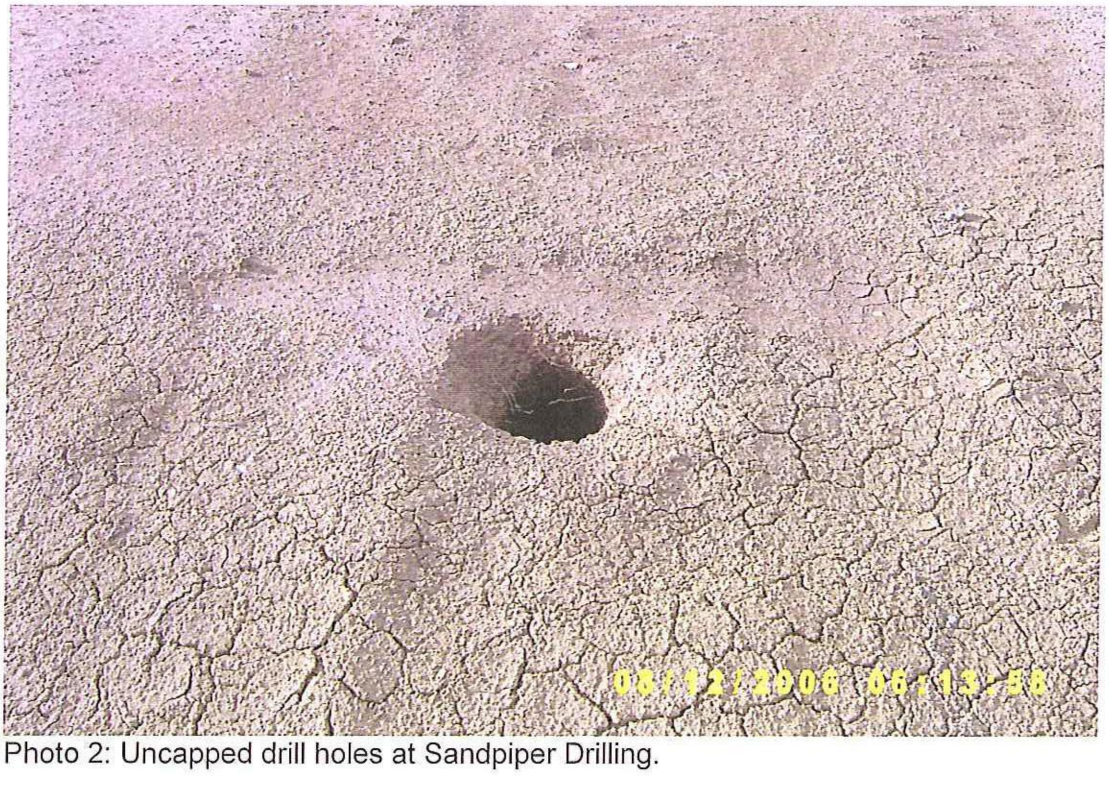

Photo 2: Uncapped drill holes at Sandpiper Drilling.

Action

4. Please immediately cap all drill holes below surface in an appropriate manner at both the Sandpiper and Kookaburra Drilling areas.

Regional Drilling

Please ensure after six months all drill holes are capped below surface and drill bags are removed and disposed of appropriately (Photo 3).

Photo 3: Drill site at Hawk Prospect.

Approvals and Modifications to Operations

As discussed during the visit, Tanami needs to ensure appropriate approvals from the relevant government authorities are gained if future modifications to aspects of the operation's currently approved processing or mining are required. These approvals are also required for changes in project footprint and changes in the proportions of the differing infrastructure and components that contribute to a given footprint.

If you have any comments related to matters raised in this inspection report please contact the undersigned on telephone number 92223090.

Justin Robins
Environmental Inspector
(08) 9222 3090
justin.robins@doir.wa.gov.au

APPENDIX K

Department of Minerals and Petroleum Inspection Report 26th March 2010

Government of Western Australia
Department of Mines and Petroleum

Our ref: E0029/200504
Enquiries: Justin Robins 92223090
justin.robins@dmp.wa.gov.au

The Registered Manager
Coyote Gold Mine

Tanami Gold NL
PO Box 1892
WEST PERTH WA 6872

Attention: Seldon Mart

2009 AER INSPECTION

Thank you for the opportunity to inspect the Coyote mine site and for Jeremy Shepherdson to escort us on the 16 and 17 December 2009.

Please find my inspection report attached including a notification of matters requiring attention.

Yours sincerely

Justin Robins
Senior Environmental Officer
ENVIRONMENT DIVISION

26 March 2010

Cc: -TANAMI EXPLORATION NL, PO BOX 1892, WEST PERTH, WA, 6872
-KUNUNURRA OFFICE, DEPARTMENT OF WATER
-KUNUNURRA OFFICE, DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Mineral House 100 Plain Street East Perth Western Australia 6004
Telephone +61 8 9222 3333 Facsimile +61 8 9222 3862
www.dmp.wa.gov.au
www.wa.gov.au
ABN 69 410 335 356

Inspection Report

Location:	Coyote mine site & associated infrastructure. Mine located approximately 220 kilometres (SE) of Halls Creek within the Shire of Halls Creek.
Tenements:	Main tenements for the site are: L80/45, L80/46, L80/51, M80/559, M80/560, M80/561, M80/562, M80/563, M80/564 (E80/1512 and E80/1515 dead tenements)
Inspection date:	16-17 December 2009
Inspected by:	Tyler Sujdovic & Justin Robins (Environmental Inspectors, Department of Mines and Petroleum, DMP).
Accompanied by:	Seldon Mart (Tanami Gold NL) & Jeremy Shepherdson (consultant to Tanami Gold NL).
Reason for Inspection:	Annual Environmental Report (AER) Inspection
AER Due Date:	February

1.General Comments:

Compared to the previous inspection, an increase in mining activities had occurred at the Coyote and Bald Hill areas.

From previous inspections, it was noted that the management of hydrocarbons and the tailings storage facilities were areas that needed attention. This inspection has highlighted that these areas still require attention.

It appears that the construction of an evaporation/water storage dam on M80/559 and over clearing of the haul road on L80/51 have occurred. Neither of these activities have been assessed via a mining proposal, hence have not been approved under the *Mining Act 1978* by DMP.

As various site developments have taken place and the footprint has increased since submission of the current closure plan, DMP will be requesting an updated version of the closure plan be submitted.

2.Tailings Storage Facility (TSF)

- **Tailings Storage Facility 1 (TSF 1)**

It was anticipated that (TSF1) was to be closed and rehabilitated, however subsequent approval was sought and given to raise the embankment. It was noted that part of the raise has occurred (Photo 1). Deposition must be well managed to ensure freeboard is maintained to prevent overtopping events.

As insufficient stability information was provided within the mining proposal for the TSF embankment raises, a tenement condition was placed on M80/559 stating:

"Prior to the recommencement of deposition of tailings into Cell 1, a formal "as built" stability assessment is to be conducted, proven adequate and then submitted to the Director, Environment, Department of Mines and Petroleum for review and placement on Departmental file."

Please ensure the required information is submitted to the DMP prior to commencement of deposition.

- **Tailings Storage Facility 2 (TSF 2)**

Prior to the December 2009 inspection an embankment lift was constructed at TSF 2 to maintain freeboard. In the 2008 inspection it was noted that:

"TSF2 was being used as an evaporation pond at the time of inspection to alleviate water levels within the water evaporation pond which was at capacity. Tailings storage facilities are not designed to take excessive water loads on their walls. "

During the 2009, inspection it was observed that seepage was occurring on the south western corner of the TSF2 embankment (Photo 2). This seepage is the likely result of allowing excess water to remain within the facility and poor management of the supernatant water pond. The Geotechnical Section of Resources Safety Division, DMP has been notified of the seepage at TSF 2.

Within 30 days of the date of this report, please provide DMP a report on how the current seepage observed in the south western embankment wall will be managed, and what measures will be put in place to prevent this situation from re-occurring (Action item 1).

3.Construction of a Water Storage Dam without Approval

It was observed that part of the eastern pit had been backfilled with mine waste from the Coyote cutback and an evaporation/water storage dam had been established on top of this material (Photo 3). The dam consisted of two cells and covered an area of 1.7 hectares with the majority of this area being located within the pit footprint. A number of large cracks around the perimeter of the dam and along the embankment walls (Photo 4). A representative of the company explained that the dam was no longer being used. At this point a verbal request was given that the company should stop using this dam.

As it appears no approval was sought for the construction and operation of this dam, a potential breach of tenement conditions appears to have occurred. <u>Please provide a report detailing the information listed below to DMP within 30 days of the date of this letter (due date 25 April 2010) (Action item 2):</u>

1. Provide evidence of relevant approvals from the DMP for backfilling and construction of the evaporation/ water storage dam. If approval was not obtained then an explanation detailing the situation which lead to activities being undertaken without seeking approval under the *Mining Act 1978* is required,
2. Details on the exact size (hectares) of the evaporation/ water storage dam and a map delineating its position relative to the pit boundaries,
3. Dates that the eastern pit was backfilled and evaporation/ water storage dam constructed,
4. Details of any management measures that have been implemented to prevent a repeat of a similar incident,
5. If a risk assessment was undertaken to ensure this dam would not pose a potential issue to the underground working in close proximity, and
6. Any other details or mitigating circumstances you consider relevant.

4.Hydrocarbon Management

It was detailed previously that hydrocarbon management at the refuelling areas and the standard of the bulk fuel storage facility were areas needing attention. Of concern is the quality of the containment liner within the bulk fuel storage facility, as a number of tears were observed (Photo 5) and some of the liner seams have perished (Photo 6). Efforts by site personnel to place soil over the liner where tears are present to aid in the containment of diesel spills is not an adequate solution. A more permanent solution is to remove the soil and systematically replace and repair the liner as required.

In addition the refuelling areas were characterised by areas of hydrocarbon contaminated soils (Photo 7).

It is requested that a report be provided to the DMP within 30 days of this report outlining how the bulk fuel storage facility and refuelling areas will be improved to eliminate hydrocarbons entering the environment (Action item 3)

5.Closure Plan

Since inspection, I have reviewed the recent approvals and the previously submitted closure plan. The Coyote and associated Bald Hill Project have changed due to a number of factors and these changes have not been incorporated into the current closure plan. An updated closure plan is therefore requested. This closure plan should build upon the existing plan and include:

1. A task register of items (i.e. different mine elements) to be rehabilitated on site,
2. Proposed rehabilitation of all items,
3. Material volumes required to rehabilitate each item (i.e. material to rehabilitate TSF1 and 2, and the vat leaches)

This closure plan is to be submitted within 6 months of this report (Due on or before 30 September 2010) (Action item 4).

6.Waste Dumps

- **Coyote Waste Dump**

After an examination of the Coyote Waste Dump it appears that a number of rehabilitation treatments have been applied with varying degrees of success (Photo 8). There does not appear to have been any overall planning onsite for the closure of the waste dump.

Limited waste will be generated from current mining activities and some of the material from the waste dump maybe required for the capping of the TSF and vat leaches in the future. It is requested that details of the overall closure of the waste dump (including the successful elements of the various rehabilitation treatments and surface water management) be incorporated in the updated closure plan as requested within this report.

- **Kookaburra/Sandpiper Waste Dump**

It is commendable that comments from the last report have been acted upon and progressive rehabilitation has ensured dispersive material has been covered with inert material and topsoiled (Photo 9). Discussions were held on site about contour ripping along the rehabilitated faces and it was stated that a trial was being undertaken to examine if the unripped batter could achieve a similar outcome. If the trial is unsuccessful then remedial actions will need to be taken. Attention also needs to be given to surface water management to ensure water falling on the top of the dump is well managed so batters are not eroded. It is recommended that progressive rehabilitation is incorporated into the mining campaigns while equipment is on site to limit closure costs.

7.Old Campsite (on L80/51)

Since the previous inspection more dongas have been removed and the septic was being rehabilitated at the Old Camp site, however little progress has been made in rehabilitating the camp site and lay down/sample farm located on L80/51. It is strongly recommended that this area be rehabilitated thus allowing for bond retirement and reducing the current footprint. Details on the rehabilitation of this area should be incorporated in the closure plan.

8.Exploration (on M80/563 and M80/562)

Exploration activities adjacent to the Kookaburra, Sandpiper and Cuckoo deposits were inspected the clearing had been managed to minimise soil disturbance and drill holes had been temporarily capped above ground (Photo 10). It was noted that oil spills associated with the drill rig had not been remediated. In the future please ensure oil spills are dealt with appropriately and all green bags are disposed of six months after drilling. In addition it is suggested that historical drill holes (photo 11) with samples at surface are scarified when more recent drill holes adjacent to them are being rehabilitated. Scarifying of this material will reduce crusting which inhibits vegetation establishment.

9.Bond Retirement on Dead Exploration Licences 80/1512 and 80/1515

E80/1512 and E80/1515 were inspected, to determine whether Unconditional Performance Bonds (UPB) ($10,000 (PE8308) and $14,000 (PE8309)) could be retired.

Inspection of the historical exploration camp located on E80/1515 indicated that rehabilitation has not been completed to a standard that meets DMP requirements. Items that remain to be rehabilitated are the sheds, donga, concrete pads, fuel storage area, open toilet holes and rubbish tip (Photo 17 to 22) The UPB bond of $14,000 will not be returned until:

1. All infrastructure and rubbish is removed and disposed of appropriately,
2. Toilet holes are sealed,
3. Inappropriate hydrocarbon drums are removed from the rubbish tip and the remainder of the rubbish is buried (Photo 22),
4. The camp area is recontoured/levelled including the fuel storage area, and
5. All compacted areas are ripped.

Within 30 days of the date of this report, please provide a report detailing the rehabilitation and the intended timeframe for completion (Action item 5).

Efforts were made to locate the old airstrip on E80/1512; however the only item to be located was the possible remnants of the windsock stand (Photo 23). Upon return to the office, an investigation using Google imagery indicated that the airstrip was revegetating and no obvious infrastructure remained (Figure 1). Based on this information it will be recommended that the $10,000 UPB covering the airstrip can be retired.

10.Turkeys Nest and Dewatering Pipeline Sandpiper and Kookaburra

It was noted that the dewatering pipeline at the Sandpiper and Kookaburra deposits had been placed in a trench to ensure saline water will be contained if the pipe ruptures. To further improve this area, it is requested that the turkeys nest has egress matting installed to allow fauna to escape if they fall into the dam (Photo 12) (Action item 3).

11.Workshop and Lay down Area Sandpiper and Kookaburra

During the inspection, the Brierty Mining Contractors workshop and lay down area was being tidied up prior to employees going on Christmas break. The only matter requiring attention was the requirement for grease drums to have lids (Photo 13). After discussing this with the Brierty supervisor this matter was to be dealt with immediately.

12.Roads on Western Side of Pit

During the inspection it was noted that a maze of roads exist on the western margin of the Coyote pit. Efforts should be taken to rationalise and rehabilitate these roads no longer required.

13.Lay down Areas

The underground lay down area had a jumble of used electrical wiring, wooden pallets, hoses and orange liners (Photo 14). This area needs to be tidied and items no longer required disposed of appropriately (Action item 3).

The plant site lay down area contained decommissioned underground mining equipment and a crane. On closer inspection some of this equipment still contained hydraulic fluids and oil, which has been leaking onto the ground (Photo 15). Also it was noted that a plastic tub filled with oil was sitting in the yard (Photo 16) It is requested that all pieces of equipment that are no longer required are drained of all engine fluids, containers holding oil are emptied, and the spills are cleaned up and remediated (Action item 3). In the longer term, as opportunities to remove this equipment become available, then all efforts should be taken in minimise material in the lay down area.

14.Bond Review.

A review of bonds held for the Coyote Project has been conducted. Based on the disturbance information provided by J. Shepherdson, Ecotec (WA) Pty Ltd, by email on 16 March 2010, the bonds covering the project are deemed to be sufficient.

However, it must be noted that a comparison of the approved and actual disturbance within each tenement indicated there were minor variations with some disturbance types being less than approved while others were over.

However, major variation was noted for Miscellaneous Licence 80/45, whereby approval was granted for the clearing of 45.5 hectares and a total area of 66 hectares has been cleared. It is acknowledged that there was an existing track covering an area of 22.5 hectares that was included in the 45.5 hectares. To investigate this potential breach of tenement conditions, DMP requires further information. Please provide a report detailing the information indicated below (Action item 6) to the DMP within 30 working days of the date of this letter:

1. A map detailing the approved haul road footprint and the actual footprint of haul road,
2. An explanation detailing the situation which lead to a larger area being cleared without seeking approval under the *Mining Act 1978*,
3. Details of any management measures that have been implemented to prevent a repeat of a similar incident,
4. Any other details or mitigating circumstances you consider relevant.

Department of Mines and Petroleum required actions items

A summary of the required action items

1. Report detailing management of seepage from TSF 2, required within 30 days of the date of this report. (due date 25 April 2010)
2. Details on the construction of an evaporation/water storage dam without approval, required within 30 days of the date of this report. (due date 25 April 2010)
3. Details on the upgrade of the bulk storage facility, refuelling station, draining and clean up of hydrocarbons in the plant lay down area clean up of the underground lay down area and the installation of egress matting at the Sandpiper turkeys nest, required within 30 days of the date of this report. (due date 25 April 2010)
4. Submission of an update Closure Plan, required within 6 months of the date of this report. (due date 30 September 2010)
5. Rehabilitation plan and timeframe for exploration camp located on E80/1515, required within 30 days of the date of this report. (due date 25 April 2010)
6. Details on the over clearing of the haul road located on L80/45 without approval, required within 30 days of the date of this report. (due date 25 April 2010)

If you have any comments related to matters raised in this inspection report please contact the undersigned on telephone number 9222 3090.

Yours faithfully

Justin Robins
Senior Environmental Officer
(08) 9222 3090
justin.robins@dmp.wa.gov.au

AER Scores:

AER score Table attached

SITE: Coyote Minesite

RATING	DOES NOT MEET DEPT STANDARDS	PARTIALLY MEETS DEPT STANDARDS	MEETS DEPARTMENT STANDARDS	EXCEEDS DEPARTMENT STANDARDS	PREVIOUS SCORE (2008)	SCORE (2009)
	1	2	3	4		

1.	**CLEARING CONTROL** Total Area Open ≈ 287.9 ha *Comments: Some clearing appears to be beyond that approved under the Mining Act 1978.*	2	2
2.	**TOPSOIL MANAGEMENT** *Comments: Topsoil has been recovered and stored appropriately.*	3	3
3.	**WASTE DUMPS** *Comments: A number of rehabilitation treatments have been completed on the Coyote Waste Dump with varying success. Sandpiper and Kookaburra Waste dump being progressively rehabilitated.*	2	2
4.	**TAILINGS STORAGE FACILITY** *Comments: Seepage visible on external south eastern embankment wall. Poor management of TSF supernatant pond.*	2	2
5.	**POLLUTION CONTROL & ENVIRONMENTAL MONITORING** *Comments: Bulk fuel storage liner in poor condition and needs repair. Equipment located in lay down area leaking oil and hydraulic fluid.*	2	2
6.	**HOUSEKEEPING AND RUBBISH** *Comments: Underground lay down area requires tidying up.*	2	2
7.	**OTHER MATTERS** *Comments: Exploration camp on E80/1515 (dead) yet to be rehabilitated.*	2	2

Photo 1: Tailings embankment lift at Tailings Storage Facility 1.

Photo 2: Seepage Visible on External Embankment Wall of TSF 2.

Photo 3: Evaporation/Water Dam constructed without approval.

Photo 4: Cracks within Evaporation/Water Dam Embankments.

Photo 5: Tears within the Bulk Fuel Storage Facility Liner

Photo 6: Perished Seams of the Bulk Fuel Storage Facility Liner

Photo 7: Hydrocarbon Contaminated Area Surrounding the Refuelling Area.

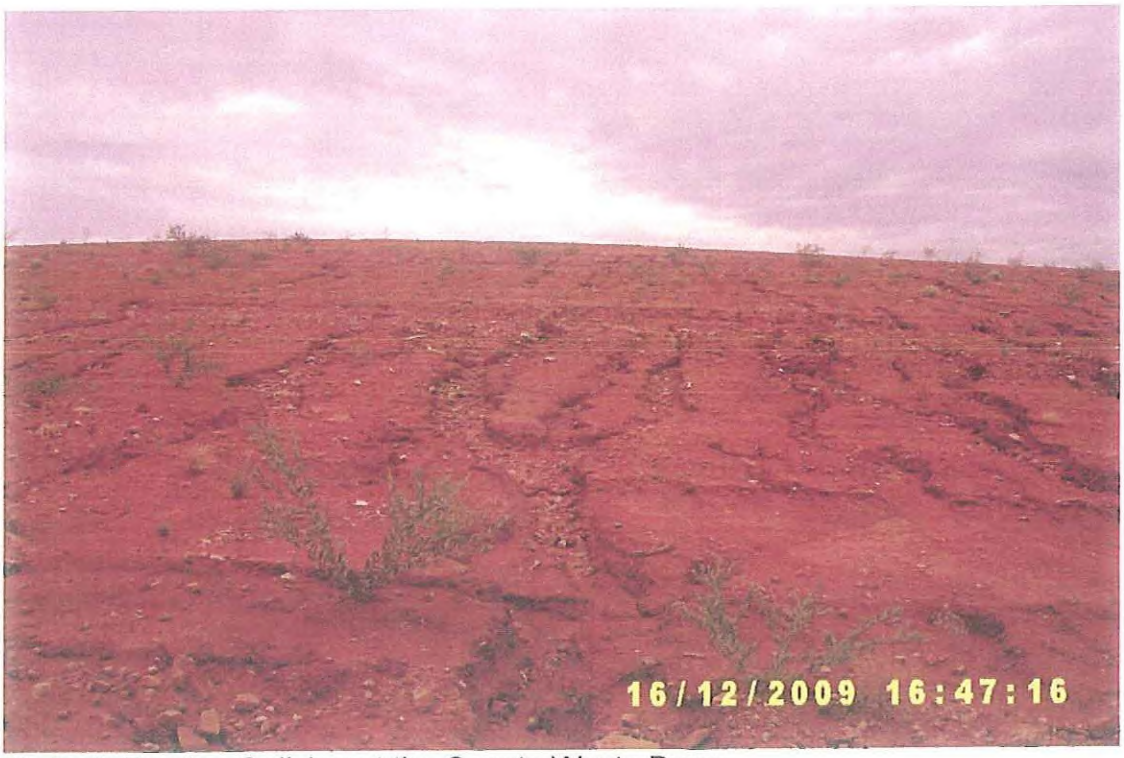

Photo 8: Erosion Gullying at the Coyote Waste Dump.

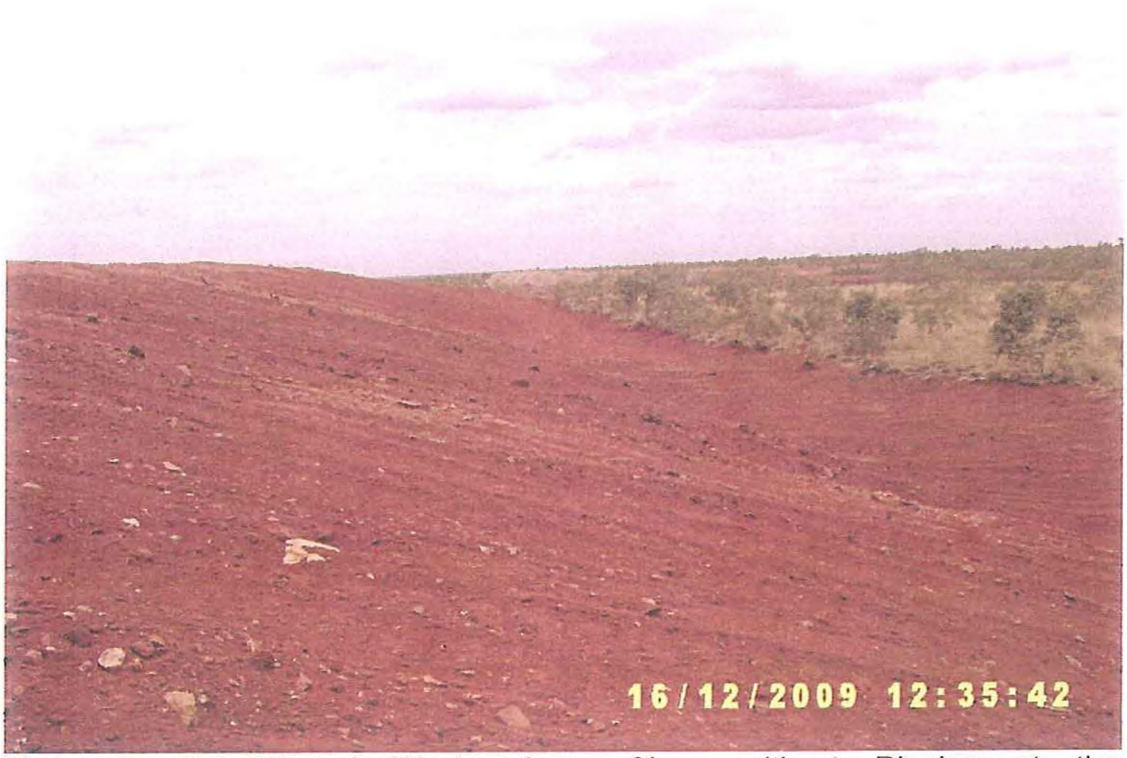

Photo 9: Rehabilitated Waste dump Slope without Ripping at the Sandpiper/Kookaburra.

Photo 10: Exploration Drill Sites Temporarily Capped.

Photo 11: Historical Drill Site with Hard Set Drill Samples

Photo 12: Turkeys Nest Dam at the Sandpiper/Kookaburra Project without Egress Matting.

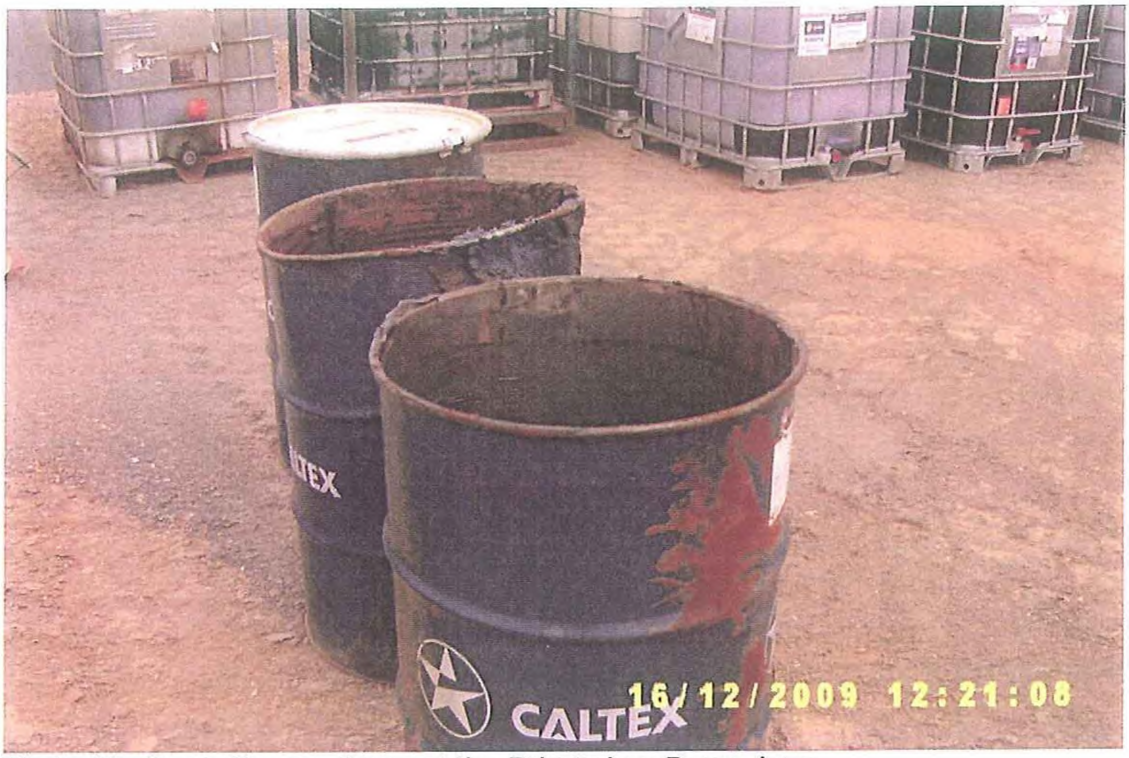

Photo 13: Open Grease Drum at the Brierty Lay Down Area.

Photo 14:Underground Laydown area at the Coyote Project.

Photo 15: Hydraulic Oil Leaking from disused Equipment in the Coyote Plant Laydown area.

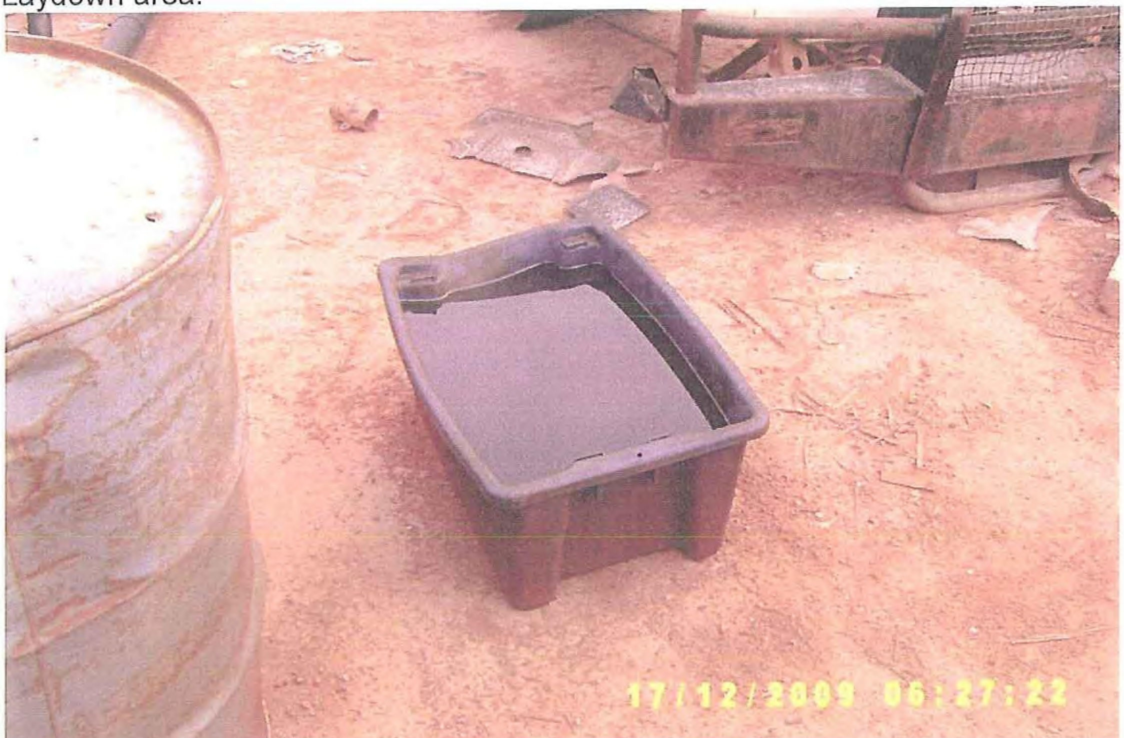

Photo 16: Plastic Tub Containing Oil in the Coyote Plant Laydown area.

Photo 17: Sheds Remaining at the Old Exploration Camp on E80/1515.

Photo 18: Donga Remaining at the Old Exploration Camp on E80/1515.

Photo 19: Fuel Storage Area at the Old Exploration Camp on E80/1515.

Photo 20: Open toilet hole at the Old Exploration Camp on E80/1515.

Photo 21: Rubbish Tip at the Old Exploration Camp on E80/1515.

Photo 22: Oil Drums within the Rubbish Tip at the Old Exploration Camp on E80/1515.

Photo 23: Remnants of the Windsock at the Old Airstrip located on E80/1512

Figure 1: Google Image (generated on the 10 March 2010) of the Old Airstrip located on E80/1512. Red point indicates location of Photo 23 looking towards airstrip.

APPENDIX L

Tanami Gold NL reply to Department and Minerals and Petroleum 18th April 2010

18 April 2010

Mr Justin Robbins
Senior Environmental Officer
Environment Division
Department Of Mines and Petroleum
Mineral House
100 Plain Street
East Perth WA 6004

RE:- Correspondence dated 26 March 2010 – Annual Environmental Report (AER) Inspection – 16 and 17 December 2009.

Dear Justin,

Please accept this correspondence as Tanami Gold NL's (TGNL) formal response to action items outlined in the above-mentioned report.

Reply to General Comments:

- **Tailings Storage Facility 1 (TSF 1)**

Prior to deposition of tails into TSF 1 a stability assessment report will be forwarded to the DMP by Doug Cooper and Associates for review

- **Tailings Storage Facility 2 (TSF 2)**

This comment is covered in the TGNL response to Action item 1.

- **Construction of Water Storage Dam without approval**

This comment is covered in the TGNL response to Action item 2

- **Hydrocarbon Management**

This comment is covered in the TGNL response to Action item 3

- **Closure Plan**

This comment is covered in the TGNL response to Action item 4

- **Waste Dumps**

The rehabilitation of the Coyote and Bald Hill waste dumps will be incorporated into the Closure Management Plan. The Plan will include a surface water management component for the waste dumps, with the intent to reduce waste dump batter erosion.

- **Old Campsite (on L80/51)**

Currently it is TGNL's intent to remove all structures by the end of May 2010, with the exception of the diamond drill core shed (which contains core). Rubbish will be disposed of in a tip and once this has been completed, scarification of the site will commence.

- **Exploration (on M80/563 and M80/562)**

TGNL have communicated this issue to the Exploration Geologists and the Diamond Drill contractor to ensure that they comply with environmental requirements which includes, removal of hydrocarbon contamination, drill chip storage (green) bags and scarification of remnant sites.

- **Bond Retirement on Dead Exploration Licences 80/1512 and 80/1515**

This comment is covered in TGNL response to Action item 5

- **Turkeys Nest and Dewatering Pipeline – Sandpiper and Kookaburra**

This comment is covered in TGNL response to Action item 3

- **Workshop and Lay down Area – Sandpiper and Kookaburra**

This issue was dealt with immediately at the time of inspection

- **Roads on Western Side of Pit**

TGNL will rationalise and rehabilitate roads on the western margin of the pits, as required, noting that a number of the roads are associated with current active infrastructure.

- **Lay down Areas**

This comment is covered in TGNL response to Action item 3

- **Bond Review**

This comment is covered in TGNL response to Action item 6

Reply to Action Items:

Action item 1 –

Report detailing management of seepage from TSF 2, required within 30 days of the date of this report. (due date 25 April 2010)

The practise of storing water in the TSF 2 has ceased and site personnel have been advised of this requirement for the future management of these facilities. Daily inspections are conducted of TSF 1 and 2 and the evaporation dam to monitor the integrity of these facilities.
At this time there is no evidence of seepage, however if required, TGNL propose to excavate a sump to contain any possible future seepage, in the area of concern. In the unlikely event that seepage reoccurs, TGNL propose to construct a catch bund wall built to the same specifications as used on the TSF Stage 2 Wall Lift. Any seepage would be pumped back to the tails dam.

Currently there is no evidence of further seepage.

Action item 2 –

Details on the construction of an evaporation/water storage dam without approval, required within 30 days of the date of this report. (due date 25 April 2010)

TGNL should have sought clarification regarding the building of these cells. The construction of these cells was undertaken by our previous Surface Mining Manager who has since left our employ. He was of the understanding that building these cells in an area previously approved for mining activities would negate the need to seek further approval.

The cells were built at a time when the underground workings were experiencing unexpected increased water ingress.

Backfill in the eastern end of Pit 1 consisted of material mined mainly from the west end of Pit 1 and the area filled was predominantly contained within the original footprint of Pit 1.

The evaporation cells were constructed over a period of time between May through to August 2009.

There was no risk associated to the underground workings and the cells were not filled with water while mining in the west end of Pit 1 was in progress. The cells were predominantly contained within the footprint of Pit 1 and any overflow would have reported to the sump in this pit. The portal to the underground workings is located in Pit 2 at the 335mRL. At this point the common wall between the pits is approximately 120 metres thick. Pit 1 has the capacity to hold the volume of water contained in the cells by a factor of 13:1. There is also a substantial sump in Pit 2 and the area around the portal has been designed and graded so that water reports to the Pit 2 sump.

TGNL's new Surface Mining Manager has been made aware of this issue and there will be no repeat occurrence. In future all new works associated to ground disturbance will not be commenced until the approval process has been completed.

As requested, attached is a plan detailing the size and location of the cells, the location of Pit 1 and Pit 2 and their relationship to the underground portal.

Action item 3 –

Details on the upgrade on the bulk storage facility, refuelling station, draining and clean up of hydrocarbons in the plant lay down area clean up of the underground lay down area and the installation of egress matting at the Sandpiper turkeys nest, required within 30 days of the date of this report. (due date 25 April 2010)

The soil covering the containment liner within the bulk fuel storage facility will be removed so that the integrity of the liner can be inspected. Any contaminated soil in the facility will be removed to the bio-remediation area. At this time a decision will be made to either repair or replace the containment liner depending on the condition of the liner.

TGNL were previously advised by their Environmental Consultant to cover the liner with soil to protect it from the elements due to the extreme weather conditions.

The soil around the refuelling station is checked and replaced with clean soil and the contaminated soil is disposed of in the bio-remediation area if contamination is found.
Hydrocarbons that were discovered in the plant lay down area were disposed of and the area that contained the old Atlas 322 Jumbo was also remediated. The old crane is in the process of being demobilised off site and the Jumbo will be removed and rebuilt.

A memorandum was distributed to all staff at Coyote by the Registered Manager dated 23/11/2009 has since been redistributed highlighting our need to be conscious of hydrocarbon management.

The underground lay down area (salvage yard) was tidied up following the DMP visit; however the nature of the work undertaken requires that the yard facilitates the laying out of material for inspection, disposal and or reuse. Hence the yard is cleaned on an ad hoc nature.

Egress matting was installed at the Sandpiper turkeys nest to allow fauna to escape if they inadvertently fall into the dam.

Action item 4 –
Submission of an update Closure Plan, required within 6 months of the date of this report. (due date 30 September 2010)

Due to the current optimisation of the Bald Hill project and likely expansion to activities, TGNL would like to request a 12 month extension of time for the Closure Plan. The Closure Plan will include the following items:

- A task register of items to be rehabilitated on site
- Proposed rehabilitation of task register items
- Material volume required to rehabilitate the task register items including TSF 1 and 2 and the vat leaches

Action item 5 –
Rehabilitation plan and timeframe for exploration camp located E80/1515, required within 30 days of the date of this report. (due date 25 April 2010)
This site will be completely remediated and scarified within 90 days of the date of this letter, ensuring:

1. All infrastructure and rubbish is removed and disposed of appropriately
2. Toilet holes are sealed
3. Inappropriate hydrocarbon drums are removed from the rubbish tip and the remainder of the rubbish tip is buried
4. The camp area is contoured/levelled including the fuel storage , and
5. All compacted areas are ripped

Action item 6 –
Details on the over clearing of the haul road located on L80/45 without approval, required within 30 days of the date of this report. (due date 25 April 2010)

It appears that the Bald Hill haul road was originally an existing track that covered an area of 22.5 hectares. An application was submitted and approved for a cleared road covering an area of 45.5 hectares. The current road width including drains covers 31 hectares, while the cleared road encompassing top soil bunding covers 43.7 hectares.
In addition to this area there is 22.21 hectares of top soil storage for future road remediation works. If the top soil storage area were to be included, the total area would be 65.91 hectares, see attached plans of the Bald Hill Haul Road. It is TGNL's belief that the area encompassing the stop soil storage was not intended for inclusion with the calculation, as the ground was never cleared.

Due to the current optimisation of the Bald Hill operation and the likely expansion, TGNL intend to review the haul road parameters to meet the future requirements to use this road at its current width.

The haul road will be rehabilitated, as required and included in the updated Closure Plan.

Yours sincerely,

Tony Deacon
Registered Manager
Coyote Gold Mine
Tanami Gold NL

APPENDIX M

Halls Creek Shire Letter of Support 13th February 2012

SHIRE OF HALLS CREEK

PO Box 21

HALLS CREEK WA 6770

Tel: (08) 9168 6007

Reference number: 476 **Date: 13/02/2012**

Attention Daniel Radovic.

On the 20th of February I received an email from Daniel Radovic the senior environmental coordinator for Tanami Gold requesting a letter of support from the Shire of Halls Creek for the collection of grass seeds from within the leased mine site area. On Monday the 12th of March we visited Daniel Radovic at the Tanami Gold site to look over the purposed fire management plan. We also visited the areas around the mine site that have been identified for rehabilitation works. The first part of this purposed program will involve the collection of spinifex grass seeds. We visited the sites were the environmental team purpose to collect the seeds - which was within the leased area. We were informed that the method of seed collection would be by hand which possess the least disturbance to surrounding flora and fauna within those areas.

The Shire of Halls Creek is in total support of these works and commends Daniel and his team for understanding the requirements needed for rehabilitation works in such a sensitive area.

Kyle Cameron
Shire of Halls Creek
Senior Ranger.

Signed____________________ Dated 15/03/2012

Appendix B Letter to Department of Environment Regulation – Environmental Compliance

6 March 2015

Department of Environment Regulation
Locked Bag 3, Cloisters Square
PERTH, WA 6850

Attention: **Eleanor Notley**
Environmental Compliance

Dear Eleanor,

MWH Australia Pty Ltd (MWH) has been engaged by Tanami Exploration NL (Tanami Exploration) to assist with coordinator of environmental compliance at the Tanami Gold Mine - Coyote Gold Project.

I refer to the DER Compliance Inspection Report (dated 27 November 2014, DER Ref 2011/002320) that was provided to Tanami Exploration following the DER Compliance Inspection at the Coyote Project on 19 June 2014. MWH provide the following response on behalf of Tanami Exploration to address compliance discrepancies as identified in **Section C** and **Section E** of the Compliance Inspection Report.

Yours sincerely

Melissa Younger
Senior Environmental Scientist

MWH Australia Pty Ltd

MWH Australia Pty Ltd
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Jolimont , WA 6014
TEL +61 (08) 9388 8799
FAX : +61 (08) 9388 8633
www.mwhglobal.com
ABN: 17 007 820 322

Condition	Action Items as assigned by DER	Tanami Response
1	Ensure that the active landfill is covered weekly as per the requirement of Condition 1 OR, The licensee should by 15 January 2015, make application to the DER Licensing Officer to consider an amendment to condition 1 to reflect the current low volume of waste being accepted at the landfill due to the care and maintenance status.	Moving forward, Tanami will ensure that the landfill facility is covered weekly in accordance with licence conditions. The volume of waste generated during care and maintenance was very low given that only two to three personnel remained onsite. The volume of waste is expected to increase once processing operations commence and a larger work force is mobilised to site. ABM Resources are proposing to lease the processing plant from Tanami Exploration for toll treating ore. Operations are expected to commence in the second quarter of 2015. The requirement to cover the landfill on a weekly basis has been reiterated to all site personnel and the Waste Management Procedure will be communicated.
3	Remove all putrescible waste from the inert landfill and dispose of this waste at the location depicted in Attachment 3 of the licence in accordance with condition 2 by 15 August 2014. Additionally, ensure that only inert waste is disposed of at the Class 1 Landfill in the future	Putrescible waste was removed from the inert landfill facility and the waste cage has been re-instated. (Plates 1 – 3 in Attachment A). Tanami will ensure that only inert waste will be disposed of at the Class 1 Landfill facility.
7	Provide the tyre disposal register and tyre disposal plan to the DER for review.	The tyre disposal register was provided in the 2013-2014 AER in Appendix D, however the register did not report the name of the person supervising tyre burial. Tanami have updated the register to ensure the name of the person supervising the tyre burial is recorded. The updated register template is attached and a map showing the tyre disposal locations and coordinate points for the burial locations is included in Attachment B.

8 (ii) & **(iii)**	Ensure that the bioremediation facility is tilled monthly and an appropriate soil moisture and nutrient content is maintained as per the requirements of condition 8.	At the time of the DER site visit, the Project was in care and maintenance and a small volume of soil (~ 5 m^3 disposed in 2014 and ~9 m^3 disposed on 2013) was located at the bioremediation facility. A procedure for managing the bioremediation pad has been developed to ensure that requirements of condition 8 are met.
9	Immediately begin recording the volumes of soil being added to the bio-remediation facility and if any soil is removed from the bioremediation the concentration of contamination should be determined	A bioremediation area register is maintained and tracks the volume of soil take to the bioremediation facility. A copy of the register is included in Attachment C. At the time of preparing the 2013-2014 AER the register was not able to be located due to a change in site personnel and the site moving not care and maintenance. The register has been re-established and care and maintenance personnel onsite have been made aware of the requirement to use this moving forward. A procedure for managing the bioremediation facility has been developed by Tanami to ensure that the soil has been adequately treated before being removed. Soil samples will be obtain and tested for total petroleum hydrocarbons prior to the soil being deemed 'treated' in accordance with the procedure.
13	Immediately comply with this condition and undertake all groundwater monitoring as required by Table 1 and provide an explanation as to why the required groundwater monitoring has not been completed. DER notes that this is an ongoing non-compliance and may consider further enforcement action.	During the previous annual environmental reporting period (2013/2014) the Coyote Project moved from operational status to care and maintenance. This significantly reduced the number of staff and trained personnel onsite which lead to a number of missed sampling events. Moving forward, Tanami Exploration engaged MWH Australia in August 2014 to assist with compliance monitoring. An annual groundwater sampling event was carried out in September 2014, results will be reported in the 2014/2015 Annual Environmental Report, due to be submitted by 30 April 2015. The 2015 March groundwater sampling event is scheduled for 12 March 2015. Results for this will be reported in the 2015/2016 annual environmental report.

		Tanami Exploration will continue monitoring as per licence conditions to ensure compliance is maintained.
15	Provide copies of the laboratory certificates for the sampling undertaken to the DER for review.	A copy of the laboratory certificates for the groundwater sampling event carried out in March 2013, July 2013, and September 2013 was included as Appendix F of the 2014 AER. Laboratory certificates for samples obtained in Sept 2014 will be included in the 2014/2015 AER.
16, 17 (ii) & 17 (iv)	Resubmit the Annual Environmental Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains monitoring data in tabular format and an assessment of the seepage recovery systems.	Tabulated results from March 2010 – March 2014 were provided in Appendix E of the AER. Tabulated results have now been included in the body text of the AER. Revised AER is appended. Please note changes to Executive Summary and sections 4.2, 4.2.1, and 5.
18	Resubmit the Annual Audit Compliance Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains an accurate declaration of compliance throughout the reporting period.	Revised AACR is appended to the revised AER.
General Observations	Incident report and follow up actions for the overflow at the evaporation pond.	At the time of the event the incident was not reported. An internal incident report has been completed to highlight the event and a photo of the area are included in Attachment D The incident reporting system will be reviewed to ensure all personnel are aware of reporting requirements and management actions will be reviewed in response to incidents.

Attachment
Plates 1 - 3

Plate 1: Waste Cage reinstated

Plate 2: Waste Cage reinstated

Plate 3: Inert Landfill Facility – Putrescible waste removed

Attachment B

Tyre Disposal Register

Date	Central_Easting	Central_Northing	Total_Tyres_Buried	Name of Supervisor
20120713	482545.9884	7800295.494	100	
20120721	482544.5124	7800300.472	100	
20120728	482542.5169	7800307.991	100	
20120804	482579.3428	7800332.596	31	
20120808	482552.9974	7800300.033	13	
20120816	482552.0491	7800304.462	11	
20120821	482552.4696	7800304.242	16	
20120907	482556.5513	7800302.032	14	
20120913	482621.0091	7800322.018	6	
20120920	482552.9974	7800295.054	3	
20121007	482745.4719	7800326.447	6	
20121011	482561.4741	7800299.493	1	
20121104	482738.9824	7800323.458	13	
20121121	482782.9492	7800318.959	18	
20121205	482761.4853	7800325.027	0	
20130103	482749.9741	7800323.358	22	
20130117	482776.4597	7800320.288	4	
20130201	482751.0048	7800333.536	23	
20130215	482768.9973	7800325.997	7	
20130302	482771.3391	7800331.966	37	
20130315	482786.0002	7800325.997	4	
20130328	482779.9972	7800319.999	20	
20130901	482749	7800315	6	
20130922	482739	7800321	17	

ORIGINATOR:	DATE:	DRAWN:	Coyote	PLAN No: CY-ST-MAP-ENV-0003
D. Radovic	2013-04-05	R. Chan		

10 0 10 20 metres — Scale 1:1,000

MGA Zone 52 (GDA94) Paper Size: A4

N

Coyote Tyre Burial Map

TANAMI GOLD NL

Attachment C
Bioremediation Area Register

Bioremediation Area Register.

ID Number	Date	Time	Taken to Bio Remediation Area (m3)	Contamian Spilled (L)	Name	Actions taken
0001	21/7/11	09:00	·5 m³	20	Craig	Washdown Pad.
0002	10/8/11	12 00	1m³	15	Chris	
0003	21/8/11	1300	3m³	—	Craig-Tim	Washdown Pad
0004	12/10/11	9·00	2m³	—	Tim-Craig	
0005	21/10/11	4·00	1m³	—	Tim	—
0006	10/11/11	7·00	2m³	—	Craig	—
0007	24/11/11	12 00	~~[illegible]~~ 1m³	—	Craig Tim	Workshops
0008	27/11/11	4·00	3m²	—	Tim	washdown.
0009	30/11/11	2·00	1m	—	Chris/Ryan	Batchplant.
0010	10/12/11		2m³		Brian	"
0011	15/12/11		3m³	—	Tim-Craig	Washdown Pad
0012	27/12/11		5m³	—	Craig	Washdown Pad
0013	5/1/12		1m³		Tim	Workshop
0014	20/1/12		2m³		Craig Brian	Under Sub Station
0015	4/1/12		3m²		Ryan	Washdown
0016	18/1/12		4m³		Craig Tim	Washdown
0017	28/1/12		1m³		Brian	Dig out for Concrete
0018	10/2/12		1m³		Craig	Mill
0019	16/1/12		4m³		Craig	Oil Drum Bund
0020	2/2/12		10m³		Tim/Craig	Turkeys Nest
0021	4/2/12		5m³		Craig	Turkeys Nest
0022	10/3		1m³		Tim	Workshop
0023	20/3		2m³		Brian	Washdown Pad
0024	16/4/12		3m³		Jason	Elec Workshop.
0025	16/4/12		·5m³		Jarrod	Oil Seperator
0026	5/8/12		2m³		Tim	Diesel Spill
0027	2/9/12		2m³		Craig	Wash Down
0028	13/10/12		3m³		Craig	Wash Down.

0029	15/11/12		2 m^3	—	Craig	Wash Down
0030	1/1/13		3 m^3	—	craig	Wash Down
0031	13/1/13		1 m^3	—	Ian	Fuel Farm
0032	15/2/13		2 m^3	—	Tim	Washdown
0033	10/3/13		3 m^3	—	Craig	oil Pad Bund.
0034	21/2/14		2 m3	—	craig	Wash Down
0035	11/4/14		1 m^3	—	craig	wash Down
0036	11/7/14		1 m3	—	craig	Wash Down Pad
0037	13/2/14		1 m^3	—	craig	wash down Pad
0038						
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Attachment D

Incident Report

Tanami Gold Incident Reporting Form

TANAMI GOLD NL

REF#:	☐ Central Tanami	☑ Coyote	INCIDENT DETAILS - Part A: Notification of Occurrence To be completed before the end of shift

1.0 Employee Involved and/or Equipment Details

Surname:	VISKOVICH	First Name:	MAX
Dept./Company:	TG NL	Position:	REGISTERED MANAGER
Equipment Type:		Equipment Number:	
Supervisor's Name:		Title/Position:	

2.0 Details Of Incident

Date & Time of Incident:	21/1/14 7:00 AM	Date & Time Reported:	
Reported by:	MAX VISKOVICH	Reported to:	
Location of Incident:	EVAP DAM	Witness to Incident:	

2.1 Incident Classification:

INCIDENT	☐	HAZARD	☐	INJURY/ILLNESS (Please complete section 2.2)	☐
NEAR MISS	☐	DAMAGE	☐	ENVIRONMENTAL (Please complete section 2.3)	☑

2.2 Injury/Illness Classification: Type of Injury:

To be completed by the Site Paramedic

Nil Injury (Report Only)	☐	Head/Face	☐	Foreign Body	☐	Burn	☐
FAC	☐	Eyes	☐	Laceration	☐	Electric Shock	☐
MTC	☐	Neck/Back	☐	Bruising/Soft Tissue	☐	Other (please describe)	☐
RWC	☐	Arm/Hand	☐	Sprain/Strain	☐		
LTC	☐	Leg/Foot	☐	Respiratory Inhalation	☐		

2.3 Severity of Environmental Occurrence: Type of Occurrence:

To be completed by the Department Manager or Designate

Insignificant (Minor if any remedial action)	☐	Comments:	Spill	☑
Minor (Localised – minimal detrimental effects)	☑		Flora	☐
Moderate (Localised – with detrimental effects)	☐		Fauna	☐
Major (Major detrimental effects)	☐		Contamination	☐
Catastrophic (Irreparable & Long Term effects)	☐		Over Clearing	☐

3.0 INCIDENT DESCRIPTION

A SECTION OF THE SETTLING POND WALL AT THE EVAP DAM HAD BEEN ERODED AWAY BY HEAVY RAIN AND WATER FROM THE SETTLING POND WAS OVERFLOWING

3.1 Immediate actions taken to provide immediate control of the situation

LIFTED LINER AND FILLED THE TRENCH ERODED BY WATER. TO STOP THE OVERFLOW.

4.0 ACTUAL INCIDENT RISK RANKING

(Risk Ranking to be conducted in conjunction with Tanami Gold Risk Matrix Tool)

Probability:	2	Exposure:	2
Consequence:	4	Risk Ranking:	4

4.1 Potential Incident Risk Ranking

(Risk Ranking to be conducted in conjunction with Tanami Gold Risk Matrix Tool)

Probability:	AS ABOVE	Exposure:	
Consequence:		Risk Ranking:	

5.0 FRONT PAGE REVIEW (To be reviewed by Department Manager or Alternate)

Name: M. VISKOVICH	Signature: MV	Position: MANAGER

Serious or High Potential Incident? Y ☐ N ☑ — Significant Occurrence to be reported to Department of Minerals And Petroleum? Y ☐ N ☑ NA ☐

- Incident Details to be completed and signed off by the Department Manager prior to the next Heads of Department Meeting (Details to be discussed with HODs).
- Front page to be provided to Health & Safety Department for distribution.

INCIDENT INVESTIGATION DETAILS - Part B: Incident Investigation
To be completed within 72hrs of the Incident Occurring

6.0 INCIDENT INVESTIGATION

Investigation Team Leader		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	

6.1 Shift Details

Length (e.g. 12hrs):	Type (e.g. Night):	Days into Roster:	Hours Into Shift:

6.2 Attachments / Evidence:

Sketches ☐	Photos ☑	Plans ☐	Technical Records ☐	Survey Drawings ☐
Employee Statements ☐	Work Procedures ☐	Training Records ☐	Maintenance Records ☐	Procedures ☐

7.0 CONTRIBUTING FACTORS / HAZARDS

7.1 Equipment Used

1. Was the equipment under power (electric or mechanical)?	Y ☐ N ☐ NA ☐	2. Was the equipment used outside of normal operating range?	Y ☐ N ☐ NA ☐
3. Were there exposed pinch and nip points?	Y ☐ N ☐ NA ☐	4. Were guards or barriers inadequate or removed?	Y ☐ N ☐ NA ☐
5. Was maintenance completed regularly?	Y ☐ N ☐ NA ☐	6. Did the equipment fail?	Y ☐ N ☐ NA ☐
7. Was the equipment secured?	Y ☐ N ☐ NA ☐	8. Was the equipment defective?	Y ☐ N ☐ NA ☐
9. Were the tools the correct tools for the task?	Y ☐ N ☐ NA ☐	10. Were there inadequate Warning Systems?	Y ☐ N ☐ NA ☐
11. Were there fire or explosive hazards?	Y ☐ N ☐ NA ☐	12. Are there any other equipment issues?	Y ☐ N ☐ NA ☐

Detail Contributing Factors and Evidence to support:

7.2 The Work Environment

1. Was the operator aware of the work environment?	Y ☐ N ☐ NA ☑	2. Was there excessive sunlight / glare?	Y ☐ N ☐ NA ☑
3. Were the surfaces wet, slippery, uneven or rough?	Y ☐ N ☐ NA ☑	4. Was the lighting adequate?	Y ☐ N ☐ NA ☑
5. Was there rainfall / water involved?	Y ☑ N ☐ NA ☒	6. Was excessive noise a factor?	Y ☐ N ☐ NA ☑
7. Was the ventilation adequate?	Y ☐ N ☐ NA ☑	8. Were there temperature or humidity extremes?	Y ☐ N ☐ NA ☑
9. Was dust, fumes or smoke present at the time?	Y ☐ N ☐ NA ☑	10. Was there poor housekeeping or disorder?	Y ☐ N ☐ NA ☑
11. Was "Work at Height" involved in the incident?	Y ☐ N ☐ NA ☑	12. Was there adequate space / area for the task?	Y ☐ N ☐ NA ☐

Detail Contributing Factors and Evidence to support:

7.3 Actions of People

1. Was the person trained and deemed competent to operate the equipment?	Y ☐ N ☐ NA ☑	2. Was a "Workplace Inspection" carried out by the operator/s?	Y ☐ N ☐ NA ☑
3. Was drug and alcohol testing conducted on the person involved?	Y ☐ N ☐ NA ☑	4. Inadequate Communication (Including failure to warn)?	Y ☐ N ☐ NA ☑
5. Was the equipment operated without authority?	Y ☐ N ☐ NA ☑	6. Was the operator / person instructed about task?	Y ☐ N ☐ NA ☑
7. Was the equipment operating at improper speed?	Y ☐ N ☐ NA ☑	8. Was the training appropriate and adequate?	Y ☐ N ☐ NA ☑
9. Were "Pre Start Checks" carried out?	Y ☐ N ☐ NA ☑	10. Did the operator make safety devices inoperative?	Y ☐ N ☐ NA ☑
11. Was there "horseplay" involved?	Y ☐ N ☐ NA ☑	12. Was the person inexperienced?	Y ☐ N ☐ NA ☑
13. Was the employee Wearing PPE?	Y ☐ N ☐ NA ☑	14. Was the PPE inadequate or improper?	Y ☐ N ☐ NA ☑
15. Was the employee wearing PPE that failed to protect?	Y ☐ N ☐ NA ☑	16. Was "unassisted" manual handling involved?	Y ☐ N ☐ NA ☑
17. Did personal issues or deficiencies contribute?	Y ☐ N ☐ NA ☑	18. Were directions / instructions misunderstood?	Y ☐ N ☐ NA ☑

Detail Contributing Factors and Evidence to support:

7.4 The Work Method

1. Were permits to work required or obtained and approved?	Y ☐ N ☐ NA ☑	2. Was the person operating equipment without authority?	Y ☐ N ☐ NA ☑
3. Was there a Work Procedure used?	Y ☐ N ☐ NA ☑	4. Was the Work Procedure followed?	Y ☐ N ☐ NA ☑
5. Were isolation procedures followed?	Y ☐ N ☐ NA ☑	6. Did the person receive instruction & supervision?	Y ☐ N ☐ NA ☑
7. Was there a JHA completed prior to the task commencing?	Y ☐ N ☐ NA ☑	8. Was the person given inadequate policy guidelines or standards to follow?	Y ☐ N ☐ NA ☑
9. Was there a lack of supervision or job knowledge?	Y ☐ N ☐ NA ☑	10. Failure to identify a hazard?	Y ☐ N ☐ NA ☑
11. Failure to conduct a risk assessment?	Y ☐ N ☐ NA ☑	12. Was lack of communication a factor?	Y ☐ N ☐ NA ☑
13. Inadequate planning?	Y ☐ N ☐ NA ☑	14. Incorrect use of equipment?	Y ☐ N ☐ NA ☑
15. Did the supervisor lack knowledge of the task?	Y ☐ N ☐ NA ☑		

Detail Contributing Factors and Evidence to support:

7.5 The Materials Used

1. Were there chemicals involved?	Y ☐ N ☐ NA ☑	2. Was an MSDS available? (If applicable)	Y ☐ N ☐ NA ☑
3. Was the emergency response team required?	Y ☐ N ☐ NA ☑	4. Was the chemical hazardous to personnel?	Y ☐ N ☐ NA ☑
5. Was there an environmental release (spill) involved?	Y ☐ N ☐ NA ☑	6. Was the chemical hazardous to the environment?	Y ☐ N ☐ NA ☑
7. Was the chemical flammable?	Y ☐ N ☐ NA ☑	8. Fire or explosive hazards?	Y ☐ N ☐ NA ☑
9. Were chemicals stored and handled correctly?	Y ☐ N ☐ NA ☑		

Detail Contributing Factors and Evidence to support:

8.0 INCIDENT CAUSES

8.1 Immediate Causes (Contributing Factors)

THE HIGH WATER LEVEL IN THE SETTLING POND AND WIND CAUSED THE WATER TO BREACH THE WALL ON THE WESTERN END OF THE EVAP DAM & DUE TO THE HIGH RAINFALL WE EXPERIENCED ~ 325mm IN THE PAST 7 DAYS. THE IMMEDIATE AREA AROUND THE EVAP DAM WAS ALREADY FLOODED PRIOR TO THE BREACH SO IT WAS IMPOSSIBLE TO TELL HOW MUCH WATER HAD FLOWED FROM THE SETTLING POND WHEN THE BREACH WAS DISCOVERED

8.2 Basic or Root Causes (The fundamental system deficiencies underpinning the Immediate Causes)

HIGH WATER LEVEL IN THE POND - DUE TO EXTREME RAIN FALL

8.3 Cost Analysis (To be completed by the Resident Manager)

Property Damage	☐	$	Near Miss	☐	$	Personal Injury	☐	$
Equipment / Vehicle	☐	$	Production Loss	☐	$	Other	☐	$

9.0 PREVENTATIVE ACTIONS

Preventative Action *(Each contributing factor should have a Preventative Action)*	Responsible Person	Close Out Date	CAR #

10.0 CLOSE OUT AND REVIEW

10.1 Supervisor or Contractor Manager (Please review investigation and detail comments) If applicable

Name:		Signature:		Date:	

10.2 Department Manager or Alternate (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.3 Health & Safety Manager or Alternate (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.4 Employee Involved in the Incident (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.5 Registered Manager or Alternate (Please review investigation and detail comments)

THE INCIDENT WAS DIFFICULT TO PREDICT, PREVENT OR ASSESS THE SIZE OF THE SPILL DUE TO THE VERY HIGH RAIN FALL

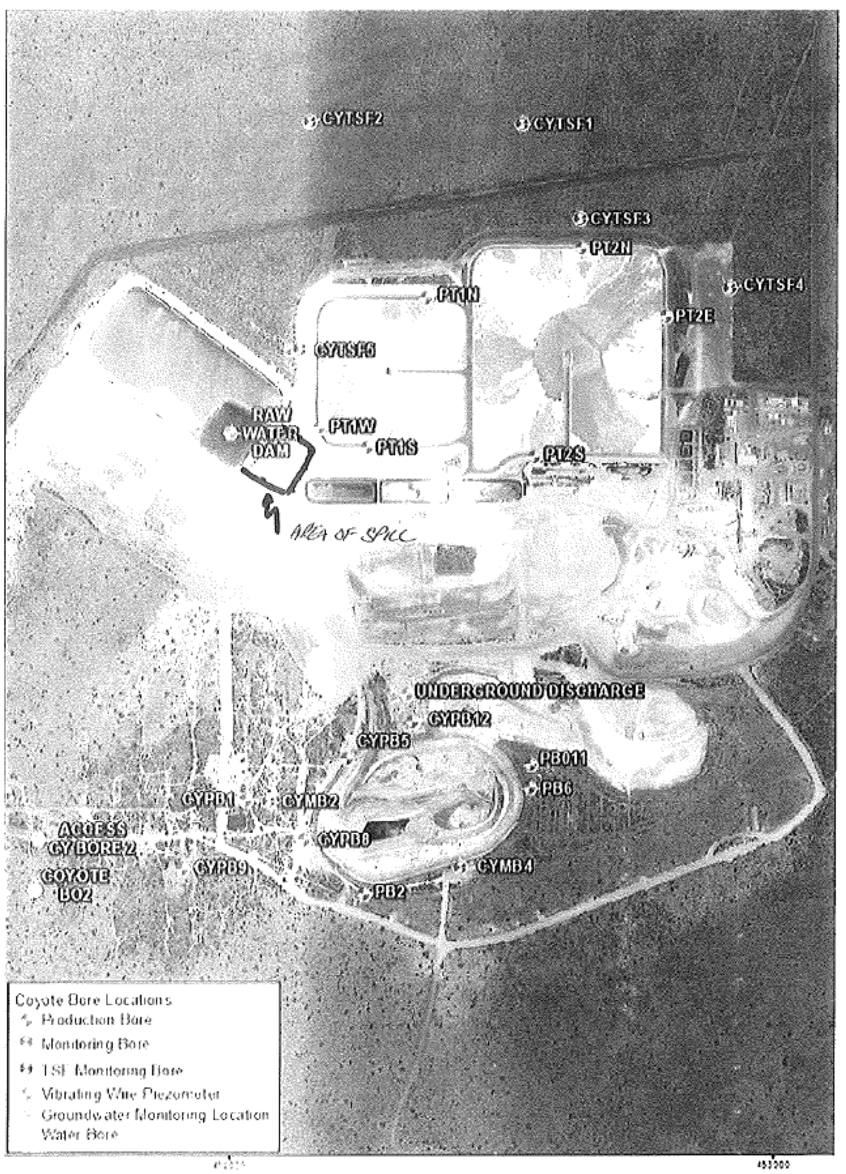
Name:	M. VISKOVICH	Signature:	[signature]	Date:	21/1/14

LIKELIHOOD – Probability of Harm / Loss

	2	3	4	5	6
[illegible] to	Remote Potential May occur only in exceptional circumstances	Possible Could occur at some time	Probable Expected to occur at some time	Frequent Likely to occur regularly	Highly Likely Ever present, occurs in most circumstances
	2	3	4	5	6
	4	6	8	10	12
	6	9	12	15	18
	8	12	16	20	24
	10	15	20	25	30
	12	18	24	30	36

LOW 1-4	Any hazard that has this risk ranking is generally acceptable. The work environment and methodology presents minimal risks to personnel. As a Risk Control measure employees should at least be informed that this hazard potential inclusive of use of workplace signage. Risk is reduced by use of existing systems of work, with well-designed and maintained plant and equipment
MEDIUM 6-16	Significant risk issues requiring intervention by Management and Workforce Consultation to control methods of work performance, design, employment conditions, financial controls and other Project-control.
HIGH 18-36	Hazards of this risk ranking are beyond effective administrative Management and 'must be avoided' by ELIMINATION, substitution, isolation or engineering control

Plate 1: Image showing area affected by overflow.



Government of **Western Australia**
Department of **Environment Regulation**

Your ref: L8111/2005/2
Our ref: 2011/002320
Enquiries: Eleanor Notley
Phone: (08) 6467 5292
Fax: (08) 6467 5561
Email: Eleanor.notley@der.wa.gov.au

The Manager
Tanami Exploration NL
Level 4
50 Colin Street
WEST PERTH WA 6005

Dear Sir/Madam

Environmental Protection Act 1986
Licence: L8111/2005/2
Premises: Tanami Gold Mine

I refer to a recent compliance inspection conducted on 19 June 2014 by the Department of Environment Regulation (DER) Officers Eleanor Notley and Jaala Baldock and site representative Max Viscovich. The purpose of the compliance inspection was to assess the above premises for compliance with the *Environmental Protection Act 1986*, licence L8111/2005/2 and subsidiary legislation.

Please find attached a copy of the inspection report. Please ensure you note the non-compliance identified in Section "D" of the report and comply with the actions for compliance in section "E" of the report as stated.

Please provide DER with a response to this inspection report by **15 January 2015**, addressed to:

Eleanor Notley
Environmental Compliance
Department of Environment Regulation
Locked Bag 33, Cloisters Square, Perth WA 6850
Email: Eleanor.notley@der.wa.gov.au

The response shall document all actions specified in the attached report have been completed by the required dates.

Thank you for your time and cooperation in this matter. If you have any queries, or require further information, please contact Eleanor Notley on (08) 6467 5292.

Yours sincerely,

Alana Kidd

ALANA KIDD
MANAGER LICENSING – INDUSTRY REGULATION
NORTH WEST REGION
27 November 2014

Government of **Western Australia**
Department of **Environment Regulation**

COMPLIANCE INSPECTION CHECKLIST & REPORT

A Introduction

Premises Details			
Licence Holder:	Tanami Exploration NL		
Licence No.:	L8111/2005/2		
ACN No.:	063213598		
Premises Name:	**Tanami Gold Mine - Coyote Gold Project**		
Premises Address:	Mining Lease M80/559, M80/559; M80/563 and Miscellaneous Licenses L80/46 and L80/51		
Auditee Representative/s:	Max Viskovich		
Approved Categories:	(05) Processing or beneficiation of metallic or non metallic ore; (63) Class I inert landfill site; (85) Sewage Facility; (89) Putrescible Landfill Site; (06) Mine dewatering.		
DER Resourcing			
Lead Officer (DER):	Eleanor Notley	**Support Officer/s (DER)**	Jaala Baldock
Date & Time of Inspection:	19 June 2014 at 8am		
Facility Summary			
The licence holder Tanami Exploration NL is currently operating the Tanami Gold Mine - Coyote Gold Project in a state of care and maintenance. In May 2013 all processing operations were ceased and the only continual operation on site is dewatering from underground and general maintenance of the premises. All the mine dewater is being discharged to a series of evaporation ponds and an old mine pit, approximately 2,500kL per day. The premises is located approximately 19kilometres from the Northern Territory border in the Tanami Desert, the licensee stated there is a potential to come out of care and maintenance if the gold price was right. At the time of inspection there were only 2 persons in the camp and specific maintenance crew are brought to site if required. The wastewater treatment plant and the landfill are still currently active but with a low throughput of waste. TSF1 has approximately a 2 month capacity and TSF2 is full.			

General Criteria		
Item	**Criteria**	**Comment**
1	Is the DER Licence for the reporting period valid?	Yes, expires 15/07/2017.
2	Activities undertaken / planned that need to be registered with the DER?	No.
3	Are there any Environmental Management Systems in place?	No formal EMS.
4	Are Independent environmental audits conducted?	TSF audits completed.
5	Is there an Internal incident &/or complaint reporting system?	Yes.
6	Is there a documented maintenance procedure?	Maintenance done as required.
7	Has there been a Discharge of Waste to be reported to the DER under S72?	No.
8	Has there been any alteration to the premises, process or inputs/outputs?	Site went into care and maintenance and ceased processing in May 2013.

B Key Findings

Key: C = Compliant, NC = Non-Compliant, ND = Not Determined, NA = Not Applicable

Licence Conditions (LC)			
LC #	**Criteria (state licence condition)**	**Assess't (C, NC, ND, NA)**	**Explanation of result**
1	**GENERAL CONDITIONS** **LANDFILL SITE MANAGEMENT** The licensee shall manage the Class 1 landfill (as described in Attachment 3) in such a manner that: (i) the tipping area is less than 30 metres in length;	C	The licensee is currently disposing all inert waste and all putrescible waste in the Class I inert landfill location. The current active landfill is an old vat which is plastic lined and is being backfilled (Photographs 9 and 10). The tipping area was sighted to be less than 30 metres in length.
	(ii) stormwater is diverted away from the trench;	C	Stormwater is diverted away from the landfill via earthen bunding and using the natural slope.
	(iii) waste is covered weekly; no waste is to be burnt; and	NC	The licensee stated that the waste has not been covered weekly, and has not been burnt. Inspectors sighted no evidence of previously burnt waste in the landfill.
	(iv) contaminated stormwater is retained on site.	C	Contaminated stormwater is retained in the vat, as was sighted at the time of inspection. Stormwater was sighted in the active landfill trench not flowing out of the landfill area (Photograph 10).
2	The licensee shall manage the Putrescible landfill (as described in Attachment 3) in such a manner that: (i) waste is placed within a defined trench; (ii) the tipping area is less than 30 metres in length; (iii) a suitable barrier is installed to prevent windblown waste leaving the trench; (iv) stormwater is diverted away from the trench; (v) waste is covered weekly; (vi) no waste is to be burnt; and (vii) contaminated stormwater is retained on site.	NA	The licensee is not using the Putrescible landfill as described in Attachment 3, all putrescible waste is disposed of at the inert landfill (Photographs 9 and 10). This is not considered to be acceptable and is identified as non-compliant pursuant to condition 3.
3	The licensee shall only accept and bury the following types of waste at the Class I landfill site: (i) Inert Waste Type 1; and (ii) Inert Waste Type 2.	NC	Inspectors sighted that the licensee is currently accepting and burying putrescible waste in the Class I inert landfill. The site representative confirmed this.
4	**USED TYRE STORAGE AND DISPOSAL** The licensee shall only store tyres above ground in a designated sorting area for a maximum of 14 days.	NA	The licensee does not have a designated sorting area. Only 2-3 tyres have been used in the last few months and these are taken straight to the tyre burial location. Inspectors sighted no designated tyre storage area.

5	The licensee shall ensure that tyre stacks stored above ground: (i) do not exceed one hundred (100) tyres; (ii) each stack of tyres is arranged in rows with at least 3 metres separating each row to allow access for machinery and fire fighting equipment; and (iii) no tyre stacks are stored closer than 35 metres from the premises boundary.	NA	Inspectors confirmed there are no tyre stacks on the premises. The licensee stated that limited waste tyres are generated due to the site being in care and maintenance.
6	The licensee shall bury used tyres such that: (i) a minimum depth of not less than 500 mm of cover material is maintained over the buried tyres following disposal;	C	The licensee is currently burying used tyres in an old vat. The licensee indicated that no tyres have been disposed of since May 2013. Inspectors sighted no tyres left exposed and the licensee stated that they were covered with 1.5 to 2m of cover (Photograph 12).
	(ii) batches of tyres are separated from each other with at least 100 mm of soil; and	C	The licensees stated that only one batch of tyres has been buried. It was confirmed that the licensee will ensure that the next batch is separated by more than 100mm of soil.
	(iii) each batch consists of not more than 100 (one hundred) tyres.	C	The licensee indicated that there is only one batch buried in this location and no more than 100 tyres are buried.
7	The licensee shall take the following measures when burying tyres at the premises: (i) sufficient volumes of clean fill are stockpiled on the premises to allow tyres to be covered in accordance with condition 6 and to cover cells in the event of a fire;	C	Inspectors sighted sufficient cover material to cover the cell in an event of a fire (Photograph 11).
	(ii) ensure that there is kept at the premises an accurate and up to date register of tyres disposed of at the premises;	ND	The licensee was unable to provide the tyre disposal register at the time of inspection.
	(iii) ensure that there is kept at the premises an accurate and up to date plan of the premises showing the position of tyres disposed of at the premises;	ND	The licensee was unable to provide the tyre disposal plan at the time of inspection.
	(iv) ensure that the person supervising the disposal of tyres makes an entry in the register within 2 hours of supervising the covering of the tyres stating: the date; the person's name; that the tyres have been covered in accordance with this condition; and grid co-ordinates with reference to the plan of the premises so that the position of the tyres can be easily and accurately ascertained;	ND	The licensee was unable to provide the tyre disposal register at the time of inspection.
	(v) ensure the disposal areas for tyres are not excavated or uncovered during subsequent landfill operations; and	C	The licensee stated that previous disposal areas are not excavated or uncovered as all locations are within old vats and are known.
	(vi) make all records available for viewing or copying by an authorised person or Inspector upon request.	ND	The licensee was unable to provide these records for viewing at the time of inspection. However, it was stated that they would be provided upon request in the inspection report.

8	**HYDROCARBON CONTAMINATED SOILS** The licensee shall ensure that all hydrocarbon contaminated soil is bioremediated at the Bioredmiation Facility by: (i) maintaining soil thickness of between 60 centimetres and 1.5 metres;	ND	The licensee stated that the sediment from the washdown bays and small spills from the vehicle park up area are disposed of to the bioremediation facility. Inspectors sighted the soil thickness to be approximately 60 centimetres (Photograph 18). However, it could not be determined how the licensee ensures this level is measured and maintained.
	(ii) maintaining soil moisture at 15-20% and nutrient levels within the soil to sustain biological activity; and	NC	The licensee stated that the material is disposed of in a wet state but no additional water or nutrients are added. Inspectors sighted the soil within the cells to be dry.
	(iii) at least monthly tilling of hydrocarbon contaminated soil to provide aeration.	NC	The licensee stated that the facility is not tilled monthly.
9	The licensee shall record the volumes and concentrations of hydrocarbon contaminated soils bioremediated at the Bioremediation Facility and provide the results in the annual environmental report required by condition 17 of this licence.	NC	The licenee stated that the volume and concentrations of hydrocarbon contaminated soils bioremediated are not recorded. This non-compliance was declared in the AACR for the previous reporting period.
10	The licensee shall ensure that all hydrocarbon remediated soil disposed to the Putrescible landfill meets the requirements of the contaminated threshold values specified for Class II landfills as detailed in the current version of the document titled "Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009)".	NA	The licensee is not removing the remediated soil to the landfill as the volume of soil in the bio-remediation facility is low. Inspectors sighted significant capacity within this area.
11	The licensee shall ensure that uncontaminated stormwater runoff is diverted from the bioremediation facility.	C	The licensee has installed a large earthen bund around the entire side of the open pit and the bioremediation facility to ensure they divert uncontaminated water away from these areas.
12	**WASTE MINIMISATION / REMOVAL / STORAGE** The licensee shall ensure that the burning of waste for Emergency Response Training exercises is conducted; (i) in a dedicated low permeability compound that is bunded; (ii) that the compound referred to in part (i) of this condition has a sump to collect Firewater generated from the emergency response exercise; and (iii) the Director is notified three (3) working days prior to the exercise in writing outlining the exercise details and time.	NA	The licensee has not undertaken any Emergency Response Training as there is only 1-2 staff generally on site at one time. Inspectors sighted the area which was previously to be dedicated to ERT (Photograph 6). No compound infrastructure was sighted.

13	GROUNDWATER MONITORING PROGRAM The Licensee shall maintain a groundwater monitoring program at the sampling frequencies stated in column 2 of Table 1 in this licence, take representative water samples from the monitoring sites listed in column 1 of Table 1 in this licence, and have them analysed for the parameters listed in column 3 of Table 1 in this licence.	NC	The licensee stated that the groundwater monitoring program has not been completed as per the requirements of Table 1 since February 2014. The site representative was unable to provide any current March or June monitoring data for review at the time of inspection to demonstrate what components have been completed. During the 2013-14 reporting period the licensee failed to undertake the following: - any December 2013 monitoring - SWL for September - Arsenic in June - Any results from CYTF03 in September - Any of the annual monitoring requirements The licensee declared non-compliance with this condition in the AACR.

Table 1: Monitoring sites, sampling frequency and parameters to be measured.

Column 1	Column 2	Column 3
Monitoring locations	**Sampling frequency**	**Parameters to be measured**
Bores CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam; and Underground Discharge. (as per Attachment 3)	March; June; September; and December.	Standing Water Level (SWL)*, Electrical Conductivity, pH, Total Dissolved Solids, Arsenic (total), and Cyanide (total and weak acid dissociable).
Bores CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam; and Underground Discharge. (as per Attachment 3	Annually	Hardness (as equivalent $CaCO_3$), Total alkalinity (as $CaCO_3$), Bicarbonate HCO_3, Potassium, Magnesium, Manganese, Sodium, Aluminium, Calcium, Carbonate CO3, Iron (soluble), Nitrite NO2, Nitrate NO3, Hydroxide OH, Silica SiO2, Sulphate SO4, Chromium, Nickel, Lead, Boron, Barium, Cadmium; and Copper.

14	The licensee shall ensure that all water samples are collected, handled and preserved in accordance with Australian Standard 5667.	C	The licensee was unable to demonstrate compliance with this condition at the time of inspection. The site representative was not aware of the sampling procedure however, compliance was described in the annual environmental report on page 12 as per condition 16(iii).
15	The licensee shall ensure that all water samples shall be submitted to a laboratory with current National Association of Testing Authorities (NATA) accreditation for the analysis specified and analysed in accordance with the current "Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF".	ND	The licensee was unable to demonstrate compliance with this condition at the time of inspection. The site representative was not aware of the sampling procedure.
16	The licensee shall ensure that all monitoring results shall be presented in the next Annual Environmental Report in tabular form, and provided to the Director in accordance with condition 17 of this licence.	NC	The licensee provided the data for the monitoring that was completed in the 2013-14 reporting period. It is noted that not all monitoring was undertaken. However, the results were provided in graphical format rather than in tabular format in the 2013-14 Annual Environmental Report.
17	The licensee shall by **30 April each year**, provide to the Director an **Annual Environmental Report** containing data required by any condition of this licence. The Annual Environmental Report shall cover the period beginning 2 March the previous year and ending on 1 March in that year. The Annual Environmental Report shall contain information including but not limited to:	C	The licensee submitted to the Director an Annual Environmental Report for the period 2 March 2013 to 1 March 2014 via email on 30 April 2014.
	(i) monitoring data or other collected data required by any condition of this licence;	C	The licensee provided the monitoring data for all of the monitoring that was undertaken during the reporting period (AER appendix E, G and H). It is noted that the licensee did not undertake all monitoring as required by condition 13.
	(ii) groundwater monitoring results to be compared in a tabulated format with those from the previous three reporting periods and any apparent trends discussed;	NC	The licensee compared the data in a graph rather than a table as required in section 5.1.1 of the report.
	(iii) comments to be provided on the water sampling procedures employed, in particular confirmation that they comply with Australian Standard 5667;	C	The licensee provided comment on page 12 of the annual environmental report.
	(iv) an assessment on the effectiveness of any seepage recovery systems in place;	NC	The licensee provided a comment stating that the cyanide levels in monitoring bores show no seepage. However, no assessment of effectiveness was provided in the AER.

	(v) an assessment on the characteristics, volume and effects of any discharges to the environment and on the characteristics of the receiving environment within the vicinity of the Premises (e.g. air quality, water quality, health of vegetation); and	C	The licensee included a brief assessment of the dewater discharges in section 3.7. It is noted that water is evaporated and not directly discharged to environment.
	(vi) a summary of issues raised during the last DEC inspection and how these have been addressed / rectified. If the required work has yet to be completed then an explanation as to why should be provided.	C	The licensee included a summary of the previous inspection which was compliant and a copy of the inspection report.
18	The licensee shall by **30 April in each year**, provide to the Director an **annual audit compliance report** in the form in Attachment 1 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the Premises, during the period beginning 2 March the previous year and ending on 1 March in that year.	NC	The licensee submitted to the Director an Annual Audit Report for the period 2 March 2013 to 1 March 2014 via email on 30 April 2014. Non-compliance was declared with conditions 9 and 13. The licensee failed to declare non-compliance with conditions 1, 3 and 8.

C General Observations

- Inspectors sighted the location of a previous overflow from the evaporation ponds. It is noted that some vegetation death has occurred in this area (see photograph 14). The licensee is required to ensure that all overflow incidents are reported in accordance with Section 72 and investigated. **Please provide a copy of the incident report and follow up actions in relation to this overflow by 15 January 2015.**

- Inspectors sighted an area previously used to undertake concrete batching. No active concrete batching operations were observed.

D Non-Compliances & Not Determined

The following conditions were found to non-compliant:

Condition #	Reason for non-compliance:
1	The licensee has failed to ensure that the waste is covered weekly at the active landfill area. Inspectors sighted a small amount of uncovered waste awaiting burial.
3	The licensee has failed to ensure that only inert waste types 1 and 2 are accepted at the Class I inert landfill. Inspectors sighted that the licensee is currently accepting and burying putrescible waste in the inert landfill.
8 (ii) and (iii)	The licensee has failed to ensure the moisture and nutrient content is maintained as per the condition requirements. In that, the licensee stated that the material is disposed of in a wet state but no additional water or nutrients are added. Additionally, the licensee stated that the facility is not always tilled monthly.
9	The licensee has failed to record the volume and concentrations of hydrocarbon contaminated soils bio-remediated.
13	The licensee has failed to ensure that the groundwater monitoring program is completed as per the requirements of Table 1. The site representative was unable to provide any current monitoring data for review at the time of inspection to demonstrate what components have been completed in the current reporting period.
16 and 17(ii)	The licensee failed to provide the monitoring data in tabular format in the Annual Environmental Report; all data was displayed in graphs.
17 (iv)	The licensee provided a comment stating that the cyanide levels in monitoring bores show no seepage. However, no assessment of effectiveness was provided in the AER.

18	It is alleged, subject to evidence to the contrary, that the licensee submitted to the Director on 30 April 2014 a false and/or misleading Annual Audit Compliance Report by omission. In that, the licensee failed to declare non-compliance with conditions 1, 3 and 8.

The following conditions could not be determined:

Condition #	Reason for not determined
7	The licensee was unable to provide the tyre disposal register and the tyre disposal plan at the time of inspection. Therefore, inspectors cannot determine compliance with sub-conditions (ii), (iii), (iv) and (vi).
8(i)	It could not be determined how the licensee ensures the soil thickness in the bioremediation area is measured and maintained.
15	The licensee was unable to demonstrate that all water sampling analysis is undertaken at a NATA accredited laboratory at the time of inspection.

E Actions that should be taken to achieve Compliance

1. That the Licensing Officer notes the findings of this report.

2. That the Licensee notes the findings of the inspection discussed in this report and addresses the following to achieve compliance with conditions of licence L8111/2005/2:

Condition #	In order to achieve compliance, the Licensee should:
1	Ensure that the active landfill is covered weekly as per the requirements of condition 1. OR, The licensee should by 15 January 2014, make application to the DER licensing officer to consider an amendment to condition 1 to reflect the current low volume of waste being accepted at the landfill due to the care and maintenance status.
3	Remove all putrescible waste from the inert landfill and dispose of this waste at the location depicted in Attachment 3 of the licence in accordance with condition 2 by 15 August 2014. Additionally, ensure that only inert waste is disposed of at the Class I landfill in future.
8(ii) and (iii)	Ensure that the bioremediation facility is tilled monthly and an appropriate soil moisture and nutrient content is maintained as per the requirements of condition 8.
9	Immediately begin recording the volumes of soil being added to the bio-remediation facility and if any soil is removed from the bioremediation the concentration of contamination should be determined.
13	Immediately comply with this condition and undertake all groundwater monitoring as required by Table 1 and provide an explanation as to why the required groundwater monitoring has not been completed. DER notes that this is an ongoing non-compliance and may consider further enforcement action.
16, 17(ii) and 17 (iv)	Resubmit the Annual Environmental Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains the monitoring data in tabular format and an assessment of the seepage recovery systems.
18	Resubmit the Annual Audit Compliance Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains an accurate declaration of compliance throughout the reporting period.
Condition #	**In order to determine compliance, the Licensee should:**
7	Provide the tyre disposal register and tyre disposal plan to the DER for review.
15	Provide copies of the laboratory certificates for the sampling undertaken to the DER for review.

Unless otherwise stated, the Licensee should provide evidence for the aforementioned to DER by 15 January 2015.

3. That the Regional Licensing Officer engage with DER Inspection and Compliance Section Officer (Eleanor Notley) should any further follow up action be required.

Report Review & Approval

Licence Amendments Required? □ Yes
Current Risk Priority Rating: Medium/High

Report Prepared by: **(Eleanor Notley)**	Date: 26-06-2014
Reviewed by: **(Jaala Baldock)**	Date: 30-06-2014
Approved by: **(Tim Francis)**	Date: 11-11-2014

Government of Western Australia
Department of Environment Regulation

Attachment 1 – Photographs

Licence: L8111/2005/2

Premises Audited: Tanami Gold Mine - Coyote Gold Project

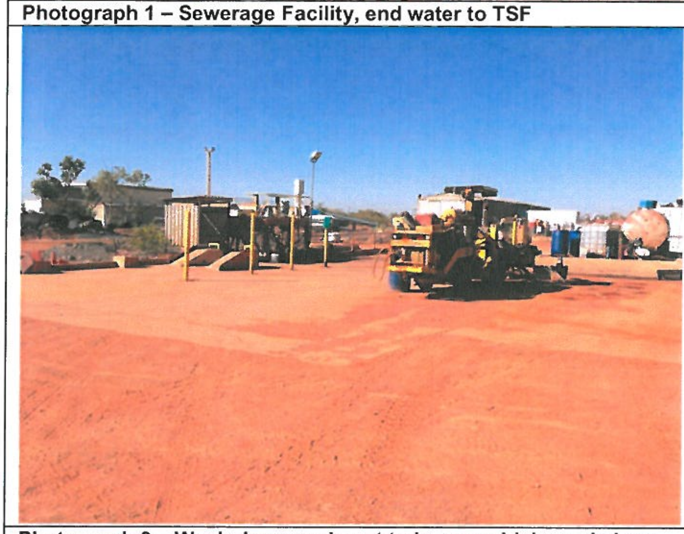
Inspectors: Eleanor Notley and Jaala Baldock

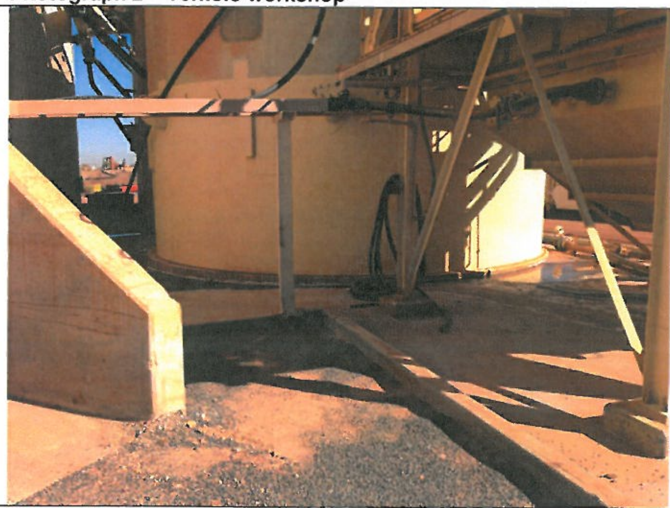
Date: 19 June 2014

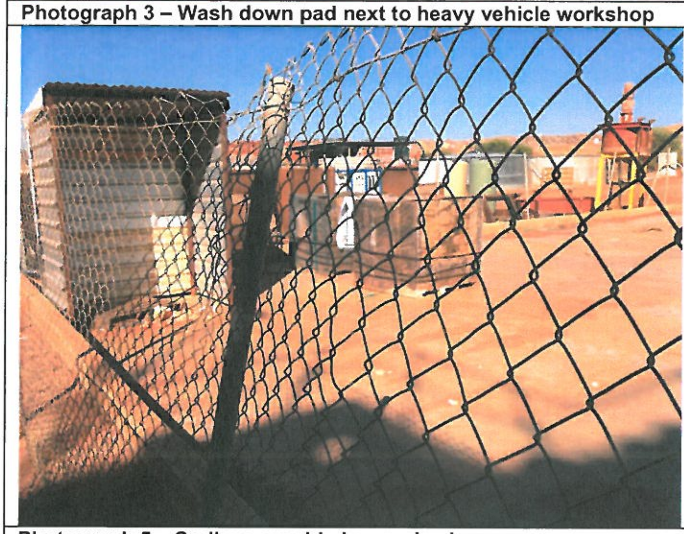
Industry Regulation Environmental Compliance
Attachment 1 – Photographs


Photograph 1 – Sewerage Facility, end water to TSF

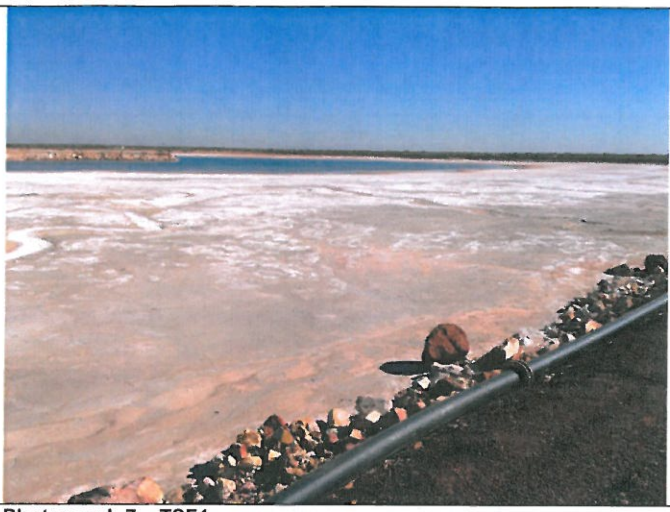

Photograph 2 – Vehicle workshop


Photograph 3 – Wash down pad next to heavy vehicle workshop

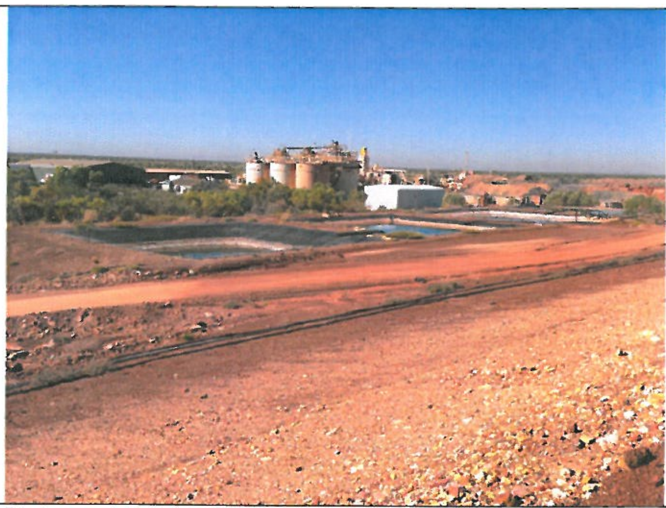

Photograph 4 – Water leak from an old unused leachate tank


Photograph 5 – Sodium cyanide in wooden boxes

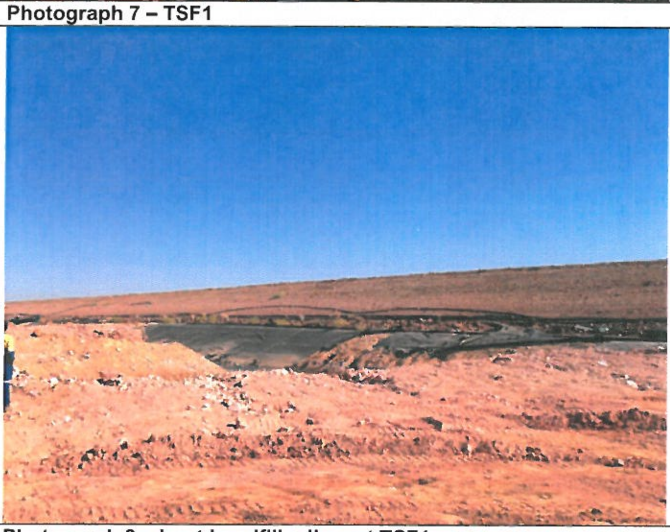

Photograph 6 – Previous ERT area



Photograph 7 – TSF1

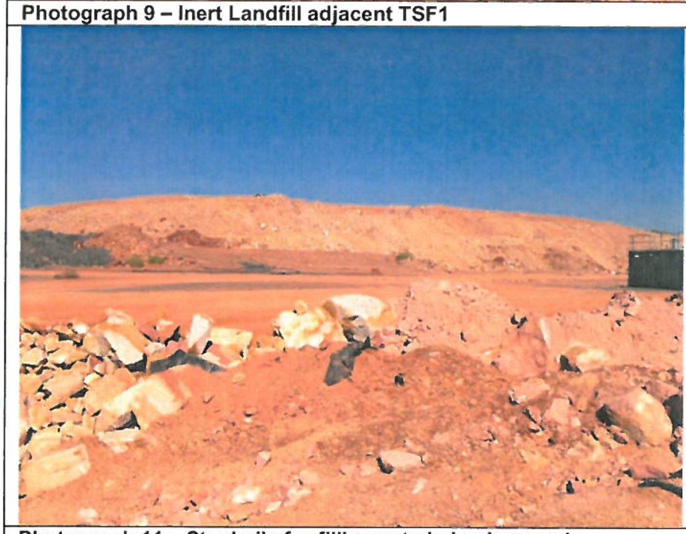


Photograph 8 – Process ponds

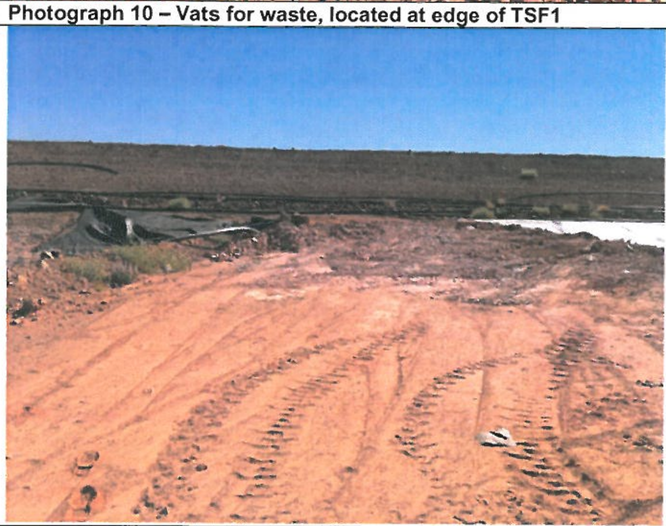


Photograph 9 – Inert Landfill adjacent TSF1

Photograph 10 – Vats for waste, located at edge of TSF1



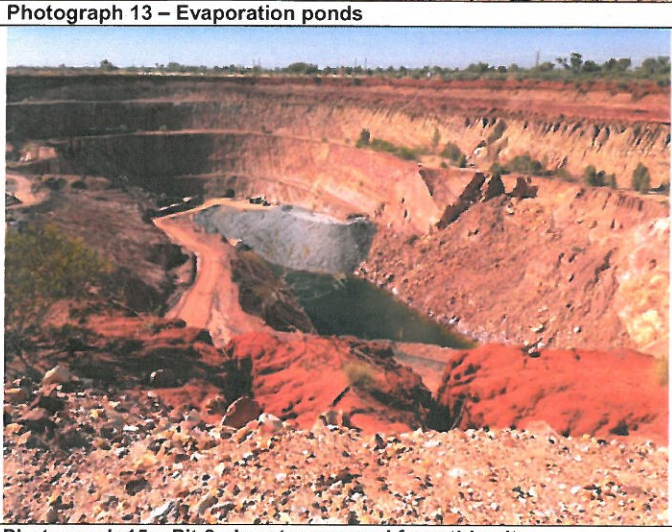
Photograph 11 – Stockpile for filling vats in background



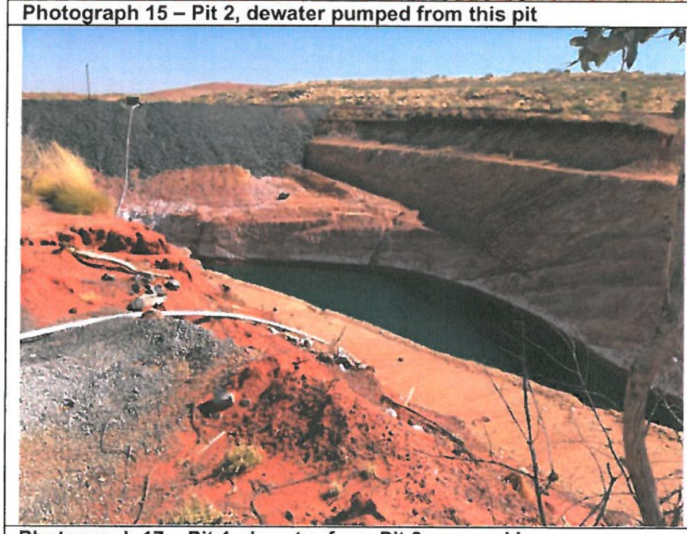
Photograph 12 – Used tyre burial location (none exposed)


Photograph 13 – Evaporation ponds

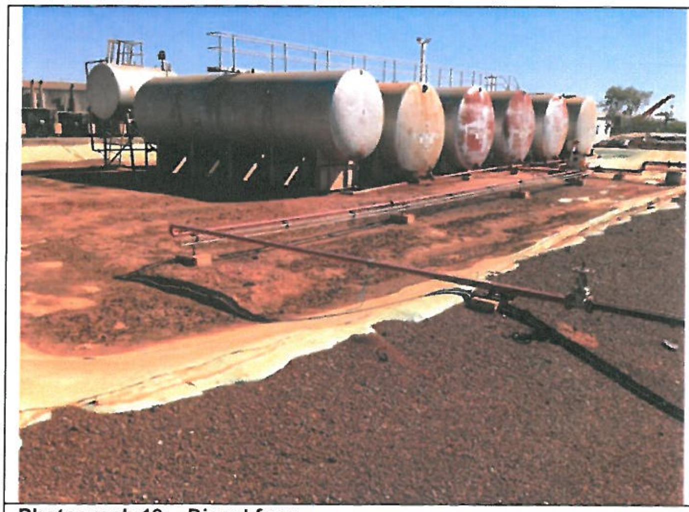

Photograph 14 – Evaporation ponds previous overflow location


Photograph 15 – Pit 2, dewater pumped from this pit

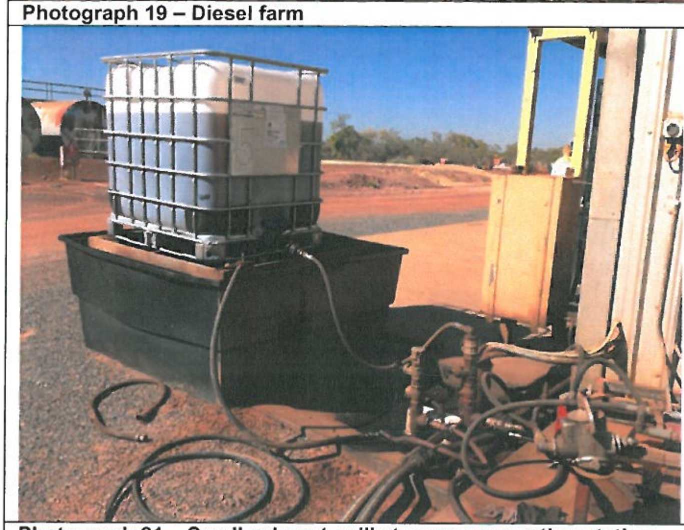

Photograph 16 – Pit 2 pump station


Photograph 17 – Pit 1, dewater from Pit 2 pumped in


Photograph 18 – Bioremediation pad


Photograph 19 – Diesel farm


Photograph 20 – Refuelling pad


Photograph 21 – Small exhaust spill at power generation station

Appendix C 2014-2015 Annual Environmental Report

MWH

BUILDING A BETTER WORLD

Coyote Gold Project

2014-2015 Annual Environmental Report

Prepared for Tanami Exploration NL

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QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Steph Birch	Melissa Younger

PREPARED BY	
Melissa Younger	25/03/2015
CHECKED BY	
Sarah Osborne	26/03/2015
REVIEWED BY	
David Jasper	08/04/2015
APPROVED FOR ISSUE BY	
David Jasper	08/04/2015

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REVISION SCHEDULE

Rev No	Date	Description	Prepared by	Checked by	Reviewed by	Approved by
V0.1	10/03/15	Draft AER	MY	SO	SO	
V1.0	17/04/15	Final Version	MY	SO	DJ	DJ

EXECUTIVE SUMMARY

This Annual Environmental Report (AER) for the Coyote Gold Project (CGP) has been developed for Tanami Gold NL (TGNL) which wholly owns and operates CGP. The Coyote Gold Project is located in the western part of the Tanami Desert, approximately 280 kilometres (km) south east of Halls Creek and 20 km west of the Western Australian (WA) and Northern Territory (NT) border.

The purpose of this AER is to fulfil TGNL's annual reporting requirements in accordance with the Department of Environmental Regulation (DER) Prescribed Premises Licence L8111/2005/2. The reporting period covered in the AER is 2 March 2014 to 1 March 2015.

The Project was in care and maintenance for the duration of the reporting period. Activities onsite were limited to maintaining the mine site camp and camp infrastructure, fixed and mobile plan and the dewatering of the Coyote Underground Mine. Dewatering activities ceased in January 2015 with the bore only operating occasionally to supply water to the reverse osmosis plant and for dust suppression since the end of dewatering. During the reporting period dewatered groundwater was pumped into the evaporation dam, Pit 1and Pit 2.

During the reporting period groundwater monitoring was carried out in September 2014. All other quarterly groundwater sampling events were not carried out due to inadequate resourcing. A total of 11 non-compliances are reported for the 2014 – 2015 reporting period. A summary of the non-compliances are shown in the following table.

A number of action items required to prevent re-occurrence of the non-compliances have been undertaken and others are in progress. Tanami Golds committed to improving environmental management and monitoring at the Project.

Summary of non-compliances

DER Licence Condition	Compliant	Comment
General conditions – Landfill site management		
1 (iii)	X	Waste at the Class 1 landfill facility was not covered on a weekly basis.
2 (iii), (v)	X	The belkan cage to prevent windblown waste was removed during the reporting period. This was reinstated in February 2015. Waste was not covered on a weekly basis.
3 (i) and (ii)	X	Putrescible waste was disposed at the Class 1 inert landfill facility during the reporting period.
General conditions – Used tyre storage and disposal		
7 (iv), (vi)	X	The tyre disposal register did not report the name of the person supervising tyre burial and confirmation of compliance with licence conditions. The tyre disposal register was not made available to the DER during the site compliance inspection in 19 June 2014.
Discharges to Land – hydrocarbon contaminated soils		
8 (ii) and (iii)	X	Soil moisture and nutrient levels were not managed during the reporting period. Tilling of the hydrocarbon contaminated soils was not carried out.
9	X	Volumes of soil taken to the bioremediation facility are recorded in the bioremediation area register, however no sampling was undertaken during the reporting period.
Monitoring Conditions		
Groundwater Monitoring Program		
13	X	Quarterly sampling events were not undertaken in March 2014, June 2014 or December 2014. Bores CYTSF03 and CYTSF04 were not able to be sampled during the reporting period.

Tanami Exploration NL

Coyote Gold Project

CONTENTS

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LIST OF FIGURES

1 Introduction

This Annual Environmental Report (AER) for the Coyote Gold Project (CGP) has been developed for Tanami Gold NL (TGNL) which wholly owns and operates CGP. The Coyote Gold Project is located in the western part of the Tanami Desert, approximately 280 kilometres (km) south east of Halls Creek and 20 km west of the Western Australian (WA) and Northern Territory (NT) border (**Figure 2-1**).

The purpose of this AER is to fulfil TGNL's annual reporting requirements in accordance with the Department of Environmental Regulation (DER) Prescribed Premises Licence L8111/2005/2. The reporting period covered in the AER is 2 March 2014 to 1 March 2015.

2 Reporting Period Project Summary

The Project was in care and maintenance phase during the reporting period. No mining or processing activities were carried out. No waste rock was added to the waste rock landforms and no clearing was undertaken. Activities onsite were limited to maintaining the mine site camp and camp infrastructure, fixed and mobile plan and the dewatering of the Coyote Underground Mine.

Approximately 726,241 kL of water was dewatered during the reporting period. Groundwater was pumped from the underground workings from a bore and discharged to the evaporation dam, Pit 1 and Pit 2. Approximately 2,814 kL was also used for dust suppression purposes. Dewatering activities ceased in January 2015 and the bore has only been operated occasionally since then to supply water to the reverse osmosis plant and for dust suppression.

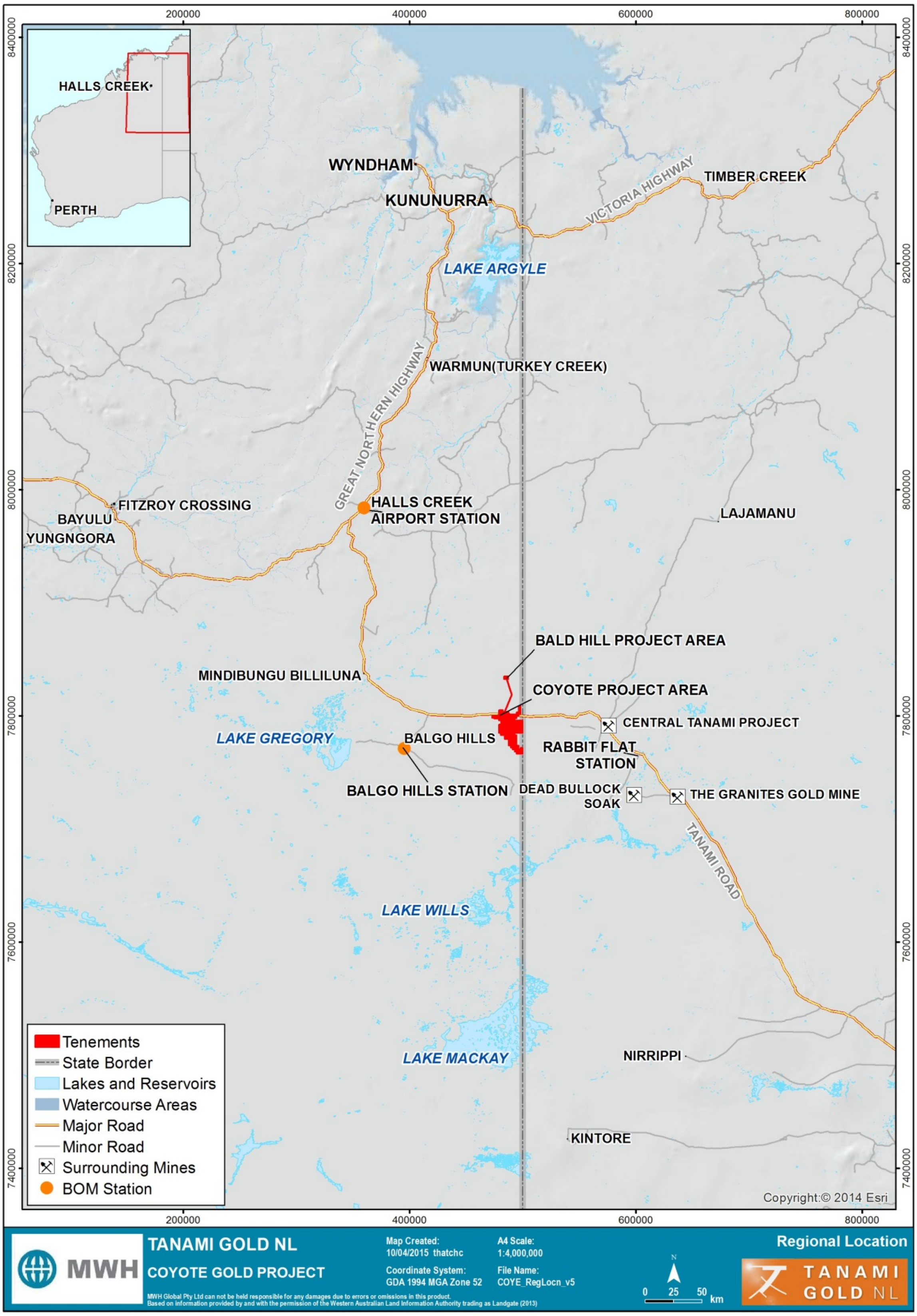


Figure 2-1: Regional Location of the Coyote Project

3 Compliance

3.1 Licence for Prescribed Premises

Information provided by Tanami has been used to assess compliance against DER Licence conditions (**Table 3-1**). The licence currently permits the following activities:

- Category 5 – Processing and beneficiation of metallic or non-metallic ore (more than 250,000 tonnes per annum);
- Category 6 – Mine dewatering (150,000 tonnes per annum);
- Category 63 – Class 1 inert landfill site (more than 1,000 tonnes per year);
- Category 85 – Sewage facility (30 cubic metres per day); and
- Category 89 – Putrescible landfill site (60 tonnes per year).

Table 3-1: Summary of compliance with DER Licence

DER Licence Condition	Compliant	Comment
General conditions – Landfill site management		
1 (i), (ii), (iv) and (v)	✓	• Tipping area is less than 30 metres long. • Natural earthen bund is used to divert stormwater away from the landfill facility. • All stormwater is retained in the vat
1 (iii)	X	• Waste at the Class 1 landfill facility was not covered on a weekly basis.
2 (i), (ii), (iv), (vii)	✓	
2 (iii), (v)	X	• The belkan cage to prevent windblown waste was removed during the reporting period. This was reinstated in February 2015. • Waste was not covered on a weekly basis.
3 (i) and (ii)	X	• Putrescible waste was disposed at the Class 1 inert landfill facility during the reporting period. Further detail is provided in **section 4.1.1**.
General conditions – Used tyre storage and disposal		
4	NA	• Tyres were not stored during the reporting period, therefore no designated sorting area was needed.

5 (i), (ii), (iii)	NA	• No tyre stacks were required during the reporting period. Further information is provided in **section 4.2**.
6 (i), (ii), (iii)	NA	• Tyres were not buried during the reporting period. Further information is provided in **section 4.2**.
7 (i), (ii), (iii), (iv), (v)	✓	• Sufficient cover is available to cover the existing tyres in the event of a fire. • A tyre disposal register is maintained onsite.
7 (iv), (vi)	X	• The tyre disposal register did not report the name of the person supervising tyre burial and confirmation of compliance with licence conditions. • The tyre disposal register was not made available to the DER during the site compliance inspection in 19 June 2014. Further information is provided in **section 4.2**.
Discharges to Land – hydrocarbon contaminated soils		
8 (i)	✓	• Soil thickness was maintained between 60 centimetres and 1.5 metres.
8 (ii) and (iii)	X	• Soil moisture and nutrient levels were not managed during the reporting period. • Tilling of the hydrocarbon contaminated soils was not carried out. Further detail in **section 4.3**.
9	X	• Volumes of soil taken to the bioremediation facility are recorded in the bioremediation area register, however no sampling was undertaken during the reporting period (**section 4.3**)
10	NA	• Remediated soil was not taken to the putrescible landfill during the reporting period.
11	✓	• Earthen bund around the bioremediation facility

		diverts stormwater away from the facility.
Waste Minimisation / removal / storage		
12 (i), (ii), (ii)	NA	• Emergency response training was no carried out during the reporting period.
:oring Conditions		
Groundwater Monitoring Program		
13	X	• Quarterly sampling events were not undertaken in March 2014, June 2014 or December 2014. • Bores CYTSF03 and CYTSF04 were not able to be sampled. Further detail is provided in **section 6.1**.
14	✓	Water samples were collected, handled and stored in accordance with Australian Standard AS:5667.
15	✓	Water samples were submitted to Australian Reference Laboratory (ARL) for analysis. ARL are NATA accredited for the analysis requested.
16	✓	Further detail provided in **section 6**.
Reporting Conditions		
17	✓	Report submitted by 30 April 2015
Annual Audit Compliance Report		
18	✓	Report submitted by 30 April 2015

3.2 Annual Audit Compliance Report

MWH completed a site compliance inspection on 21-22 March 2015 and a desktop audit to assess compliance against DER Licence conditions. An interview with site personnel was also used to assess compliance against licence conditions. The Annual Audit Compliance Report (AACR) for the period is 2 March 2014 to 1 March 2015 is included as **Appendix A**.

3.3 DER Compliance Inspection

The DER completed a compliance inspection at Coyote on 19 June 2014 to audit the Project against conditions of the DER Licence. Findings of the compliance inspection were presented to Tanami in the Compliance Inspection Report (dated 27 November 2014). Findings indicated ten non-compliances and three conditions where compliance could not be determined (**Appendix B**). Tanami responded via letter to the DER on 6 March 2015 (**Appendix B**). At this time of preparing this AER the DER was in the process of reviewing the response to determine if the action items can be closed out.

Table 3-2: Summary of non-compliances from the DER Compliance Inspection

Reference	DER Comment on Non-Compliance / Not Determined	Required Actions	Status
1	The licensee had failed to ensure that the waste is covered weekly at the active landfill area. Inspectors sighted a small amount of uncovered waste awaiting burial.	Ensure that the active landfill is covered weekly as per the requirement of Condition 1 OR, The licensee should by 15 January 2015, make application to the DER Licensing Officer to consider an amendment to condition 1 to reflect the current low volume of waste being accepted at the landfill due to the care and maintenance status.	Tanami will ensure that the landfill facility is covered weekly in accordance with licence conditions. The volume of waste generated during care and maintenance was very low given that only two to three personnel remained onsite. ABM Resources are proposing to lease the processing plant from Tanami Exploration for toll treating ore. Operations are expected to commence in the second quarter of 2015. The volume of waste is expected to increase once processing operations commence and a larger work force is mobilised to site. The requirement to cover the landfill on a weekly basis has been reiterated to all site personnel and the Waste Management Procedure will be communicated.
3	The licensee has failed to ensure that only inert waste types 1 and 2 are accepted at the Class 1 inert landfill. Inspectors sighted that the licensee is currently accepting and burying putrescible waste in the inert landfill.	Remove all putrescible waste from the inert landfill and dispose of this waste at the location depicted in Attachment 3 of the licence in accordance with condition 2 by 15 August 2014. Additionally, ensure that only inert waste is disposed of at the	Putrescible waste was removed from the inert landfill facility and disposed to the putrescible landfill facility and the waste cage has been re-instated. Tanami will ensure that only inert waste will be disposed of at the Class 1 Landfill facility.

Reference	DER Comment on Non-Compliance / Not Determined	Required Actions	Status
		Class 1 Landfill in the future	
7	The licensee was unable to provide the tyre disposal register and the tyre disposal plan at the time of the inspection	Provide the tyre disposal register and tyre disposal plan to the DER for review.	The tyre disposal register was provided in the 2013-2014 AER in Appendix D, however the register did not report the name of the person supervising tyre burial and confirmation that tyres have been covered in accordance with Licence Condition 6. Tanami have updated the register to ensure the name of the person supervising the tyre burial is recorded and that burial. The tyre disposal register was updated during the reporting period to include a column that records the name of person supervising the disposal of tyres as is required by Licence Condition 7(iv) and that tyres have been covered in accordance with Condition 6.
8(ii) & (iii)	The licensee has failed to ensure the moisture and nutrient content is maintained as per the condition requirements In that, the licensee stated that the material is disposed of in a wet state but no additional water or nutrients are added. Additionally, the licensee stated that the facility is not always	Ensure that the bioremediation facility is tilled monthly and an appropriate soil moisture and nutrient content is maintained as per the requirements of condition 8.	At the time of the DER site visit, the Project was in care and maintenance and a small volume of soil (~ 5 m3 disposed in 2014 and ~9 m3 disposed on 2013) was located at the bioremediation facility. A procedure for managing the bioremediation pad has been developed to ensure that requirements of Condition 8 are met.

Reference	DER Comment on Non-Compliance / Not Determined	Required Actions	Status
	tilled monthly.		
9	The licensee has failed to record the volume and concentrations of hydrocarbon contaminated soils bio-remediated.	Immediately begin recording the volumes of soil being added to the bio-remediation facility and if any soil is removed from the bioremediation the concentration of contamination should be determined.	A bioremediation area register is maintained and tracks the volume of soil take to the bioremediation facility. A copy of the register is included in Attachment C. At the time of preparing the 2013-2014 AER the register was not able to be located due to a change in site personnel and the site moving not care and maintenance. The register has been re-established and care and maintenance personnel onsite have been made aware of the requirement to use this moving forward. A procedure for managing the bioremediation facility has been developed by Tanami to ensure that the soil has been adequately treated before being removed. Soil samples will be obtain and tested for total petroleum hydrocarbons prior to the soil being deemed 'treated' in accordance with the procedure.
13	The licensee had failed to ensure that the groundwater monitoring program is completed as per the requirements of Table 1. The site representative was unable	Immediately comply with this condition and undertake all groundwater monitoring as required by Table 1 and provide an explanation as to why the required groundwater monitoring	During the previous annual environmental reporting period (2013/2014) the Coyote Project moved from operational status to care and maintenance. This significantly reduced the number of staff and trained personnel onsite which lead to a number of missed sampling events. Tanami Exploration engaged MWH Australia in August 2014 to assist

Reference	DER Comment on Non-Compliance / Not Determined	Required Actions	Status
	to provide any current monitoring data for review at the time of the inspection to demonstrate what components have been completed in the current reporting period.	has not been completed. DER notes that this is an ongoing noncompliance and may consider further enforcement action.	with compliance monitoring. Tanami Exploration will continue monitoring as per licence conditions to ensure compliance is maintained. The 2015 March groundwater sampling event was carried out on 21 March 2015. Results for this will be reported in the 2015-2016 annual environmental report.
15	The licensee was unable to demonstrate that all water sampling analysis is undertaken at a NATA accredited laboratory at the time of inspection.	Provide copies of the laboratory certificates for the sampling undertaken to the DER for review.	All samples are submitted to a laboratory with NATA accreditation for the analysis requested. A copy of the laboratory certificates for the groundwater sampling event carried out in March 2013, July 2013, and September 2013 was included as Appendix F of the 2013-2014 AER.
16, 17 (ii) & 17 (iv)	The licensee failed to provide the monitoring data in tabular format in the Annual Environmental Report, all data was displayed in graphs The licensee provided a comment stating that cyanide levels in monitoring bores show no seepage. However, no	Resubmit the Annual Environmental Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains monitoring data in tabular format and an assessment of the seepage recovery systems.	The AER was revised and a copy sent to DER Senior Compliance Officer, Eleanor Notley (Compliance Enforcement Branch) on 9 March 2015.

Reference	DER Comment on Non-Compliance / Not Determined	Required Actions	Status
	assessment of effectiveness was provided in the AER.		
18	It is alleged, subject to evidence to the contrary, that the licensee submitted to the Director on 30 April 2014 a false and/or misleading Annual Audit Compliance Report by omission. In that, the licensee failed to declare non-compliance with conditions 1, 3 and 8.	Resubmit the Annual Audit Compliance Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains an accurate declaration of compliance throughout the reporting period.	The AACR was revised and a copy sent to DER Senior Compliance Officer, Eleanor Notley (Compliance Enforcement Branch) on 9 March 2015.

4 Environmental Management

4.1 Landfill and Waste Management

4.1.1 Class 1 Landfill

The tipping area is the historic leach vats adjacent the TSF. Vats are 120 m long trenches battered to 4m deep in the centre. To ensure that the tipping area is less than 30m it has been broken into a series of 30m cells.

There is a bund located along the front of the landfill cells created from the aforementioned leach vats. The landfill also has a safety windrow along the front of the tip face to prevent storm water entering the landfill. The bund prevents storm water entering the landfill from the surrounding catchment. At this time of the MWH site inspection storm water was not flowing out of the landfill area.

Approximately 250 cubic metres of inert waste was deposited to the Class 1 Landfill during the reporting period. Putrescible waste was mistakenly disposed to the inert landfill facility during the reporting period. This waste was removed to the putrescible landfill facility in March 2015, confirmed by MWH during the March site inspection. Tanami will ensure that only inert waste will be disposed of at the Class 1 Landfill in the future.

During the reporting period, waste was not covered on a weekly basis as is required by Licence Condition 1 (iii). This requirement has been reiterated to Tanami personnel and the Waste Management Procedure will also be communicated to all relevant parties.

4.1.2 Putrescible Landfill

The putrescible landfill is licensed under the Prescribed Premises Licence for a design capacity of 60 tonnes per year. It is estimated that approximately 7 cubic metres of waste was disposed to the landfill during the reporting period.

Waste was not covered on a weekly basis as is required by Licence Condition 2 (v). The belkan cage was re-instated in February 2014 to ensure that the waste is covered at all times, confirmed by MWH during the March site inspection (**Plate 4-1**).

Plate 4-1: Belkan cage at Putrescible Landfill

4.2 Used Tyres Management

No tyres were stored or buried during the reporting period. A tyre disposal register is used onsite for tracking disposal locations to ensure that compliance is maintained with relevant licence conditions.

The tyre disposal register was updated during the reporting period to include a column that records the name of person supervising the disposal of tyres as is required by Licence Condition 7(iv) and that tyres have been covered in accordance with Condition 6. (**Appendix C**). A map showing locations of tyre burial locations is also maintained onsite.

4.3 Bioremediation Facility

As the Project has been in care and maintenance only a small volume of soil was taken to the bioremediation facility during the reporting period. Approximately 2 cubic meters of impacted soil was taken to the bioremediation facility between 2 March 2014 and 1 March 2015. Volumes of soil taken to the bioremediation facility are logged in the site Bioremediation Area Register (**Appendix D**).

Soil thickness at the bioremediation was maintained between 60 cm and below 1.5 m during the reporting period, confirmed by MWH during the March site inspection (**Plate 4-2**).

Nutrients and water were not added to the soils at the bioremediation facility during the reporting period and monthly tilling was not carried out. This is not considered to be a significant risk to the environment as there is approximate 14 cubic meters at the facility. However this is not compliant with Licence Condition 8.

Tanami have committed to developing a bioremediation management to landfill onsite. The impacted soil will only be removed for use elsewhere once deemed remediated in accordance with the site bioremediation procedure.

Plate 4-2: Bioremediation Facility

5 Discharge to Land

Groundwater was abstracted during the reporting period and discharged to the evaporation dam, Pit 1 and Pit 2. Approximately 726,241 kL was discharged during the reporting period and 2,814 kL of this was also used for dust suppression.

No tailings were deposited at the TSF during the reporting period.

6 Environmental Monitoring

6.1 Groundwater Monitoring

Groundwater monitoring is required to be carried out in accordance with the monitoring program detailed in Condition 13 of the Licence (**Table 6-1**).

During the reporting period only one sampling event was carried out in September 2014. Additionally, bores CYTSF03 and CYTSF04 were not able to be sampled as the bores were blocked and the sample pump could not get down the bore.

Groundwater monitoring in September 2014 was carried out in accordance with Australia Standards 5667. Samples were collected using a 12 volt geosub pump. Groundwater was allowed to flow through a flow cell while constantly measuring physical parameters (EC, pH, Temperature, dissolved oxygen, redox potential and turbidity), once parameters had stabilised a true representative groundwater sample was collected. All samples were collected and placed on ice in an esky for transport to ARL Laboratories for National Association of Testing Authorities (NATA) accredited analysis. All samples were submitted within appropriate holding times for the required analysis (**Appendix E**).

Table 6-1: DER Grondwater Monitoring Program

Monitoring locations	Sampling Frequency	Parameters to be measured	Compliance assessment
Bores: CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam, and Underground Discharge	March, June, September, and December	Standing Water Level (SWL) Electrical Conductivity pH Total Dissolved Solids Arsenic (total) Cyanide (total and weak acid dissociable)	Not compliant: March, June and December 2014 sampling events were not carried out. Bores CYTSF03 and CYTSF04 were not able to be sampled as the bores were blocked and the sample pump could not get down the bore. All remaining bores were sampled.
Bores: CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam, and Underground Discharge	Annually	Hardness (as equivalent $CaCO_3$) Total alkalinity (as $CaCO_3$) Bicarbonate HCO_3 Potassium Magnesium	Not compliant. Bores CYTSF03 and CYTSF04 were not able to be sampled as the bores were blocked and the sample pump could not get down the bore. All remaining bores

Monitoring locations	Sampling Frequency	Parameters to be measured	Compliance assessment
		Manganese Sodium Aluminium Calcium Carbonate (CO_3) Iron (soluble) Nitrite (NO_2) Nitrate (NO_3) Hydroxide (OH) Silica (SiO_2) Sulphate (SO_4) Chromium Nickel Lead Boron Barium Cadmium Copper	were sampled.

6.1.1 Groundwater Monitoring Results

A summary of the groundwater monitoring results for the 2014 monitoring and previous three years is provided in the following sections.

6.1.1.1 Standing Water Levels

During the reporting period, standing water levels (SWL) were only obtained in September 2014 as this was the only sampling event carried out. The standing water level was obtained prior to the collection of samples using a depth to water meter. SWL in bore CYTSF03 was not able to be measured as the bore is blocked by a bailer.

Standing water levels measured in the accessible tailings storage facility monitoring bores in September 2014 ranged between 9.85 mBTOC and 20.38 mBTOC. A review of SWLs in the TSF monitoring bores from 2011 to 2014 generally indicate stable water levels with an overall minor increasing trend in water levels. A rise in groundwater levels between June 2013 and September 2014 is noted in bores CYTSF04 and CYTSF05.

The exception is the SWLs in bore CYTSF01, indicating a significant increase in groundwater level in December 2011. Water levels in CYTSF01 following December 2011 dropped down to 21.20 mBTOC in the March 2012 sampling event and have remained relatively constant since then. The reason for the peak in December 2011 is unknown however it is suspected to be an erroneous reading.

Standing water levels for the underground discharge and raw water dam does not apply and has not been recorded. The raw water dam was full at the time of the September 2014 sampling event.

Table 6-2: Standing Water Levels in TSF Monitoring Bores (2011 – 2014)

Sample date	Standing water level (mBTOC*)				
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05
Mar 2011	19.30	19.42	18.51	19.10	14.75
Jun 2011	21.42	21.03	18.30	18.70	14.40
Sept 2011	21.44	20.90	18.09	18.60	14.65
Dec 2011	14.21	20.82	17.95	18.70	13.63
Mar 2012	21.20	20.89	17.63	18.27	12.63
Jun 2012	21.10	20.83	17.46	18.02	12.04
Sept 2012	20.87	20.76	17.28	17.80	11.95
Dec 2012	20.86	20.77	17.20	17.76	12.42
Mar 2013	20.76	20.70	17.02	17.76	12.30
Jun 2013	20.71	20.68	16.69	17.40	12.10
Sept 2014	20.07	20.38	-	14.94	9.85

*mBTOC (metres below top of casing)

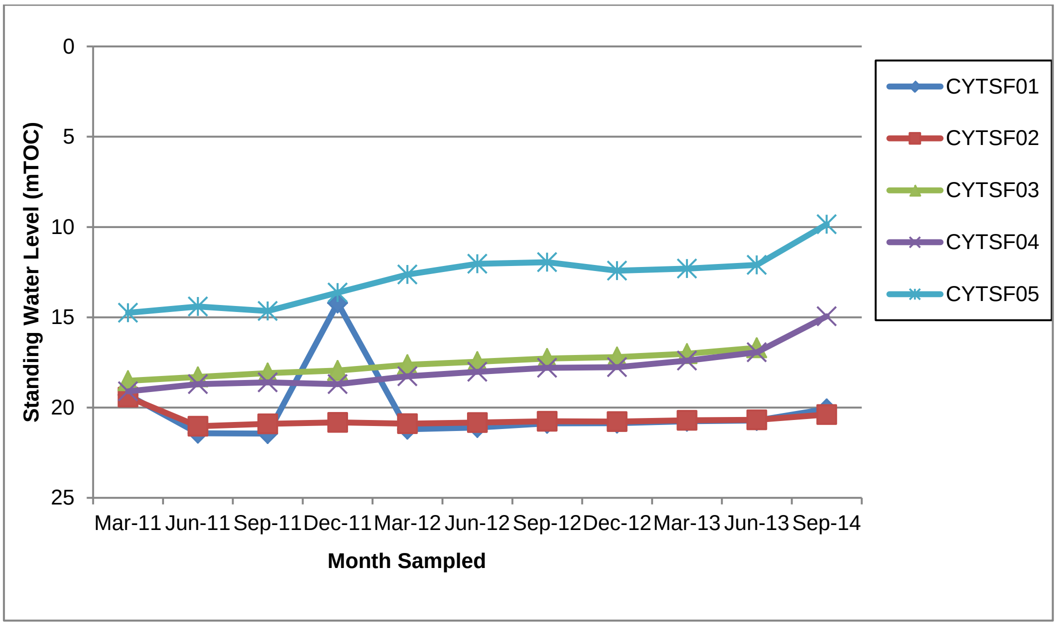


Figure 6-1: Standing Water Levels in TSF Monitoring Bores (2011 – 2014)

6.1.1.2 pH

pH was obtained in the field using a multiparameter. pH readings were obtained once the bores were purged and groundwater readings had stabilised to indicate true representative samples. The pH readings in groundwater from all monitoring points in September 2014 indicated a slight decline from the September 2013 results (**Table 6-3**). All pH readings obtained during the reporting period were within the acceptable range detailed in the Department of Water (DoW) approved Operating Strategy (6 to 9).

Table 6-3: Groundwater pH Concentrations (2011 to 2014)

Sample date	pH units						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	7.7	7.1	7.2	7.1	7	-	-
Jun 2011	7	7.1	7.1	7.1	7	-	-
Sept 2011	6.8	7	6.9	7	6.8	8.4	8.1
Dec 2011	6.9	7.1	7.1	7.2	7	8.5	8.1
Mar 2012	7.5	7.6	7.6	7.8	7.6	9.2	8.5

Sample date	pH units						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Jun 2012	7.2	7.1	7.2	7.2	7.1	8.5	8.3
Sept 2012	7.2	7.3	7.4	7.5	7.4	8.4	8.2
Dec 2012	7.3	7.5	7.6	7.6	7.4	8.5	8.3
Mar 2013	6.9	7.1	7.2	7.4	7.2	8.3	8.1
Jun 2013	7.5	7.7	7.8	7.8	7.7	8.6	8.4
Sept 2013	7	7.3	-	7.3	7.2	8.8	8.3
Sept 2014	6.49	6.68	-	-	6.73	8.41	7.86

The overall trend from the 2011 to 2014 monitoring results indicates variable pH, with a decreasing trend noted from June 2013 onwards (Figure 6-2).

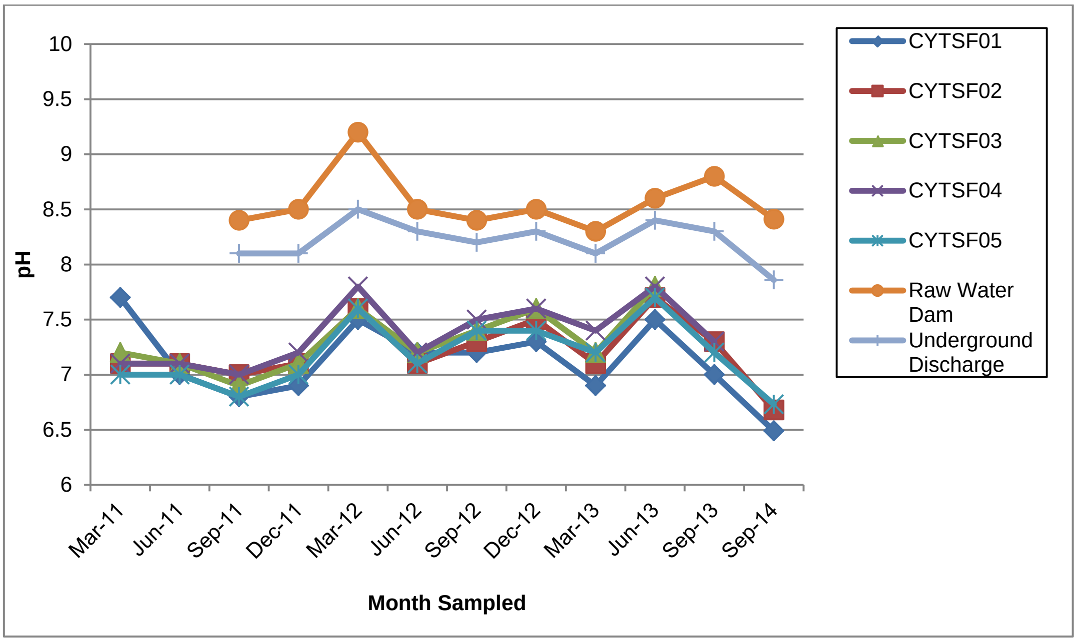


Figure 6-2: Groundwater pH Concentrations (2011 to 2014)

6.1.1.3 Electrical Conductivity and Total Dissolved Solids

Concentrations of electrical conductivity were obtained in the field using a multiparameter once groundwater readings had stabilised to indicate true representative groundwater conditions.

Electrical conductivity ranged between 24,100 µS/cm and 26,100 µS/cm in the tailings monitoring bores sampled in September 2014. The dewatering from the mine (underground discharge) and the raw water dam samples indicated concentrations of electrical conductivity lower than the TSF bores (**Table 6-4**). Previous groundwater studies have indicated that all water monitored from the facility and the dewatering activities in the adjacent mining operations have been found to be saline and are not suitable for potable or other purposes.

Table 6-4: Electricaly Conductivity in Groundwater (2011 to 2014)

Sample date	Electrical conductivity (µS/cm)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	20, 000	25, 000	21, 000	21, 000	22, 000	-	-
Jun 2011	19,000	25,000	21,000	21,000	21,000	-	-
Sept 2011	22, 000	25,000	21,000	21,000	21,000	18,000	14,000
Dec 2011	21,000	22,000	21,000	18,000	20,000	17,000	13,000
Mar 2012	17,000	21,000	18,000	16,000	14,000	15,000	11,000
Jun 2012	24,000	19,000	20,000	21,000	24,000	16,000	14,000
Sept 2012	25,000	32,000	26,000	25,000	25,000	21,000	20,000
Dec 2012	24,000	26,000	25,000	25,000	25,000	20,000	19,000
Mar 2013	21,000	26,000	21,000	21,000	22,000	17,000	16,000
Jun 2013	16,000	18,000	21,000	21,000	22,000	17,000	18,000
Sept 2013	20,000	25,000	-	20,000	21,000	20,000	14,000
Sept 2014	24,400	26,100	-	-	24,100	16,600	14,610

Electrical conductivity has remained consistently high from 2011 to 2014. An overall increasing trend is noted in bores CYTSF01, CYTSF02 and CYTSF05, however concentrations are in line with the baseline concentrations of tailings dam monitoring bores CYTSF01-05 (15,000- 26,000 µS/cm) (CYTSF01-02 in 2006, CYTSF03-05 in 2008) (Tanami Gold NL 2013) (**Figure 6-3**).

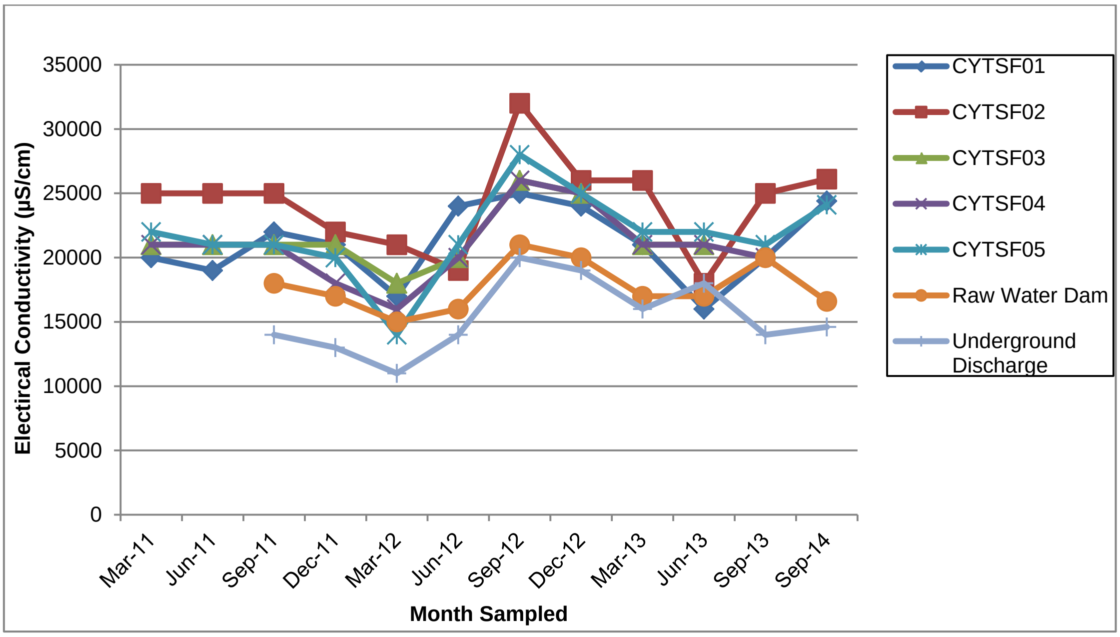


Figure 6-3: Electricaly Conductivity in Groundwater (2011 to 2014)

Samples were submitted to the laboratory for total dissolved solids (TDS) analysis. TDS reported in the samples obtained generally indicated concentrations marginally higher than those reported in September 2013, however still within the midlevel saline range (**Table 6-5**).

Table 6-5: Total Dissolved Solids in Gorundwater (2011 to 2014)

Sample date	Total dissolved solids (mg/L)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	13,700	18,600	14,800	14,700	15,100	-	-
Jun 2011	14,000	19,000	15,000	15,000	15,000	-	-
Sept 2011	15,500	18,600	14,500	15,000	16,700	13,600	9,330
Dec 2011	14,600	18,800	14,400	12,000	9,500	11,700	8,440

Sample date	Total dissolved solids (mg/L)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2012	13,000	16,000	14,000	12,000	9,500	11,000	7,800
Jun 2012	18,200	13,800	14,900	14,600	15,100	11,700	9,990
Sept 2012	14,000	19,000	14,000	14,000	16,000	12,000	11,000
Dec 2012	13,500	18,500	16,400	14,200	16,700	13,000	12,200
Mar 2013	15,000	19,000	14,000	14,000	16,000	11,000	11,000
Jun 2013	12,000	16,000	15,000	15,000	16,000	12,000	6,900
Sept 2013	15,000	19,000	-	15,000	16,000	14,000	9,800
Sept 2014	14,681	15,801	-	-	14,485	9,703	8,476
Sept 2014	16,000	17,000	-	-	17,000	11,000	9,500

A review of data reported between 2011 and 2014 indicates variable TDS, with a general increasing trend in bores CYTSF01 and CYTSF05 (Figure 6-4).

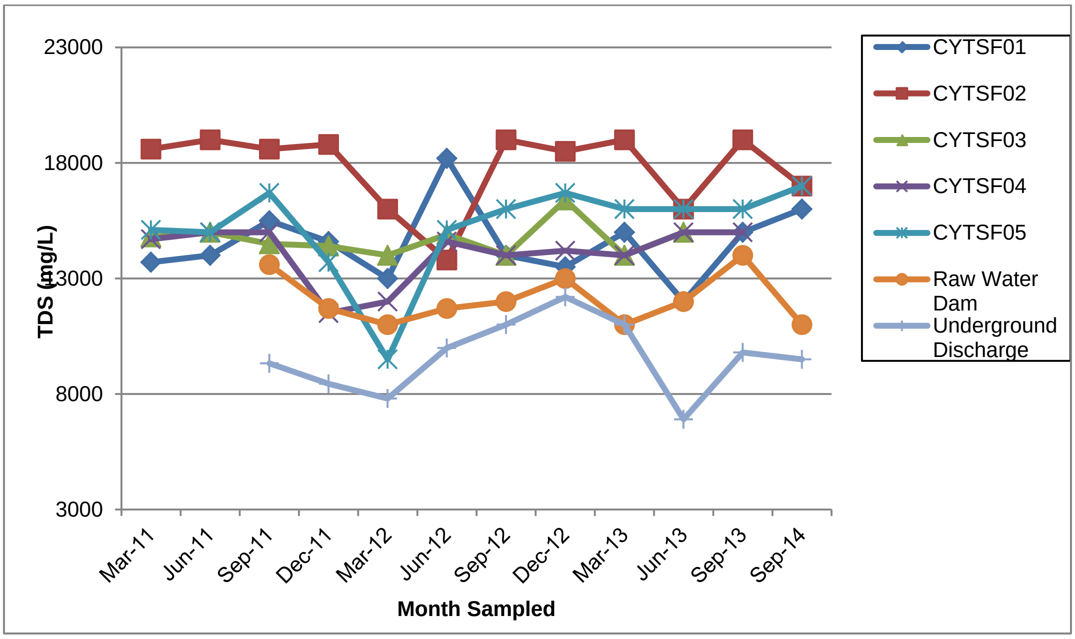


Figure 6-4: Total Dissolved Solids in Gorundwater (2011 to 2014)

6.1.1.4 Cyanides

Groundwater samples were submitted to the laboratory for total cyanide and weak acid dissociable (WAD) cyanide analysis. Results indicate that total cyanide and WAD cyanide were not detected in concentrations above the laboratory detection limits in all samples (**Table 6-6** and **Table 6-7**).

Total cyanide levels in the monitoring bores have generally been below laboratory detectable limits. There has been four detections over the three year period from 2011 to 2014, the highest being 0.025 mg/L in bore CYTSF04 in March 2012. The past three sampling events have all indicated concentrations below the laboratory detection limits (**Table 6-6**).

Table 6-6: Total Cyanide in Groundwater (2011 to 2014)

Sample date	Total cyanide (mg/L)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	ND	ND	ND	ND	0.022	-	-
Jun 2011	ND	ND	ND	ND	ND	-	-
Sept 2011	ND	ND	ND	ND	ND	-	-
Dec 2011	ND	ND	ND	ND	ND	-	-
Mar 2012	ND	ND	ND	0.025	ND	-	-
Jun 2012	ND	ND	ND	ND	ND		
Sept 2012	0.007	ND	ND	ND	ND		
Dec 2012	ND	ND	ND	ND	ND		
Mar 2013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Jun 2013	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Sept 2013	<0.004	<0.004	-	<0.004	<0.004	<0.004	<0.004
Sept 2014	<0.01	<0.01	-	-	<0.01	<0.01	<0.01

ND – non detect. Concentrations not detected above laboratory detection limits
<# - concentration less than laboratory detection limits

WAD Cyanide has consistently been below the laboratory detection limit in the monitoring bores with the only detections reported in the raw water dam (Dec 2012) and underground discharge (Dec 2012) over the period from 2011 to 2014 (**Table 6-7).**

Table 6-7: WAD Cyanide in Groundwater (2011 to 2014)

Sample date	WAD cyanide (mg/L)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	ND	ND	ND	ND	ND	-	-
Jun 2011	ND	ND	ND	ND	ND	-	-
Sept 2011	ND	ND	ND	ND	ND	-	-
Dec 2011	ND	ND	ND	ND	ND	-	-
Mar 2012	ND	ND	ND	ND	ND	-	-
Jun 2012	ND	ND	ND	ND	ND	-	-
Sept 2012	ND	ND	ND	ND	ND	ND	ND
Dec 2012	ND	ND	ND	ND	ND	0.004	0.004
Mar 2013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Jun 2013	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Sept 2013	<0.004	<0.004	-	<0.004	<0.004	<0.004	<0.004
Sept 2014	<0.01	<0.01	-	-	<0.01	<0.01	<0.01

ND – non detect. Concentrations not detected above laboratory detection limits

<# - concentration less than laboratory detection limits

6.1.1.5 Arsenic

Groundwater samples were submitted to the laboratory for total arsenic analysis. Total arsenic was detected in the samples from the underground discharge and the raw water dam (**Table 6-8**). Concentrations did not exceed the trigger level detailed in the groundwater operating strategy.

Results are consistent with previous sampling events, where all samples from the underground workings have arsenic present. A review of the annual aquifer review 2012-2013 suggests that the arsenic levels of water dewatered from the adjacent underground mining operations over the period showed levels of naturally occurring arsenic of 2 mg/L which is within range of all historical data range 0.6-2.7 mg/L (Tanami Gold NL 2013).

Table 6-8: Total Arsenic in Groundwater (2011 to 2014)

Sample date	Total Arsenic (mg/L)						
	CYTSF01	CYTSF02	CYTSF03	CYTSF04	CYTSF05	Raw water dam	Underground discharge
Mar 2011	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Jun 2011	<0.02	<0.02	<0.02	<0.02	<0.02	-	-
Sept 2011	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
Dec 2011	<0.01	<0.01	0.012	0.017	0.032	2.0	-
Mar 2012	1.0	0.015	<0.005	<0.005	<0.005	2.4	1.8
Jun 2012	<0.005	0.01	<0.005	0.013	<0.005	1.8	1.3
Sept 2012	<0.005	<0.005	<0.005	<0.005	<0.005	1.7	1.5
Dec 2012	0.025	0.033	<0.005	<0.005	<0.005	1.8	1.3
Mar 2013	<0.05	<0.05	<0.05	<0.05	<0.05	1.4	1.3
Jun 2013	-	-	-	-	-	1.6	0.87
Sept 2013	<0.003	<0.003	-	<0.002	<0.002	2.1	1.5
Sept 2014	<0.001	<0.001	-	-	<0.001	0.74	0.54

<# - concentration less than laboratory detection limits

6.1.1.6 Major Chemical Components

The water samples collecting in September 2014 were also analysed for major chemical components in accordance with the annual monitoring requirements of Condition 13, including: Hardness (as equivalent $CaCO_3$), total alkalinity (as $CaCO_3$), bicarbonate HCO_3, potassium, magnesium, manganese, sodium, aluminium, calcium, carbonate (CO_3), iron (soluble), nitrite (NO_2), nitrate (NO_3), hydroxide (OH), silica, (SiO_2), sulphate (SO_4), chromium, nickel, lead, boron, barium, cadmium and copper (**Table 6-9**).

The TDS of groundwater onsite is considered to be too saline for tolerance of most livestock (ANZECC 2000). However as a conservative measure, the results have been compared to Australian and New Zealand Environment Conservation Council (ANZECC) water quality guidelines for livestock drinking water (sheep).

Findings show that concentrations sulphate exceeded the adopted guidelines in all water samples. A review of previous groundwater investigations carried out for the Coyote Project indicates that sulphate ratios have generally been high as higher sulphate rocks can be expected in arid / low biologically active aquifers (KH Morgan and Associates 2012). All other parameters were reported below the laboratory detection limit of below the adopted guidelines (**Table 6-9**).

Table 6-9: Major Chemical Components in Groundwater

Sept 014	Sample Locations					
Parameter (mg/L)	**CYTSF01**	**CYTSF02**	**CYTSF05**	**Raw water dam**	**Underground discharge**	**ANZECC Livestock Drinking Water Guidelines (sheep)**
Hardness ($CaCO_3$)	660	530	900	460	440	-
total alkalinity ($CaCO_3$)	660	530	900	460	440	-
Bicarbonate (HCO_3)	660	530	900	460	440	-
potassium	490	350	470	200	180	-
magnesium	840	900	780	430	380	-
manganese	0.03	0.01	0.04	0.11	0.1	ID
sodium	4,700	5,400	5,000	3,700	3,100	-
aluminium	<0.1	<0.1	<0.1	<0.1	<0.1	5
calcium	380	480	310	170	170	1,000

Sept 014	Sample Locations					
Parameter (mg/L)	**CYTSF01**	**CYTSF02**	**CYTSF05**	**Raw water dam**	**Underground discharge**	**ANZECC Livestock Drinking Water Guidelines (sheep)**
Carbonate (CO_3)	<5	<5	<5	<5	<5	
Iron	2.6	1.5	0.87	0.54	0.53	-
Nitrite (NO_2)	<0.01	<0.01	<0.01	0.09	<0.01	30
Nitrate (NO_3)	1.1	0.92	1.8	2.6	4.1	400
Hydroxide (OH)	<5	<5	<5	<5	<5	
Silica (SiO_2)	30	32	25	19	16	
Sulphate (SO_4)	**4,300**	**4,600**	**3,800**	**3,100**	**2,700**	1,000
Chromium	0.07	0.03	<0.01	<0.01	<0.01	1
Nickel	0.05	0.02	<0.01	<0.01	<0.01	1
Lead	<0.01	<0.01	<0.01	<0.01	<0.01	0.1
Boron	2.3	1.9	2.3	1.7	1.4	5
Barium	0.003	0.003	0.02	0.02	0.02	-
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	0.01
Copper	0.03	0.2	<0.01	<0.01	<0.01	0.4

<# - concentration less than laboratory detection limits.

Value in red indicated exceedance of ANZECC Livestock drinking water guidelines.

ID = insufficient data to derive reliable trigger value.

*guideline refers to dissolved arsenic

The 2014 results have been compared to the 2011 and 2012 data only given that major chemical components were not monitored in 2013. For most part findings demonstrate no significant change in groundwater chemistry over the three year period. The exception is a gradual elevated level of sulphate and sodium from 2011 to 2014. This correlates with general gradual rise in electrical conductivity and TDS. A decrease in hardness, total alkalinity and bicarbonate concentrations is also observed in the 2014 sample results (**Table 6-10**).

Table 6-10: Major Chemical Components in Groundwater (2011 to 2014)

Parameter (mg/L)	CYTSF01			CYTSF02			CYTSF03			CYTSF04			CYTSF05			Underground Discharge			Raw Water Dam		
Year	2011	2012	2014	2011	2012	2014	2011	2012	2014	2011	2012	2014	2011	2012	2014	2011	2012	2014	2011	2012	2014
Hardness ($CaCO_3$)	3,500	3,800	660	5,100	4,900	530	3,300	3,200	-	2,500	3,000	-	3,900	3,900	900	1,700	2,100	440	1,900	2,200	460
Total alkalinity ($CaCO_3$)	480	550	660	400	480	530	570	620	-	560	790	-	600	720	900	340	380	440	250	310	460
Bicarbonate (HCO_3)	580	550	660	490	480	530	690	620	-	680	790	-	730	720	900	420	350	440	240	280	460
Potassium	430	440	480	390	350	350	410	380	-	350	410	-	480	440	470	190	220	180	240	250	200
Magnesium	680	740	840	960	940	900	640	640	-	490	600	-	780	790	780	330	410	380	430	460	430
Manganese	0.043	0.041	0.03	0.025	0.064	0.01	0.01	0.007	-	0.054	0.029	-	0.022	0.019	0.04	0.59	0.3	0.1	0.062	0.02	0.11
Sodium	3,900	3,600	4,700	5,200	4,300	5,400	4,000	3,400	-	3,300	3,400	-	4,400	3,600	5,000	2,700	2,800	3,100	3,500	3,100	3,700
Aluminium	0.5	1.5	<0.1	1.3	1.7	<0.1	0.76	0.68	-	4.7	1.6	-	2.9	0.44	<0.1	0.016	0.61	<0.1	0.28	0.02	<0.1
Calcium	290	310	380	450	430	480	260	230	-	190	210	-	300	270	310	120	160	170	62	140	170
Carbonate (CO_3)	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	-	<5	<5	<5	<5	33	<5	<5	40	<5
Iron	0.069	<0.01	2.6	0.36	<0.01	1.5	0.036	<0.01	-	<0.025	<0.01	-	0.036	<0.01	0.87	<0.01	<0.01	0.53	<25	0.02	0.54
Nitrite (NO_2)	<0.05	<5	<0.01	<0.05	<5	<0.01	<0.05	<5	-	<0.05	<5	-	<0.05	<5	<0.01	2.7	5.8	<0.01	1.7	<5	0.09
Nitrate (NO_3)	5.8	<5	1.1	4.8	<5	0.92	8	7	-	8.3	6.6	-	10	7.9	1.8	38	30	4.1	13	28	2.6
Hydroxide (OH)	<1	<5	<5	<1	<5	<5	<1	<5	-	<1	<5	-	<1	<5	<5	<1	<5	<5	34	<5	<5
Silica (SiO_2)	29	58	30	31	58	32	22	30	-	23	53	-	18	28	25	16	20	16	12	21	19
Sulphate (SO_4)	2,600	3,300	4,300	4,600	4,400	4,600	3,400	3,300	-	2,400	3,200	-	3,500	3,300	3,800	2,200	2,600	2,700	3,600	2,800	3,100
Chromium	0.009	0.012	0.07	0.009	0.009	0.03	0.009	0.006	-	0.031	0.012	-	0.015	0.004	<0.01	0.029	0.001	<0.01	<0.005	<0.001	<0.01
Nickel	0.035	0.029	0.05	0.023	0.018	0.02	0.013	0.004	-	0.017	0.004	-	0.01	0.002	<0.01	0.036	0.005	<0.01	0.009	0.002	<0.01
Lead	0.006	0.004	<0.01	0.007	0.005	<0.01	0.007	0.003	-	0.011	0.005	-	<0.005	0.003	<0.01	0.065	0.004	<0.01	<0.005	<0.001	<0.01
Boron	3.2	2.8	2.3	2.8	2.8	1.9	3.2	3.1	-	3.1	3.6	-	3.4	3.9	2.3	2	2.6	1.4	2.7	2.5	1.7
Barium	0.04	0.044	0.003	0.04	0.062	0.003	0.03	0.024	-	0.03	0.032	-	0.03	0.032	0.02	0.09	0.045	0.02	0.02	0.039	0.02
Cadmium	<0.005	0.0001	<0.002	<0.005	<0.0001	<0.002	<0.005	<0.0001	-	<0.005	<0.0001	-	<0.005	<0.0001	<0.002	<0.005	0.0001	<0.002	<0.005	<0.0001	<0.02
Copper	0.065	0.054	0.03	0.053	0.052	0.2	0.047	0.001	-	0.15	0.002	-	0.029	<0.001	<0.01	0.044	0.004	<0.01	<0.005	0.001	<0.01

<# - concentration less than laboratory detection limits. Value in red indicated exceedance of ANZECC Livestock drinking water guidelines.

7 Seepage Recovery Systems

There are no seepage recovery system in place. Decant towers are located at the TSF to supply return water to the raw water dam for processing activities, however this was not equipped during the reporting year as the site was in care and maintenance and there was no tailings deposition. The decant towers will be utilised once processing activities recommence.

There have not been two consecutive detections of cyanide at any bore over the life of the TSF. These results show that there is minimal seepage of cyanide from the facility to the surrounding groundwater (Tanami Gold NL 2013). This will continue to be routinely monitored.

8 References

Australian and New Zealand Environment Conservation Council (ANZECC) & Agricultural and Resources Management Council of Australia and New Zealand (ARMCANZ) (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Volume 1: The Guidelines*.

KH Morgan and Associates (2012) Triennial Monitoring Report, Groundwater Well Licences 159761(3) and 169725(2), Coyote Gold Mine, Tanami Gold NL, 10 October 2012.

Tanami Gold NL (2013) Annual Aquifer Review Coyote Mine Site 1 July 2012 – 30 June 2013, September 2013.

Appendix A Annual Audit Compliance Report

SECTION A

LICENCE DETAILS

Licence Number: L8111/2005/2	**Licence File Number:** 2011/002320
Company Name: **Tanami Exploration NL** **Tanami Gold NL**	ABN: **51 000 617 176**
Reporting period: 2 March 2014 to 1 March 2015	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

Were all conditions of licence complied with within the reporting period? (please tick the appropriate box)

Yes □ Please proceed to Section C

No X Please proceed to Section B

INITIAL:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.
Please use a separate page for each licence condition that was not complied with.

a) Licence condition not complied with?	
Condition 1(iii)	
b) Date(s) when the non compliance occurred, if applicable?	
2014/2015 reporting period	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
Advised Tanami to ensure that waste is covered on a weekly basis (DER Site visit 19 June 2014)	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
Tanami is required to cover waste at the landfill on a weekly basis. This was not undertaken during the reporting period.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
Class 1 landfill facility.	
g) Cause of non compliance	
A lack of available machinery and operator's onsite due to the site being in care and maintenance meant the landfill facility was not covered on a weekly basis. The volume of waste generated during care and maintenance is relatively low as only 2 to 3 personnel are onsite.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
Site requirements reiterated to site personnel. No detectable adverse effects noted as only a small volume of waste was not covered.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
Tanami will review the waste management procedure and ensure that all personnel are aware of the licence requirements.	

INITIAL: ________

a) Licence condition not complied with?	
Condition 2 (iii) and (v)	
b) Date(s) when the non compliance occurred, if applicable?	
2014/2015 reporting period	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ____________ ☐ Reported to DEC in writing Date ____________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
NA	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
• The belkan cage to prevent windblown waste was removed during the reporting period. • Waste was not covered on a weekly basis.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
Putrescible Landfill	
g) Cause of non compliance	
A lack of available machinery and operator's onsite due to the site being in care and maintenance meant the landfill was not covered on a weekly basis and the belkan cage had been removed. Care and maintenance personnel did not follow previous operating procedures during care and maintenance regarding waste management and/or were unaware of this requirement. A Care and Maintenance Plan was not implemented onsite to assist with general day to day management.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
• Belkan cage was reinstated in February 2015 to ensure no wind blown waste. No adverse effects noted.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
Tanami will ensure the belkan cage remains in place and reiterate waste management requirements to all personnel.	

INITIAL: _______

a) Licence condition not complied with?	
Condition 3 (i) and (ii)	
b) Date(s) when the non compliance occurred, if applicable?	
2014/2015 reporting period	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
Advised Tanami to ensure that remove putrescible waste from inert landfill facility and dispose appropriately. (DER Site visit 19 June 2014)	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
Putrescible waste was disposed at the Class 1 inert landfill facility during the reporting period. No immediate environmental impact noted.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
Class 1 inert landfill facility.	
g) Cause of non compliance	
Care and maintenance personnel did not follow previous operating procedures during care and maintenance regarding waste management and/or where unaware of this requirement. A Care and Maintenance Plan was not implemented onsite to assist with general day to day management.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
The putrescible waste was removed and disposed to the putrescible landfill. No adverse effects noted.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
Tanami will review the waste management procedure and ensure that all personnel are aware of the licence requirements.	

INITIAL: ___________

a) Licence condition not complied with?	
Condition 7 (iv) and (vi)	
b) Date(s) when the non compliance occurred, if applicable?	
2014/2015 reporting period	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
NA	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
• The tyre disposal register did not report the name of the person supervising tyre burial and confirmation of compliance with licence conditions. • The tyre disposal register was not made available to the DER during the site compliance inspection in 19 June 2014.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
NA	
g) Cause of non compliance	
Template for recording tyre disposal didn't adequately cover all licence requirements.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
No adverse effects noted.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
The tyre disposal register was updated to include a column that records the name of person supervising the disposal of tyres as is required by Licence Condition 7(iv) and that tyres have been covered in accordance with Condition 6. Copy of tyre disposal register was provided to the DER on 6 March 2015, in the Compliance Inspection response letter.	

INITIAL:

a) Licence condition not complied with?
Condition 8 (ii) and (iii).
b) Date(s) when the non compliance occurred, if applicable?
2014/2015 reporting period
c) Was this non compliance reported to DEC?

☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No

d) Has DEC taken, or finalised any action in relation to the non compliance?
N/A
e) Summary of particulars of compliance non compliance, and what was the environmental impact?
(ii) Moisture levels and nutrient levels at the bioremediation facility are not maintained (iii) No monthly tilling of hydrocarbon contaminated material
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)
Bioremediation Facility
g) Cause of non compliance
Care and maintenance personnel did not follow previous operating procedures during care and maintenance regarding bioremediation facility management and/or were unaware of this requirement. A Care and Maintenance Plan was not implemented onsite to assist with general day to day management.
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance
Soil has not been adequately treated and cannot be moved from the bioremediation facility until treated. Soil remains in the bioremediation facility and will be remediated and then sampled for hydrocarbons prior to be deemed remediated for use elsewhere.
i) Action taken or that will be taken to prevent recurrence of the non compliance
A procedure for managing the bioremediation pad to be deveoped to ensure that requirements of Condition 8 are met.

INITIAL:___________

a) Licence condition not complied with?	
Condition 9.	
b) Date(s) when the non compliance occurred, if applicable?	
2014/2015 reporting period	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
N/A	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
Tanami Gold NL are required to record the volumes and concentrations of hydrocarbon contaminated soils. A small volume of contaminated soil from wash-down pad was added to the bioremediation facility, however, the concentration of hydrocarbons in the soil was not tested.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
Bioremediation Facility	
g) Cause of non compliance	
Lack of awareness and training of the care and maintenance personnel on-site to conduct the sampling. Lack of procedures detailing requirements during care and maintenance.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
No adverse effects were noted. Soil remains in the bioremediation facility and will be remediated and then sampled for hydrocarbons prior to being deemed remediated for use disposal to putrescible landfill.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
Tanami Gold NL will assess concentrations of hydrocarbons in treated soils prior to the soils being deemed 'remediated'. A Bioremediation Management Procedure will be adopted and implemented.	

INITIAL: [signature]

a) Licence condition not complied with?	
Condition 13	
b) Date(s) when the non compliance occurred, if applicable?	
March 2014, June 2-14 and December 2014	
c) Was this non compliance reported to DEC?	
☐ Yes ☐ Reported to DEC verbally Date ___________ ☐ Reported to DEC in writing Date ___________	X No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
N/A	
e) Summary of particulars of compliance non compliance, and what was the environmental impact?	
• Quarterly sampling events were not undertaken in March 2014, June 2014 or December 2014. • Bores CYTSF03 and CYTSF04 were not able to be sampled.	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
• All sample locations – not sampled quarterly as required • Bores CYTSF03 and CYTSF04 were not able to be sampled.	
g) Cause of non compliance	
• Lack of procedures detailing requirements during care and maintenance and lack trained personnel onsite to sample the bores on a quarterly basis. • Bores CYTSF03 and CYTSF04 were not able to be sampled as the bores were blocked and the sample pump could not get down the bore to collect sample.	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
No direct adverse effect noted as September results do not indicate seepage of cyanide into groundwater. Routine monitoring provides an early detection of any groundwater issues. If routine monitoring is not undertaken there will be a delay in detecting potential contamination from TSF seepage.	
i) Action taken or that will be taken to prevent recurrence of the non compliance	
Tanami have engaged environmental consultants to assist with compliance monitoring.	

INITIAL: ________

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report may only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this Annual Audit Compliance Report is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	☐	by the individual licence holder, or
	☐	by a person approved in writing by the Chief Executive Officer of the Department of Environment and Conservation to sign on the licensee's behalf.
A firm or other unincorporated company	☐	by the principal executive officer of the licensee; or
	☐	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.
A corporation	☐	by affixing the common seal of the licensee in accordance with the Corporations Act 2001; or
	☐	by two directors of the licensee; or
	☑	by a director and a company secretary of the licensee, or
	☐	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	☐	by the principal executive officer of the licensee; or
	☐	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.

A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the Environmental Protection Act 1986 for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: ______________________ SIGNATURE: P.Collinson

NAME: (printed) BRETT MONTGOMERY | NAME: (printed) PAULINE COLLINSON

POSITION: DIRECTOR | POSITION: COMPANY SECRETARY

DATE: 17 / 04 / 2015 | DATE: 17 / 04 / 2015.

CORPORATE ENDORSEMENT

Tanami Gold NL (TGNL) submits this Compliance Assessment Report in accordance with section 4-1 of Ministerial Statement No 749 (the Statement) issued on 20 September 2007 under Part IV of the *Environmental Protection Act 1986.*

I hereby certify that to the best of my knowledge the information within this Compliance Assessment Report is true and correct.

17/04/2015.

Brett Montgomery, Director

Date

Appendix B DER Compliance Inspection Report and Tanami Gold Response

Government of **Western Australia**
Department of **Environment Regulation**

Your ref:	L8111/2005/2
Our ref:	2011/002320
Enquiries:	Eleanor Notley
Phone:	(08) 6467 5292
Fax:	(08) 6467 5561
Email:	Eleanor.notley@der.wa.gov.au

The Manager
Tanami Exploration NL
Level 4
50 Colin Street
WEST PERTH WA 6005

Dear Sir/Madam

Environmental Protection Act 1986
Licence: L8111/2005/2
Premises: Tanami Gold Mine

I refer to a recent compliance inspection conducted on 19 June 2014 by the Department of Environment Regulation (DER) Officers Eleanor Notley and Jaala Baldock and site representative Max Viscovich. The purpose of the compliance inspection was to assess the above premises for compliance with the *Environmental Protection Act 1986*, licence L8111/2005/2 and subsidiary legislation.

Please find attached a copy of the inspection report. Please ensure you note the non-compliance identified in Section "D" of the report and comply with the actions for compliance in section "E" of the report as stated.

Please provide DER with a response to this inspection report by **15 January 2015**, addressed to:

Eleanor Notley
Environmental Compliance
Department of Environment Regulation
Locked Bag 33, Cloisters Square, Perth WA 6850
Email: Eleanor.notley@der.wa.gov.au

The response shall document all actions specified in the attached report have been completed by the required dates.

Thank you for your time and cooperation in this matter. If you have any queries, or require further information, please contact Eleanor Notley on (08) 6467 5292.

Yours sincerely,

Alana Kidd

ALANA KIDD
MANAGER LICENSING – INDUSTRY REGULATION
NORTH WEST REGION
27 November 2014

Government of **Western Australia**
Department of **Environment Regulation**

COMPLIANCE INSPECTION CHECKLIST & REPORT

A Introduction

Premises Details			
Licence Holder:	Tanami Exploration NL		
Licence No.:	L8111/2005/2		
ACN No.:	063213598		
Premises Name:	**Tanami Gold Mine - Coyote Gold Project**		
Premises Address:	Mining Lease M80/559, M80/559; M80/563 and Miscellaneous Licenses L80/46 and L80/51		
Auditee Representative/s:	Max Viskovich		
Approved Categories:	(05) Processing or beneficiation of metallic or non metallic ore; (63) Class I inert landfill site; (85) Sewage Facility; (89) Putrescible Landfill Site; (06) Mine dewatering.		
DER Resourcing			
Lead Officer (DER):	Eleanor Notley	**Support Officer/s (DER)**	Jaala Baldock
Date & Time of Inspection:	19 June 2014 at 8am		

Facility Summary
The licence holder Tanami Exploration NL is currently operating the Tanami Gold Mine - Coyote Gold Project in a state of care and maintenance. In May 2013 all processing operations were ceased and the only continual operation on site is dewatering from underground and general maintenance of the premises. All the mine dewater is being discharged to a series of evaporation ponds and an old mine pit, approximately 2,500kL per day. The premises is located approximately 19kilometres from the Northern Territory border in the Tanami Desert, the licensee stated there is a potential to come out of care and maintenance if the gold price was right. At the time of inspection there were only 2 persons in the camp and specific maintenance crew are brought to site if required. The wastewater treatment plant and the landfill are still currently active but with a low throughput of waste. TSF1 has approximately a 2 month capacity and TSF2 is full.

General Criteria		
Item	**Criteria**	**Comment**
1	Is the DER Licence for the reporting period valid?	Yes, expires 15/07/2017.
2	Activities undertaken / planned that need to be registered with the DER?	No.
3	Are there any Environmental Management Systems in place?	No formal EMS.
4	Are Independent environmental audits conducted?	TSF audits completed.
5	Is there an Internal incident &/or complaint reporting system?	Yes.
6	Is there a documented maintenance procedure?	Maintenance done as required.
7	Has there been a Discharge of Waste to be reported to the DER under S72?	No.
8	Has there been any alteration to the premises, process or inputs/outputs?	Site went into care and maintenance and ceased processing in May 2013.

B Key Findings

Key: C = Compliant, NC = Non-Compliant, ND = Not Determined, NA = Not Applicable

Licence Conditions (LC)			
LC #	**Criteria (state licence condition)**	**Assess't (C, NC, ND, NA)**	**Explanation of result**
1	**GENERAL CONDITIONS** **LANDFILL SITE MANAGEMENT** The licensee shall manage the Class 1 landfill (as described in Attachment 3) in such a manner that: (i) the tipping area is less than 30 metres in length;	C	The licensee is currently disposing all inert waste and all putrescible waste in the Class I inert landfill location. The current active landfill is an old vat which is plastic lined and is being backfilled (Photographs 9 and 10). The tipping area was sighted to be less than 30 metres in length.
	(ii) stormwater is diverted away from the trench;	C	Stormwater is diverted away from the landfill via earthen bunding and using the natural slope.
	(iii) waste is covered weekly; no waste is to be burnt; and	NC	The licensee stated that the waste has not been covered weekly, and has not been burnt. Inspectors sighted no evidence of previously burnt waste in the landfill.
	(iv) contaminated stormwater is retained on site.	C	Contaminated stormwater is retained in the vat, as was sighted at the time of inspection. Stormwater was sighted in the active landfill trench not flowing out of the landfill area (Photograph 10).
2	The licensee shall manage the Putrescible landfill (as described in Attachment 3) in such a manner that: (i) waste is placed within a defined trench; (ii) the tipping area is less than 30 metres in length; (iii) a suitable barrier is installed to prevent windblown waste leaving the trench; (iv) stormwater is diverted away from the trench; (v) waste is covered weekly; (vi) no waste is to be burnt; and (vii) contaminated stormwater is retained on site.	NA	The licensee is not using the Putrescible landfill as described in Attachment 3, all putrescible waste is disposed of at the inert landfill (Photographs 9 and 10). This is not considered to be acceptable and is identified as non-compliant pursuant to condition 3.
3	The licensee shall only accept and bury the following types of waste at the Class I landfill site: (i) Inert Waste Type 1; and (ii) Inert Waste Type 2.	NC	Inspectors sighted that the licensee is currently accepting and burying putrescible waste in the Class I inert landfill. The site representative confirmed this.
4	**USED TYRE STORAGE AND DISPOSAL** The licensee shall only store tyres above ground in a designated sorting area for a maximum of 14 days.	NA	The licensee does not have a designated sorting area. Only 2-3 tyres have been used in the last few months and these are taken straight to the tyre burial location. Inspectors sighted no designated tyre storage area.

5	The licensee shall ensure that tyre stacks stored above ground: (i) do not exceed one hundred (100) tyres; (ii) each stack of tyres is arranged in rows with at least 3 metres separating each row to allow access for machinery and fire fighting equipment; and (iii) no tyre stacks are stored closer than 35 metres from the premises boundary.	NA	Inspectors confirmed there are no tyre stacks on the premises. The licensee stated that limited waste tyres are generated due to the site being in care and maintenance.
6	The licensee shall bury used tyres such that: (i) a minimum depth of not less than 500 mm of cover material is maintained over the buried tyres following disposal;	C	The licensee is currently burying used tyres in an old vat. The licensee indicated that no tyres have been disposed of since May 2013. Inspectors sighted no tyres left exposed and the licensee stated that they were covered with 1.5 to 2m of cover (Photograph 12).
	(ii) batches of tyres are separated from each other with at least 100 mm of soil; and	C	The licensees stated that only one batch of tyres has been buried. It was confirmed that the licensee will ensure that the next batch is separated by more than 100mm of soil.
	(iii) each batch consists of not more than 100 (one hundred) tyres.	C	The licensee indicated that there is only one batch buried in this location and no more than 100 tyres are buried.
7	The licensee shall take the following measures when burying tyres at the premises: (i) sufficient volumes of clean fill are stockpiled on the premises to allow tyres to be covered in accordance with condition 6 and to cover cells in the event of a fire;	C	Inspectors sighted sufficient cover material to cover the cell in an event of a fire (Photograph 11).
	(ii) ensure that there is kept at the premises an accurate and up to date register of tyres disposed of at the premises;	ND	The licensee was unable to provide the tyre disposal register at the time of inspection.
	(iii) ensure that there is kept at the premises an accurate and up to date plan of the premises showing the position of tyres disposed of at the premises;	ND	The licensee was unable to provide the tyre disposal plan at the time of inspection.
	(iv) ensure that the person supervising the disposal of tyres makes an entry in the register within 2 hours of supervising the covering of the tyres stating: the date; the person's name; that the tyres have been covered in accordance with this condition; and grid co-ordinates with reference to the plan of the premises so that the position of the tyres can be easily and accurately ascertained;	ND	The licensee was unable to provide the tyre disposal register at the time of inspection.
	(v) ensure the disposal areas for tyres are not excavated or uncovered during subsequent landfill operations; and	C	The licensee stated that previous disposal areas are not excavated or uncovered as all locations are within old vats and are known.
	(vi) make all records available for viewing or copying by an authorised person or Inspector upon request.	ND	The licensee was unable to provide these records for viewing at the time of inspection. However, it was stated that they would be provided upon request in the inspection report.

8	**HYDROCARBON CONTAMINATED SOILS** The licensee shall ensure that all hydrocarbon contaminated soil is bioremediated at the Bioredmiation Facility by: (i) maintaining soil thickness of between 60 centimetres and 1.5 metres;	ND	The licensee stated that the sediment from the washdown bays and small spills from the vehicle park up area are disposed of to the bioremediation facility. Inspectors sighted the soil thickness to be approximately 60 centimetres (Photograph 18). However, it could not be determined how the licensee ensures this level is measured and maintained.
	(ii) maintaining soil moisture at 15-20% and nutrient levels within the soil to sustain biological activity; and	NC	The licensee stated that the material is disposed of in a wet state but no additional water or nutrients are added. Inspectors sighted the soil within the cells to be dry.
	(iii) at least monthly tilling of hydrocarbon contaminated soil to provide aeration.	NC	The licensee stated that the facility is not tilled monthly.
9	The licensee shall record the volumes and concentrations of hydrocarbon contaminated soils bioremediated at the Bioremediation Facility and provide the results in the annual environmental report required by condition 17 of this licence.	NC	The licenee stated that the volume and concentrations of hydrocarbon contaminated soils bioremediated are not recorded. This non-compliance was declared in the AACR for the previous reporting period.
10	The licensee shall ensure that all hydrocarbon remediated soil disposed to the Putrescible landfill meets the requirements of the contaminated threshold values specified for Class II landfills as detailed in the current version of the document titled "Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009)".	NA	The licensee is not removing the remediated soil to the landfill as the volume of soil in the bio-remediation facility is low. Inspectors sighted significant capacity within this area.
11	The licensee shall ensure that uncontaminated stormwater runoff is diverted from the bioremediation facility.	C	The licensee has installed a large earthen bund around the entire side of the open pit and the bioremediation facility to ensure they divert uncontaminated water away from these areas.
12	**WASTE MINIMISATION / REMOVAL / STORAGE** The licensee shall ensure that the burning of waste for Emergency Response Training exercises is conducted; (i) in a dedicated low permeability compound that is bunded; (ii) that the compound referred to in part (i) of this condition has a sump to collect Firewater generated from the emergency response exercise; and (iii) the Director is notified three (3) working days prior to the exercise in writing outlining the exercise details and time.	NA	The licensee has not undertaken any Emergency Response Training as there is only 1-2 staff generally on site at one time. Inspectors sighted the area which was previously to be dedicated to ERT (Photograph 6). No compound infrastructure was sighted.

13	GROUNDWATER MONITORING PROGRAM The Licensee shall maintain a groundwater monitoring program at the sampling frequencies stated in column 2 of Table 1 in this licence, take representative water samples from the monitoring sites listed in column 1 of Table 1 in this licence, and have them analysed for the parameters listed in column 3 of Table 1 in this licence.	NC	The licensee stated that the groundwater monitoring program has not been completed as per the requirements of Table 1 since February 2014. The site representative was unable to provide any current March or June monitoring data for review at the time of inspection to demonstrate what components have been completed. During the 2013-14 reporting period the licensee failed to undertake the following: - any December 2013 monitoring - SWL for September - Arsenic in June - Any results from CYTF03 in September - Any of the annual monitoring requirements The licensee declared non-compliance with this condition in the AACR.

Table 1: Monitoring sites, sampling frequency and parameters to be measured.

Column 1	**Column 2**	**Column 3**
Monitoring locations	**Sampling frequency**	**Parameters to be measured**
Bores CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam; and Underground Discharge. (as per Attachment 3)	March; June; September; and December.	Standing Water Level (SWL)*, Electrical Conductivity, pH, Total Dissolved Solids, Arsenic (total), and Cyanide (total and weak acid dissociable).
Bores CYTSF01, CYTSF02, CYTSF03, CYTSF04, CYTSF05, Raw Water Dam; and Underground Discharge. (as per Attachment 3	Annually	Hardness (as equivalent $CaCO_3$), Total alkalinity (as $CaCO_3$), Bicarbonate HCO_3, Potassium, Magnesium, Manganese, Sodium, Aluminium, Calcium, Carbonate CO3, Iron (soluble), Nitrite NO2, Nitrate NO3, Hydroxide OH, Silica SiO2, Sulphate SO4, Chromium, Nickel, Lead, Boron, Barium, Cadmium; and Copper.

14	The licensee shall ensure that all water samples are collected, handled and preserved in accordance with Australian Standard 5667.	C	The licensee was unable to demonstrate compliance with this condition at the time of inspection. The site representative was not aware of the sampling procedure however, compliance was described in the annual environmental report on page 12 as per condition 16(iii).
15	The licensee shall ensure that all water samples shall be submitted to a laboratory with current National Association of Testing Authorities (NATA) accreditation for the analysis specified and analysed in accordance with the current "Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF".	ND	The licensee was unable to demonstrate compliance with this condition at the time of inspection. The site representative was not aware of the sampling procedure.
16	The licensee shall ensure that all monitoring results shall be presented in the next Annual Environmental Report in tabular form, and provided to the Director in accordance with condition 17 of this licence.	NC	The licensee provided the data for the monitoring that was completed in the 2013-14 reporting period. It is noted that not all monitoring was undertaken. However, the results were provided in graphical format rather than in tabular format in the 2013-14 Annual Environmental Report.
17	The licensee shall by **30 April each year**, provide to the Director an **Annual Environmental Report** containing data required by any condition of this licence. The Annual Environmental Report shall cover the period beginning 2 March the previous year and ending on 1 March in that year. The Annual Environmental Report shall contain information including but not limited to:	C	The licensee submitted to the Director an Annual Environmental Report for the period 2 March 2013 to 1 March 2014 via email on 30 April 2014.
	(i) monitoring data or other collected data required by any condition of this licence;	C	The licensee provided the monitoring data for all of the monitoring that was undertaken during the reporting period (AER appendix E, G and H). It is noted that the licensee did not undertake all monitoring as required by condition 13.
	(ii) groundwater monitoring results to be compared in a tabulated format with those from the previous three reporting periods and any apparent trends discussed;	NC	The licensee compared the data in a graph rather than a table as required in section 5.1.1 of the report.
	(iii) comments to be provided on the water sampling procedures employed, in particular confirmation that they comply with Australian Standard 5667;	C	The licensee provided comment on page 12 of the annual environmental report.
	(iv) an assessment on the effectiveness of any seepage recovery systems in place;	NC	The licensee provided a comment stating that the cyanide levels in monitoring bores show no seepage. However, no assessment of effectiveness was provided in the AER.

	(v) an assessment on the characteristics, volume and effects of any discharges to the environment and on the characteristics of the receiving environment within the vicinity of the Premises (e.g. air quality, water quality, health of vegetation); and	C	The licensee included a brief assessment of the dewater discharges in section 3.7. It is noted that water is evaporated and not directly discharged to environment.
	(vi) a summary of issues raised during the last DEC inspection and how these have been addressed / rectified. If the required work has yet to be completed then an explanation as to why should be provided.	C	The licensee included a summary of the previous inspection which was compliant and a copy of the inspection report.
18	The licensee shall by **30 April in each year**, provide to the Director an **annual audit compliance report** in the form in Attachment 1 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the Premises, during the period beginning 2 March the previous year and ending on 1 March in that year.	NC	The licensee submitted to the Director an Annual Audit Report for the period 2 March 2013 to 1 March 2014 via email on 30 April 2014. Non-compliance was declared with conditions 9 and 13. The licensee failed to declare non-compliance with conditions 1, 3 and 8.

C General Observations

- Inspectors sighted the location of a previous overflow from the evaporation ponds. It is noted that some vegetation death has occurred in this area (see photograph 14). The licensee is required to ensure that all overflow incidents are reported in accordance with Section 72 and investigated. **Please provide a copy of the incident report and follow up actions in relation to this overflow by 15 January 2015.**

- Inspectors sighted an area previously used to undertake concrete batching. No active concrete batching operations were observed.

D Non-Compliances & Not Determined

The following conditions were found to non-compliant:

Condition #	Reason for non-compliance:
1	The licensee has failed to ensure that the waste is covered weekly at the active landfill area. Inspectors sighted a small amount of uncovered waste awaiting burial.
3	The licensee has failed to ensure that only inert waste types 1 and 2 are accepted at the Class I inert landfill. Inspectors sighted that the licensee is currently accepting and burying putrescible waste in the inert landfill.
8 (ii) and (iii)	The licensee has failed to ensure the moisture and nutrient content is maintained as per the condition requirements. In that, the licensee stated that the material is disposed of in a wet state but no additional water or nutrients are added. Additionally, the licensee stated that the facility is not always tilled monthly.
9	The licensee has failed to record the volume and concentrations of hydrocarbon contaminated soils bio-remediated.
13	The licensee has failed to ensure that the groundwater monitoring program is completed as per the requirements of Table 1. The site representative was unable to provide any current monitoring data for review at the time of inspection to demonstrate what components have been completed in the current reporting period.
16 and 17(ii)	The licensee failed to provide the monitoring data in tabular format in the Annual Environmental Report; all data was displayed in graphs.
17 (iv)	The licensee provided a comment stating that the cyanide levels in monitoring bores show no seepage. However, no assessment of effectiveness was provided in the AER.

18	It is alleged, subject to evidence to the contrary, that the licensee submitted to the Director on 30 April 2014 a false and/or misleading Annual Audit Compliance Report by omission. In that, the licensee failed to declare non-compliance with conditions 1, 3 and 8.

The following conditions could not be determined:

Condition #	Reason for not determined
7	The licensee was unable to provide the tyre disposal register and the tyre disposal plan at the time of inspection. Therefore, inspectors cannot determine compliance with sub-conditions (ii), (iii), (iv) and (vi).
8(i)	It could not be determined how the licensee ensures the soil thickness in the bioremediation area is measured and maintained.
15	The licensee was unable to demonstrate that all water sampling analysis is undertaken at a NATA accredited laboratory at the time of inspection.

E Actions that should be taken to achieve Compliance

1. That the Licensing Officer notes the findings of this report.

2. That the Licensee notes the findings of the inspection discussed in this report and addresses the following to achieve compliance with conditions of licence L8111/2005/2:

Condition #	In order to achieve compliance, the Licensee should:
1	Ensure that the active landfill is covered weekly as per the requirements of condition 1. OR, The licensee should by 15 January 2014, make application to the DER licensing officer to consider an amendment to condition 1 to reflect the current low volume of waste being accepted at the landfill due to the care and maintenance status.
3	Remove all putrescible waste from the inert landfill and dispose of this waste at the location depicted in Attachment 3 of the licence in accordance with condition 2 by 15 August 2014. Additionally, ensure that only inert waste is disposed of at the Class I landfill in future.
8(ii) and (iii)	Ensure that the bioremediation facility is tilled monthly and an appropriate soil moisture and nutrient content is maintained as per the requirements of condition 8.
9	Immediately begin recording the volumes of soil being added to the bio-remediation facility and if any soil is removed from the bioremediation the concentration of contamination should be determined.
13	Immediately comply with this condition and undertake all groundwater monitoring as required by Table 1 and provide an explanation as to why the required groundwater monitoring has not been completed. DER notes that this is an ongoing non-compliance and may consider further enforcement action.
16, 17(ii) and 17 (iv)	Resubmit the Annual Environmental Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains the monitoring data in tabular format and an assessment of the seepage recovery systems.
18	Resubmit the Annual Audit Compliance Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains an accurate declaration of compliance throughout the reporting period.
Condition #	**In order to determine compliance, the Licensee should:**
7	Provide the tyre disposal register and tyre disposal plan to the DER for review.
15	Provide copies of the laboratory certificates for the sampling undertaken to the DER for review.

Unless otherwise stated, the Licensee should provide evidence for the aforementioned to DER by 15 January 2015.

3. That the Regional Licensing Officer engage with DER Inspection and Compliance Section Officer (Eleanor Notley) should any further follow up action be required.

Report Review & Approval

Licence Amendments Required? ☐ Yes
Current Risk Priority Rating: Medium/High

Report Prepared by: **(Eleanor Notley)**	Date: 26-06-2014
Reviewed by: **(Jaala Baldock)**	Date: 30-06-2014
Approved by: **(Tim Francis)**	Date: 11-11-2014

Government of Western Australia
Department of Environment Regulation

Attachment 1 – Photographs

Licence: L8111/2005/2

Premises Audited: Tanami Gold Mine - Coyote Gold Project

Inspectors: Eleanor Notley and Jaala Baldock

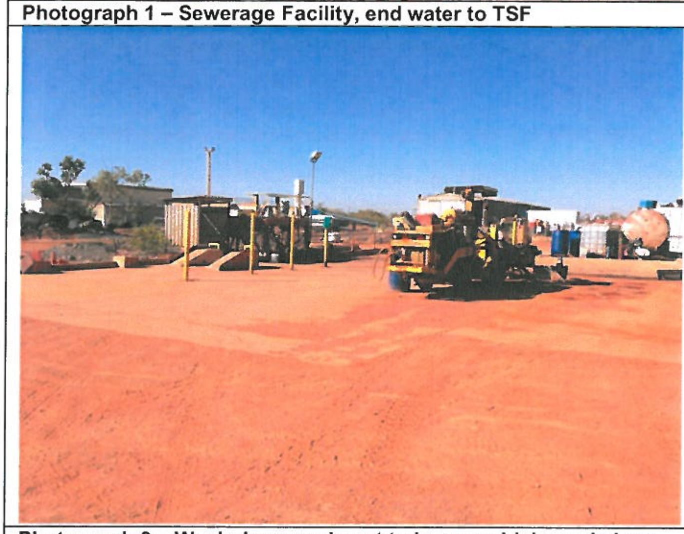
Date: 19 June 2014

Industry Regulation Environmental Compliance
Attachment 1 – Photographs

Government of **Western Australia**
Department of **Environment Regulation**

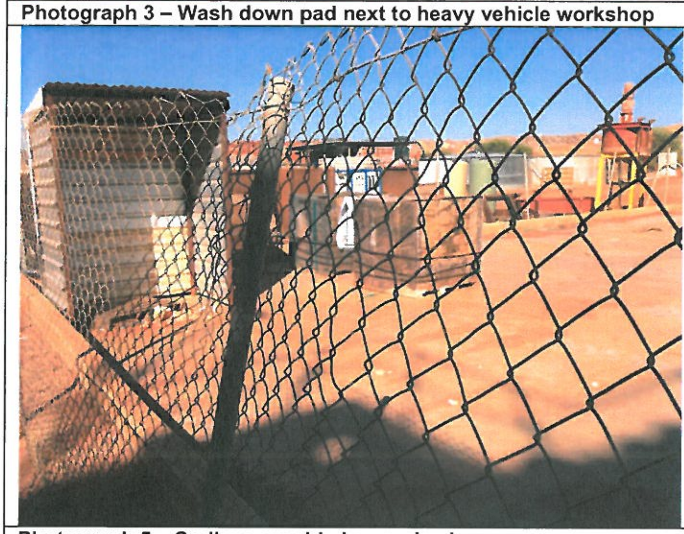
Photograph 1 – Sewerage Facility, end water to TSF

Photograph 2 – Vehicle workshop



Photograph 3 – Wash down pad next to heavy vehicle workshop

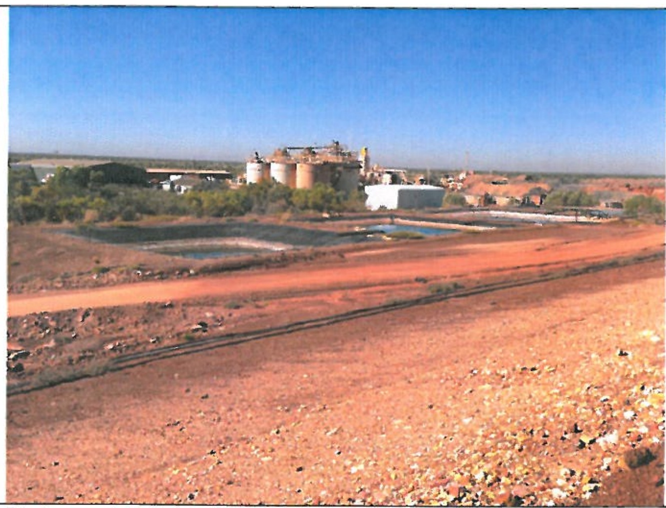
Photograph 4 – Water leak from an old unused leachate tank



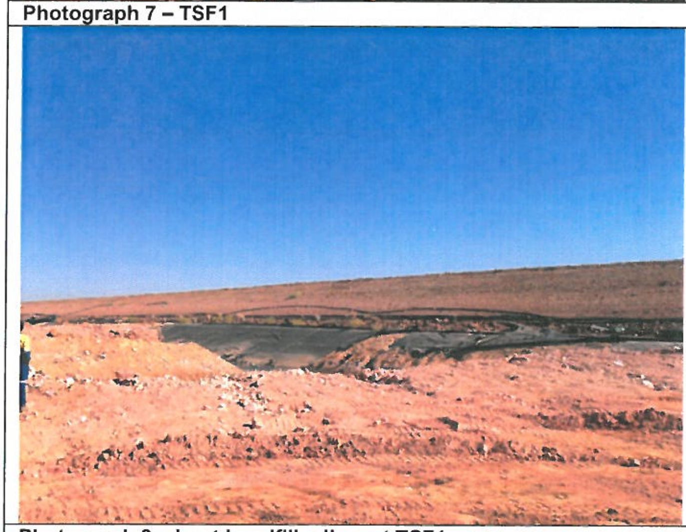
Photograph 5 – Sodium cyanide in wooden boxes

Photograph 6 – Previous ERT area

Photograph 7 – TSF1

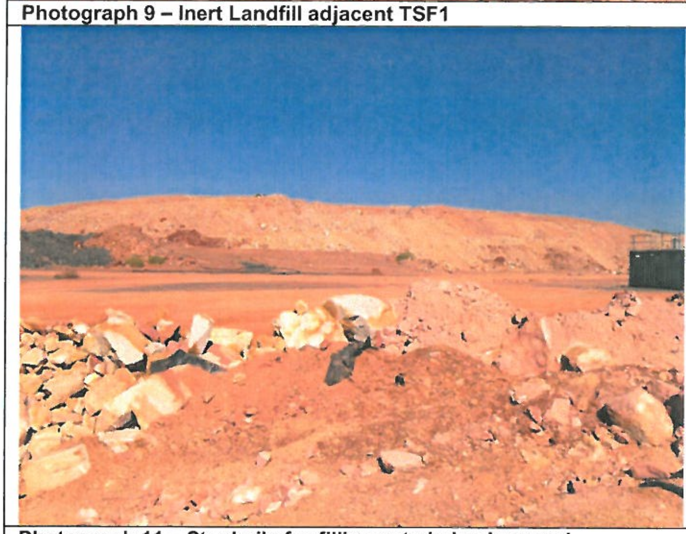


Photograph 8 – Process ponds



Photograph 9 – Inert Landfill adjacent TSF1

Photograph 10 – Vats for waste, located at edge of TSF1



Photograph 11 – Stockpile for filling vats in background

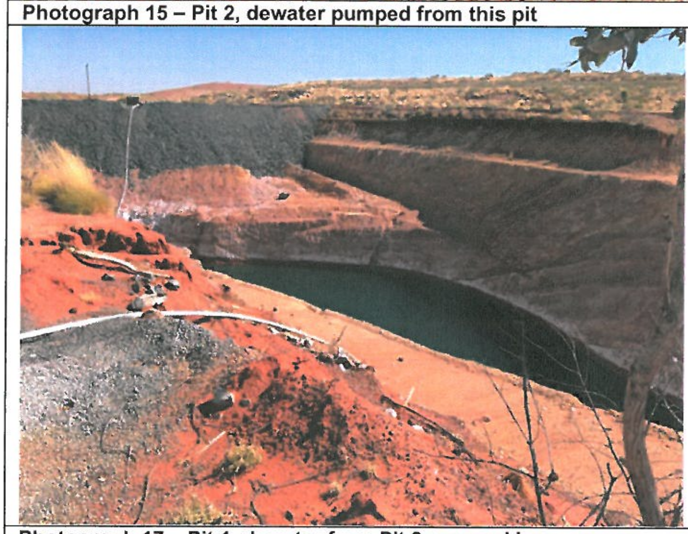
Photograph 12 – Used tyre burial location (none exposed)

Photograph 13 – Evaporation ponds

Photograph 14 – Evaporation ponds previous overflow location

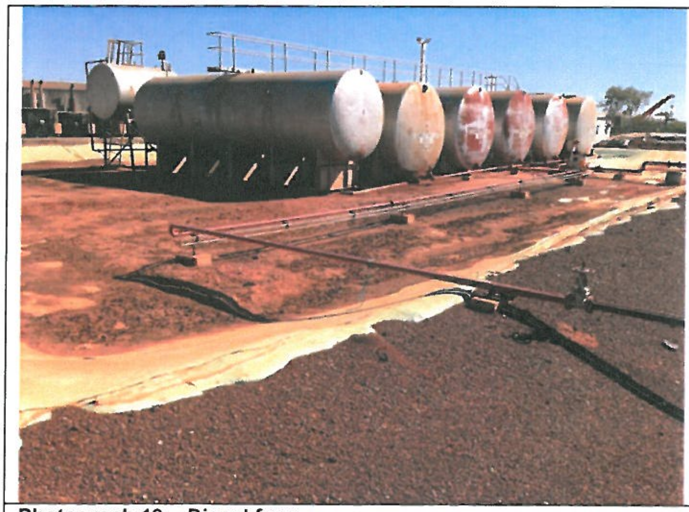
Photograph 15 – Pit 2, dewater pumped from this pit

Photograph 16 – Pit 2 pump station



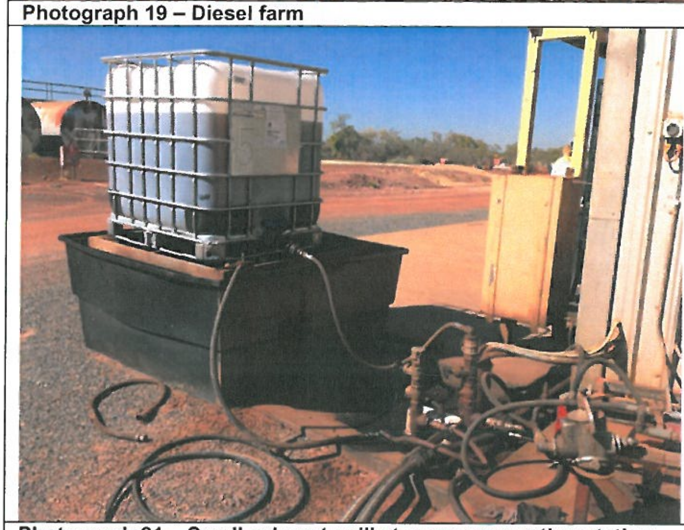
Photograph 17 – Pit 1, dewater from Pit 2 pumped in

Photograph 18 – Bioremediation pad



Photograph 19 – Diesel farm

Photograph 20 – Refuelling pad



Photograph 21 – Small exhaust spill at power generation station

6 March 2015

Department of Environment Regulation
Locked Bag 3, Cloisters Square
PERTH, WA 6850

Attention: **Eleanor Notley**
Environmental Compliance

Dear Eleanor,

MWH Australia Pty Ltd (MWH) has been engaged by Tanami Exploration NL (Tanami Exploration) to assist with coordinator of environmental compliance at the Tanami Gold Mine - Coyote Gold Project.

I refer to the DER Compliance Inspection Report (dated 27 November 2014, DER Ref 2011/002320) that was provided to Tanami Exploration following the DER Compliance Inspection at the Coyote Project on 19 June 2014. MWH provide the following response on behalf of Tanami Exploration to address compliance discrepancies as identified in **Section C** and **Section E** of the Compliance Inspection Report.

Yours sincerely

Melissa Younger
Senior Environmental Scientist

MWH Australia Pty Ltd

MWH Australia Pty Ltd
41 Bishop Street
Jolimont , WA 6014

TEL +61 (08) 9388 8799
FAX : +61 (08) 9388 8633
www.mwhglobal.com
ABN: 17 007 820 322

Condition	Action Items as assigned by DER	Tanami Response
1	Ensure that the active landfill is covered weekly as per the requirement of Condition 1 OR, The licensee should by 15 January 2015, make application to the DER Licensing Officer to consider an amendment to condition 1 to reflect the current low volume of waste being accepted at the landfill due to the care and maintenance status.	Moving forward, Tanami will ensure that the landfill facility is covered weekly in accordance with licence conditions. The volume of waste generated during care and maintenance was very low given that only two to three personnel remained onsite. The volume of waste is expected to increase once processing operations commence and a larger work force is mobilised to site. ABM Resources are proposing to lease the processing plant from Tanami Exploration for toll treating ore. Operations are expected to commence in the second quarter of 2015. The requirement to cover the landfill on a weekly basis has been reiterated to all site personnel and the Waste Management Procedure will be communicated.
3	Remove all putrescible waste from the inert landfill and dispose of this waste at the location depicted in Attachment 3 of the licence in accordance with condition 2 by 15 August 2014. Additionally, ensure that only inert waste is disposed of at the Class 1 Landfill in the future	Putrescible waste was removed from the inert landfill facility and the waste cage has been re-instated. (Plates 1 – 3 in Attachment A). Tanami will ensure that only inert waste will be disposed of at the Class 1 Landfill facility.
7	Provide the tyre disposal register and tyre disposal plan to the DER for review.	The tyre disposal register was provided in the 2013-2014 AER in Appendix D, however the register did not report the name of the person supervising tyre burial. Tanami have updated the register to ensure the name of the person supervising the tyre burial is recorded. The updated register template is attached and a map showing the tyre disposal locations and coordinate points for the burial locations is included in Attachment B.

8 (ii) & **(iii)**	Ensure that the bioremediation facility is tilled monthly and an appropriate soil moisture and nutrient content is maintained as per the requirements of condition 8.	At the time of the DER site visit, the Project was in care and maintenance and a small volume of soil (~ 5 m^3 disposed in 2014 and ~9 m^3 disposed on 2013) was located at the bioremediation facility. A procedure for managing the bioremediation pad has been developed to ensure that requirements of condition 8 are met.
9	Immediately begin recording the volumes of soil being added to the bio-remediation facility and if any soil is removed from the bioremediation the concentration of contamination should be determined	A bioremediation area register is maintained and tracks the volume of soil take to the bioremediation facility. A copy of the register is included in Attachment C. At the time of preparing the 2013-2014 AER the register was not able to be located due to a change in site personnel and the site moving not care and maintenance. The register has been re-established and care and maintenance personnel onsite have been made aware of the requirement to use this moving forward. A procedure for managing the bioremediation facility has been developed by Tanami to ensure that the soil has been adequately treated before being removed. Soil samples will be obtain and tested for total petroleum hydrocarbons prior to the soil being deemed 'treated' in accordance with the procedure.
13	Immediately comply with this condition and undertake all groundwater monitoring as required by Table 1 and provide an explanation as to why the required groundwater monitoring has not been completed. DER notes that this is an ongoing non-compliance and may consider further enforcement action.	During the previous annual environmental reporting period (2013/2014) the Coyote Project moved from operational status to care and maintenance. This significantly reduced the number of staff and trained personnel onsite which lead to a number of missed sampling events. Moving forward, Tanami Exploration engaged MWH Australia in August 2014 to assist with compliance monitoring. An annual groundwater sampling event was carried out in September 2014, results will be reported in the 2014/2015 Annual Environmental Report, due to be submitted by 30 April 2015. The 2015 March groundwater sampling event is scheduled for 12 March 2015. Results for this will be reported in the 2015/2016 annual environmental report.

		Tanami Exploration will continue monitoring as per licence conditions to ensure compliance is maintained.
15	Provide copies of the laboratory certificates for the sampling undertaken to the DER for review.	A copy of the laboratory certificates for the groundwater sampling event carried out in March 2013, July 2013, and September 2013 was included as Appendix F of the 2014 AER. Laboratory certificates for samples obtained in Sept 2014 will be included in the 2014/2015 AER.
16, 17 (ii) & 17 (iv)	Resubmit the Annual Environmental Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains monitoring data in tabular format and an assessment of the seepage recovery systems.	Tabulated results from March 2010 – March 2014 were provided in Appendix E of the AER. Tabulated results have now been included in the body text of the AER. Revised AER is appended. Please note changes to Executive Summary and sections 4.2, 4.2.1, and 5.
18	Resubmit the Annual Audit Compliance Report for the period 2 March 2013 to 1 March 2014 ensuring that it contains an accurate declaration of compliance throughout the reporting period.	Revised AACR is appended to the revised AER.
General Observations	Incident report and follow up actions for the overflow at the evaporation pond.	At the time of the event the incident was not reported. An internal incident report has been completed to highlight the event and a photo of the area are included in Attachment D The incident reporting system will be reviewed to ensure all personnel are aware of reporting requirements and management actions will be reviewed in response to incidents.

Attachment
Plates 1 - 3

Plate 1: Waste Cage reinstated

Plate 2: Waste Cage reinstated

Plate 3: Inert Landfill Facility – Putrescible waste removed

Attachment B

Tyre Disposal Register

Date	Central_Easting	Central_Northing	Total_Tyres_Buried	Name of Supervisor
20120713	482545.9884	7800295.494	100	
20120721	482544.5124	7800300.472	100	
20120728	482542.5169	7800307.991	100	
20120804	482579.3428	7800332.596	31	
20120808	482552.9974	7800300.033	13	
20120816	482552.0491	7800304.462	11	
20120821	482552.4696	7800304.242	16	
20120907	482556.5513	7800302.032	14	
20120913	482621.0091	7800322.018	6	
20120920	482552.9974	7800295.054	3	
20121007	482745.4719	7800326.447	6	
20121011	482561.4741	7800299.493	1	
20121104	482738.9824	7800323.458	13	
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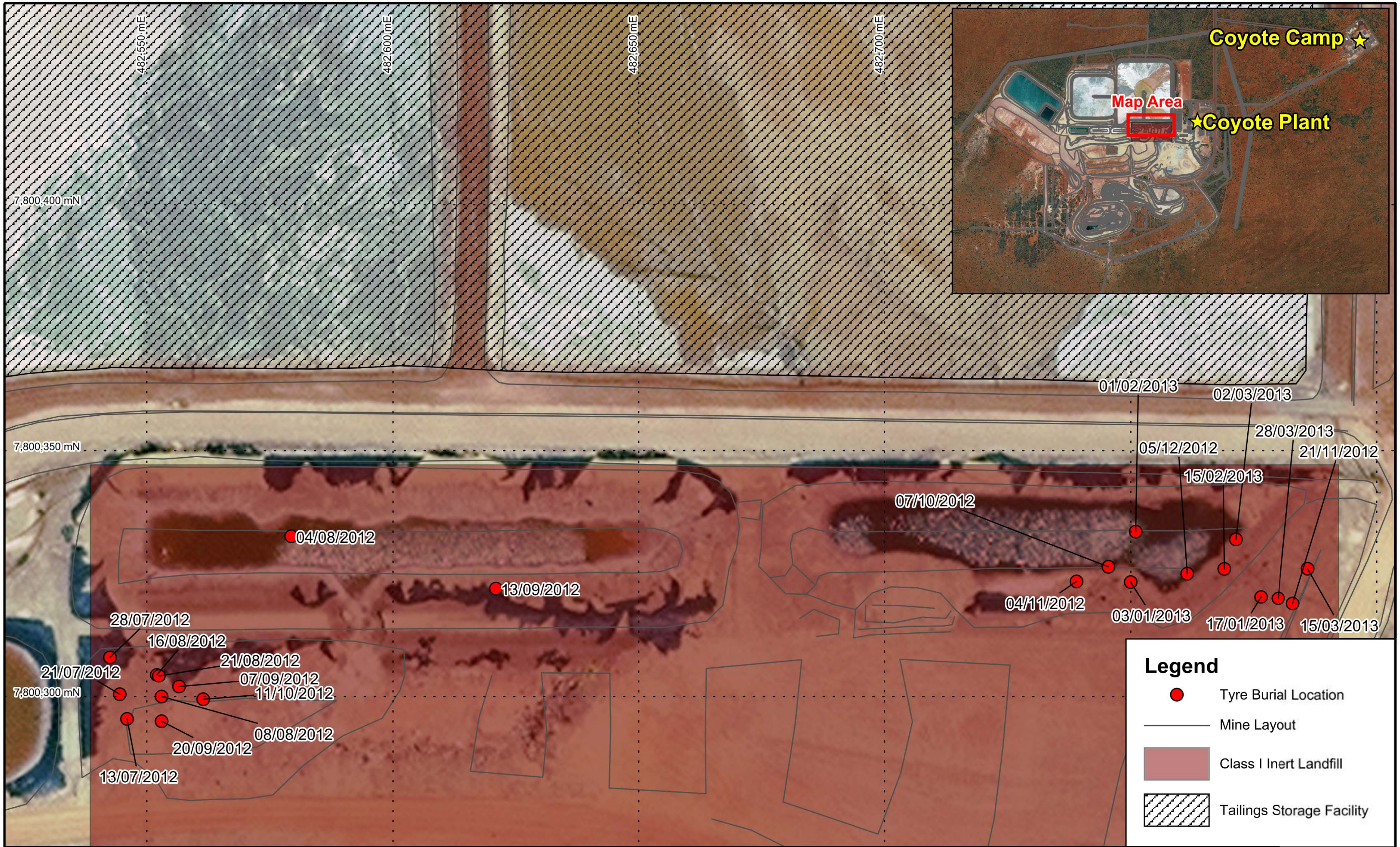
20121205	482761.4853	7800325.027	0	
20130103	482749.9741	7800323.358	22	
20130117	482776.4597	7800320.288	4	
20130201	482751.0048	7800333.536	23	
20130215	482768.9973	7800325.997	7	
20130302	482771.3391	7800331.966	37	
20130315	482786.0002	7800325.997	4	
20130328	482779.9972	7800319.999	20	
20130901	482749	7800315	6	
20130922	482739	7800321	17	



ORIGINATOR:	DATE:	DRAWN:	Coyote	PLAN No: CY-ST-MAP-ENV-0003
D. Radovic	2013-04-05	R. Chan		

10 0 10 20 metres — Scale 1:1,000

MGA Zone 52 (GDA94) Paper Size: A4

N

Coyote Tyre Burial Map

TANAMI GOLD NL

Attachment C
Bioremediation Area Register

Bioremediation Area Register.

ID Number	Date	Time	Taken to Bio Remediation Area (m3)	Contamian Spilled (L)	Name	Actions taken
0001	21/7/11	09:00	·5 m³	20	Craig	Washdown Pad.
0002	10/8/11	12 00	1m³	15	Chris	
0003	21/8/11	1300	3m³	—	Craig-Tim	Washdown Pad
0004	12/10/11	9·00	2m³	—	Tim-Craig	
0005	21/10/11	4·00	1m³	—	Tim	—
0006	10/11/11	7·00	2m³	—	Craig	—
0007	24/11/11	12 00	1m³	—	Craig Tim	Workshops
0008	27/11/11	4·00	3m²	—	Tim	washdown
0009	30/11/11	2·00	1m	—	Chris/Ryan	Batch plant
0010	10/12/11		2m³		Brian	"
0011	15/12/11		3m³	—	Tim-Craig	Washdown Pad
0012	24/12/11		5m³	—	Craig	Washdown Pad
0013	3/1/12		1m³		Tim	Workshop
0014	20/1/12		2m³		Craig Brian	Under Sub Station
0015	4/1/12		3m²		Ryan	Washdown
0016	18/1/12		4m³		Craig, Tim	Washdown
0017	28/1/12		1m³		Brian	Dig out for Concrete
0018	10/2/12		1m³		craig	Mill
0019	16/1/12		4m³		Craig	Oil Drum Bund
0020	2/2/12		10m³		Tim/Craig	Turkeys Nest
0021	4/2/12		5m³		craig	Turkeys Nest
0022	10/3		1m³		Tim	Workshop
0023	20/3		2m³		Brian	Washdown Pad
0024	16/4/12		3m³		Jason	Elec Workshop
0025	16/4/12		·5m³		Jarrod	Oil Seperator
0026	5/8/12		2m³		Tim	Diesel Spill
0027	2/9/12		2m³		Craig	Wash Down
0028	13/10/12		3m³		Craig	Wash Down

0029	15/11/12		2 m³	—	Craig	Wash Down
0030	1/1/13		3 m³	—	craig	Wash Down
0031	13/1/13		1 m³	—	Ian	Fuel Farm
0032	15/2/13		2 m³	—	Tim	Washdown
0033	10/3/13		3 m3	—	Craig	oil Pad Bund.
0034	21/2/14		2 m3	—	craig	Wash Down
0035	11/4/14		1 m³	—	craig	wash Down
0036	11/7/14		1 m3	—	craig	Wash Down Pad
0037	13/2/14		1 m³	—	craig	wash down Pad
0038						
0039						
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Attachment D
Incident Report

Tanami Gold Incident Reporting Form

TANAMI GOLD NL

REF#:	☐ Central Tanami	☑ Coyote	INCIDENT DETAILS - Part A: Notification of Occurrence To be completed before the end of shift

1.0 EMPLOYEE INVOLVED AND/OR EQUIPMENT DETAILS

Surname:	VISKOVICH	First Name:	MAX
Dept./Company:	TG NL	Position:	REGISTERED MANAGER
Equipment Type:		Equipment Number:	
Supervisor's Name:		Title/Position:	

2.0 DETAILS OF INCIDENT

Date & Time of Incident:	21/1/14 7:00 AM	Date & Time Reported:	
Reported by:	MAX VISKOVICH	Reported to:	
Location of Incident:	EVAP DAM	Witness to Incident:	

2.1 Incident Classification:

INCIDENT	☐	HAZARD	☐	INJURY/ILLNESS (Please complete section 2.2)	☐
NEAR MISS	☐	DAMAGE	☐	ENVIRONMENTAL (Please complete section 2.3)	☑

2.2 Injury/Illness Classification: Type of Injury:

To be completed by the Site Paramedic

Nil Injury (Report Only)	☐	Head/Face	☐	Foreign Body	☐	Burn	☐
FAC	☐	Eyes	☐	Laceration	☐	Electric Shock	☐
MTC	☐	Neck/Back	☐	Bruising/Soft Tissue	☐	Other (please describe)	☐
RWC	☐	Arm/Hand	☐	Sprain/Strain	☐		
LTC	☐	Leg/Foot	☐	Respiratory Inhalation	☐		

2.3 Severity of Environmental Occurrence: Type of Occurrence:

To be completed by the Department Manager or Designate

Insignificant (Minor if any remedial action)	☐	Comments:	Spill	☑
Minor (Localised – minimal detrimental effects)	☑		Flora	☐
Moderate (Localised – with detrimental effects)	☐		Fauna	☐
Major (Major detrimental effects)	☐		Contamination	☐
Catastrophic (Irreparable & Long Term effects)	☐		Over Clearing	☐

3.0 INCIDENT DESCRIPTION

A SECTION OF THE SETTLING POND WALL AT THE EVAP DAM HAD BEEN ERODED AWAY BY HEAVY RAIN AND WATER FROM THE SETTLING POND WAS OVERFLOWING

3.1 Immediate actions taken to provide immediate control of the situation

LIFTED LINER AND FILLED THE TRENCH ERODED BY WATER. TO STOP THE OVERFLOW.

4.0 ACTUAL INCIDENT RISK RANKING

(Risk Ranking to be conducted in conjunction with Tanami Gold Risk Matrix Tool)

Probability:	2	Exposure:	2
Consequence:	4	Risk Ranking:	4

4.1 Potential Incident Risk Ranking

(Risk Ranking to be conducted in conjunction with Tanami Gold Risk Matrix Tool)

Probability:	AS ABOVE	Exposure:	
Consequence:		Risk Ranking:	

5.0 FRONT PAGE REVIEW (TO BE REVIEWED BY DEPARTMENT MANAGER OR ALTERNATE)

Name: M. VISKOVICH	Signature: MV	Position: Manager

Serious or High Potential Incident? Y ☐ N ☑ | Significant Occurrence to be reported to Department of Minerals And Petroleum? Y ☐ N ☑ NA ☐

- Incident Details to be completed and signed off by the Department Manager prior to the next Heads of Department Meeting (Details to be discussed with HODs).
- Front page to be provided to Health & Safety Department for distribution.

INCIDENT INVESTIGATION DETAILS - Part B: Incident Investigation
To be completed within 72hrs of the Incident Occurring

6.0 INCIDENT INVESTIGATION

Investigation Team Leader		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	
Investigation Team Member		Position	

6.1 Shift Details

Length (e.g. 12hrs):	Type (e.g. Night):	Days into Roster:	Hours Into Shift:

6.2 Attachments / Evidence:

Sketches ☐	Photos ☑	Plans ☐	Technical Records ☐	Survey Drawings ☐
Employee Statements ☐	Work Procedures ☐	Training Records ☐	Maintenance Records ☐	Procedures ☐

7.0 CONTRIBUTING FACTORS / HAZARDS

7.1 Equipment Used

1. Was the equipment under power (electric or mechanical)?	Y ☐ N ☐ NA ☐	2. Was the equipment used outside of normal operating range?	Y ☐ N ☐ NA ☐
3. Were there exposed pinch and nip points?	Y ☐ N ☐ NA ☐	4. Were guards or barriers inadequate or removed?	Y ☐ N ☐ NA ☐
5. Was maintenance completed regularly?	Y ☐ N ☐ NA ☐	6. Did the equipment fail?	Y ☐ N ☐ NA ☐
7. Was the equipment secured?	Y ☐ N ☐ NA ☐	8. Was the equipment defective?	Y ☐ N ☐ NA ☐
9. Were the tools the correct tools for the task?	Y ☐ N ☐ NA ☐	10. Were there inadequate Warning Systems?	Y ☐ N ☐ NA ☐
11. Were there fire or explosive hazards?	Y ☐ N ☐ NA ☐	12. Are there any other equipment issues?	Y ☐ N ☐ NA ☐

Detail Contributing Factors and Evidence to support:

7.2 The Work Environment

1. Was the operator aware of the work environment?	Y ☐ N ☐ NA ☑	2. Was there excessive sunlight / glare?	Y ☐ N ☐ NA ☑
3. Were the surfaces wet, slippery, uneven or rough?	Y ☐ N ☐ NA ☑	4. Was the lighting adequate?	Y ☐ N ☐ NA ☑
5. Was there rainfall / water involved?	Y ☑ N ☐ NA ☒	6. Was excessive noise a factor?	Y ☐ N ☐ NA ☑
7. Was the ventilation adequate?	Y ☐ N ☐ NA ☑	8. Were there temperature or humidity extremes?	Y ☐ N ☐ NA ☑
9. Was dust, fumes or smoke present at the time?	Y ☐ N ☐ NA ☑	10. Was there poor housekeeping or disorder?	Y ☐ N ☐ NA ☑
11. Was "Work at Height" involved in the incident?	Y ☐ N ☐ NA ☑	12. Was there adequate space / area for the task?	Y ☐ N ☐ NA ☐

Detail Contributing Factors and Evidence to support:

7.3 Actions of People

1. Was the person trained and deemed competent to operate the equipment?	Y ☐ N ☐ NA ☑	2. Was a "Workplace Inspection" carried out by the operator/s?	Y ☐ N ☐ NA ☑
3. Was drug and alcohol testing conducted on the person involved?	Y ☐ N ☐ NA ☑	4. Inadequate Communication (Including failure to warn)?	Y ☐ N ☐ NA ☑
5. Was the equipment operated without authority?	Y ☐ N ☐ NA ☑	6. Was the operator / person instructed about task?	Y ☐ N ☐ NA ☑
7. Was the equipment operating at improper speed?	Y ☐ N ☐ NA ☑	8. Was the training appropriate and adequate?	Y ☐ N ☐ NA ☑
9. Were "Pre Start Checks" carried out?	Y ☐ N ☐ NA ☑	10. Did the operator make safety devices inoperative?	Y ☐ N ☐ NA ☑
11. Was there "horseplay" involved?	Y ☐ N ☐ NA ☑	12. Was the person inexperienced?	Y ☐ N ☐ NA ☑
13. Was the employee Wearing PPE?	Y ☐ N ☐ NA ☑	14. Was the PPE inadequate or improper?	Y ☐ N ☐ NA ☑
15. Was the employee wearing PPE that failed to protect?	Y ☐ N ☐ NA ☑	16. Was "unassisted" manual handling involved?	Y ☐ N ☐ NA ☑
17. Did personal issues or deficiencies contribute?	Y ☐ N ☐ NA ☑	18. Were directions / instructions misunderstood?	Y ☐ N ☐ NA ☑

Detail Contributing Factors and Evidence to support:

7.4 The Work Method

1. Were permits to work required or obtained and approved?	Y ☐ N ☐ NA ☑	2. Was the person operating equipment without authority?	Y ☐ N ☐ NA ☑
3. Was there a Work Procedure used?	Y ☐ N ☐ NA ☑	4. Was the Work Procedure followed?	Y ☐ N ☐ NA ☑
5. Were isolation procedures followed?	Y ☐ N ☐ NA ☑	6. Did the person receive instruction & supervision?	Y ☐ N ☐ NA ☑
7. Was there a JHA completed prior to the task commencing?	Y ☐ N ☐ NA ☑	8. Was the person given inadequate policy guidelines or standards to follow?	Y ☐ N ☐ NA ☑
9. Was there a lack of supervision or job knowledge?	Y ☐ N ☐ NA ☑	10. Failure to identify a hazard?	Y ☐ N ☐ NA ☑
11. Failure to conduct a risk assessment?	Y ☐ N ☐ NA ☑	12. Was lack of communication a factor?	Y ☐ N ☐ NA ☑
13. Inadequate planning?	Y ☐ N ☐ NA ☑	14. Incorrect use of equipment?	Y ☐ N ☐ NA ☑
15. Did the supervisor lack knowledge of the task?	Y ☐ N ☐ NA ☑		

Detail Contributing Factors and Evidence to support:

7.5 The Materials Used

1. Were there chemicals involved?	Y ☐ N ☐ NA ☑	2. Was an MSDS available? (If applicable)	Y ☐ N ☐ NA ☑
3. Was the emergency response team required?	Y ☐ N ☐ NA ☑	4. Was the chemical hazardous to personnel?	Y ☐ N ☐ NA ☑
5. Was there an environmental release (spill) involved?	Y ☐ N ☐ NA ☑	6. Was the chemical hazardous to the environment?	Y ☐ N ☐ NA ☑
7. Was the chemical flammable?	Y ☐ N ☐ NA ☑	8. Fire or explosive hazards?	Y ☐ N ☐ NA ☑
9. Were chemicals stored and handled correctly?	Y ☐ N ☐ NA ☑		

Detail Contributing Factors and Evidence to support:

8.0 INCIDENT CAUSES

8.1 Immediate Causes (Contributing Factors)

THE HIGH WATER LEVEL IN THE SETTLING POND AND WIND CAUSED THE WATER TO BREACH THE WALL ON THE WESTERN END OF THE EVAP DAM & DUE TO THE HIGH RAINFALL WE EXPERIENCED ~ 325mm IN THE PAST 7 DAYS. THE IMMEDIATE AREA AROUND THE EVAP DAM WAS ALREADY FLOODED PRIOR TO THE BREACH SO IT WAS IMPOSSIBLE TO TELL HOW MUCH WATER HAD FLOWED FROM THE SETTLING POND WHEN THE BREACH WAS DISCOVERED

8.2 Basic or Root Causes (The fundamental system deficiencies underpinning the Immediate Causes)

HIGH WATER LEVEL IN THE POND - DUE TO EXTREME RAIN FALL

8.3 Cost Analysis (To be completed by the Resident Manager)

Property Damage	☐	$	Near Miss	☐	$	Personal Injury	☐	$
Equipment / Vehicle	☐	$	Production Loss	☐	$	Other	☐	$

9.0 PREVENTATIVE ACTIONS

Preventative Action *(Each contributing factor should have a Preventative Action)*	Responsible Person	Close Out Date	CAR #

10.0 CLOSE OUT AND REVIEW

10.1 Supervisor or Contractor Manager (Please review investigation and detail comments) If applicable

Name:		Signature:		Date:	

10.2 Department Manager or Alternate (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.3 Health & Safety Manager or Alternate (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.4 Employee Involved in the Incident (Please review investigation and detail comments)

Name:		Signature:		Date:	

10.5 Registered Manager or Alternate (Please review investigation and detail comments)

THE INCIDENT WAS DIFFICULT TO PREDICT, PREVENT OR ASSESS THE SIZE OF THE SPILL DUE TO THE VERY HIGH RAIN FALL

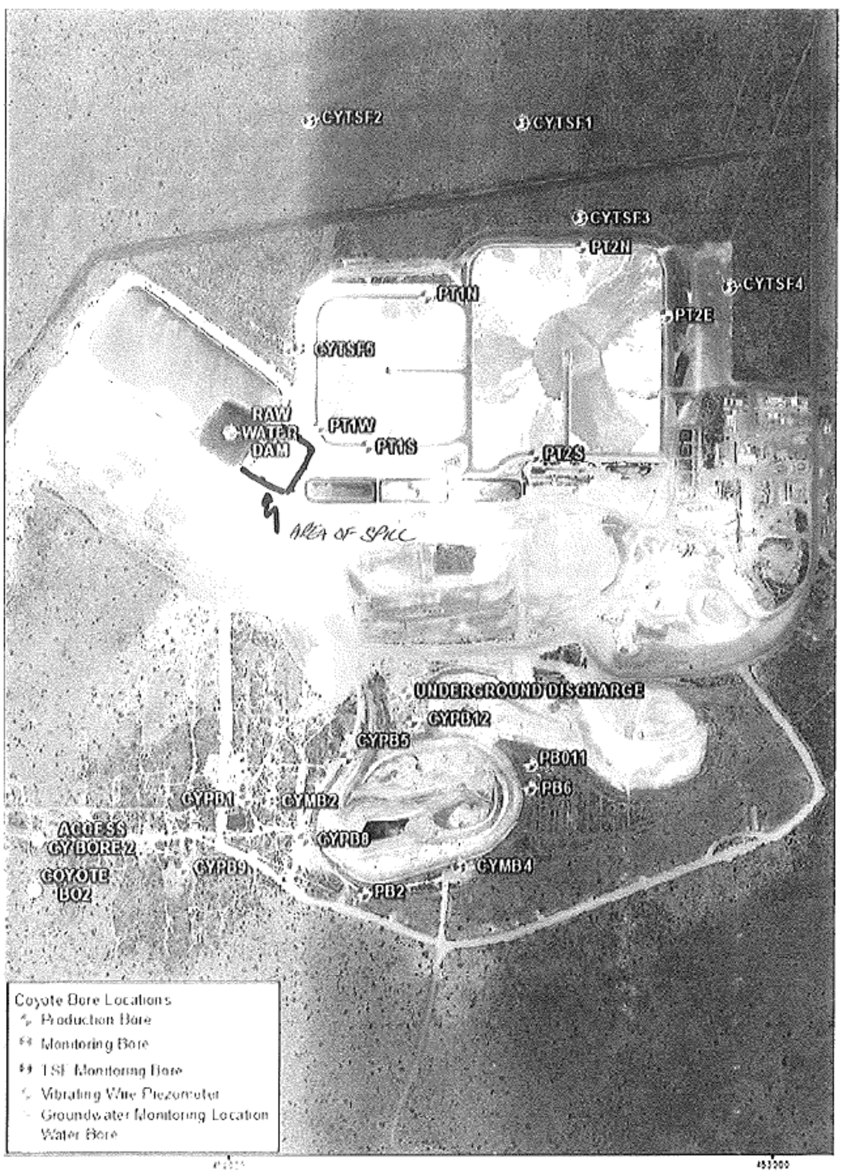
Name:	M. VISKOVICH	Signature:	[signature]	Date:	21/1/14

LIKELIHOOD – Probability of Harm / Loss

	2	3	4	5	6
d to	Remote Potential May occur only in exceptional circumstances	Possible Could occur at some time	Probable Expected to occur at some time	Frequent Likely to occur regularly	Highly Likely Ever present, occurs in most circumstances
	2	3	4	5	6
	4	6	8	10	12
	6	9	12	15	18
	8	12	16	20	24
	10	15	20	25	30
	12	18	24	30	36

LOW 1-4	Any hazard that has this risk ranking is generally acceptable. The work environment and methodology presents minimal risks to personnel. As a Risk Control measure employees should at least be informed that this hazard potential inclusive of use of workplace signage. Risk is reduced by use of existing systems of work, with well-designed and maintained plant and equipment
MEDIUM 6-16	Significant risk issues requiring intervention by Management and Workforce Consultation to control methods of work performance, design, employment conditions, financial controls and other Project-control.
HIGH 18-36	Hazards of this risk ranking are beyond effective administrative Management and 'must be avoided' by ELIMINATION, substitution, isolation or engineering control

Plate 1: Image showing area affected by overflow.



Appendix C Tyre Disposal Register

Date	Central_Easting	Central_Northing	Total_Tyres_Buried	Name of Supervisor	Tyres covered by minimum of 500 mm of cover material (Y/N)	Batches of tyres seperated by at least 100 mm of soil (Y/N)	Batches less than 100 tyres (Y/N)
20120713	482545.9884	7800295.494	100				
20120721	482544.5124	7800300.472	100				
20120728	482542.5169	7800307.991	100				
20120804	482579.3428	7800332.596	31				
20120808	482552.9974	7800300.033	13				
20120816	482552.0491	7800304.462	11				
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20130302	482771.3391	7800331.966	37				
20130315	482786.0002	7800325.997	4				
20130328	482779.9972	7800319.999	20				
20130901	482749	7800315	6				
20130922	482739	7800321	17				
20140317	482730	7800320	9				
20141019	482730	7800325	5				

Appendix D Bioremediation Area Register

Bioremediation Area Register.

ID Number	Date	Time	Taken to Bio Remediation Area (m3)	Contamian Spilled (L)	Name	Actions taken
0001	21/7/11	09:00	·5 m^3	20	Craig	Washdown Pad.
0002	10/8/11	12 00	1m^3	15	Chris	
0003	21/8/11	1300	3m^3	–	Craig-Tim	Washdown Pad
0004	12/10/11	9·00	2m^3	–	Tim-Craig	
0005	21/10/11	4·00	1m^3	–	Tim	–
0006	10/11/11	7·00	2m^3	–	Craig	–
0007	24/11/11	12 00	~~[illegible]~~ 1m^3	–	Craig Tim	Workshops
0008	27/11/11	4·00	3m^2	–	Tim	washdown.
0009	30/11/11	2·00	1m	–	Chris/Ryan	Batch plant.
0010	10/12/11		2m^3		Brian	"
0011	15/12/11		3m^3	–	Tim-Craig	Washdown Pad
0012	24/12/11		5m^3	–	Craig	Washdown Pad
0013	5/1/12		1m^3		Tim	Workshop
0014	20/1/12		2m^3		Craig Brian	Under Sub Station
0015	4/1/12		3m^2		Ryan	Washdown
0016	18/1/12		4m^3		Craig Tim	Washdown
0017	28/1/12		1m^3		Brian	Dig out for Concrete
0018	10/2/12		1m^3		Craig	Mill
0019	16/1/12		4m^3		Craig	Oil Drum Bund
0020	2/2/12		10m^3		Tim/Craig	Turkeys Nest
0021	4/2/12		5m^3		Craig	Turkeys Nest
0022	10/3		1m^3		Tim	Workshop
0023	20/3		2m^3		Brian	Washdown Pad
0024	16/4/12		3m^3		Jason	Elec Workshop.
0025	16/4/12		·5m^3		Jarrod	Oil Seperator
0026	5/8/12		2m^3		Tim	Diesel Spill
0027	2/9/12		2m^3		Craig	Wash Down
0028	13/10/12		3m^3		Craig	Wash Down.

0029	15/11/12		2 m^3	–	Craig	Wash Down
0030	1/1/13		3 m^3	–	craig	Wash Down
0031	12/1/13		1 m^3	=	Ian	Fuel Farm
0032	15/2/13		2 m^3	–	Tim	Washdown
0033	10/3/13		3. m3	–	Craig	oil. Pad Bund.
0034	21/2/14		2 m3	–	craig	Wash Down
0035	11/4/14		1 m^3	–	craig	wash Down
0036	11/7/14		1 m3	=	craig	Wash Down Pad
0037	13/2/14		1 m^3	=	craig	wash down Pad
0038						
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Appendix E Laboratory Report

Analytical Reference Laboratory

LABORATORY REPORT

Job Number:	14-6411
Revision:	01
Date:	8 October 2014

ADDRESS: **MWH Australia Pty Ltd**
Level 21, 28 Freshwater Place
SOUTHBANK VIC 3006

ATTENTION: Melissa Younger

DATE RECEIVED: 17/09/2014

YOUR REFERENCE: Tanami Gold - Coyote

PURCHASE ORDER:

APPROVALS:

Kim Rodgers
General Manager

REPORT COMMENTS:

Samples are analysed on an as received basis unless otherwise noted.
Tungsten subcontracted to ALS, NATA Accred No. 825, Report Number EP1407569

METHOD REFERENCES:

ARL No. 29/402/403	Metals in Water by AAS/ICPOES/ICPMS
ARL No. 039	Mercury by Cold Vapour Atomic Absorption
ARL No. 029	Metals in Water by AAS
Subcontracting	See Report Comments section for more information.
ARL No. 308	Total Phosphorus in Water by Discrete Analyser
ARL No. 305	Chloride in Water by Discrete Analyser
ARL No. 043	Fluoride in Water
ARL No. 301	Sulphate in Water by Discrete Analyser
ARL No. 315	Reactive Silica in Water by Discrete Analyser
ARL No. 313	NOx in Water by Discrete Analyser
ARL No. 311	Nitrite in Water by Discrete Analyser
ARL No. 037	Alkalinity in Water
ARL No. 017	Total Dissolved Solids (At 105^{o}C)
ARL No. 063	Total Cyanide by Distillation
ARL No. 062	Weak Acid Dissociable Cyanide in Water

NATA
WORLD RECOGNISED ACCREDITATION
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NATA Accreditation No. 2377

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www.arlwa.com.au ABN: 91 050 159 898

LABORATORY REPORT
MWH Australia Pty Ltd
ARL Job No: *14-6411* *Revision:* *01* *Date:* 8 October 2014

ARL Analytical Reference Laboratory

Metals in Water Sample No: Sample Description:	LOR	UNITS	14-6411-1 CYTSF01	14-6411-2 CYTSF02	14-6411-3 CYTSF05	14-6411-4 Raw Water Dam	14-6411-5 Underground Discharge
Arsenic - Total	0.001	mg/L	<0.001	<0.001	<0.001	0.74	0.54
Aluminium - Dissolved	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium - Total	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium - Dissolved	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium - Total	0.01	mg/L	0.07	0.03	<0.01	<0.01	<0.01
Chromium - Dissolved	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Copper - Total	0.01	mg/L	0.03	0.02	<0.01	<0.01	<0.01
Copper - Dissolved	0.01	mg/L	0.02	0.01	<0.01	<0.01	<0.01
Mercury - Total	0.0002	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel - Total	0.01	mg/L	0.05	0.02	<0.01	<0.01	<0.01
Nickel - Dissolved	0.01	mg/L	0.02	<0.01	<0.01	<0.01	<0.01
Lead - Dissolved	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Lead - Total	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc - Total	0.01	mg/L	0.04	0.02	0.02	0.34	0.70
Boron - Total	0.01	mg/L	2.3	1.9	2.3	1.7	1.4
Boron - Dissolved	0.01	mg/L	2.3	1.9	2.2	1.6	1.4
Barium - Total	0.01	mg/L	0.03	0.03	0.02	0.02	0.02
Barium - Dissolved	0.01	mg/L	0.03	0.03	0.02	0.02	0.02
Beryllium - Total	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth - Total	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium - Total	0.1	mg/L	380	480	310	170	170
Calcium - Dissolved	0.1	mg/L	340	450	290	160	160
Iron - Total	0.01	mg/L	2.6	1.5	0.87	0.54	0.53
Potassium - Total	0.1	mg/L	490	350	470	200	180
Potassium - Dissolved	0.1	mg/L	450	340	470	190	180
Magnesium - Total	0.1	mg/L	840	900	780	430	380
Magnesium - Dissolved	0.1	mg/L	750	890	730	410	340
Sodium - Total	0.1	mg/L	4,700	5,400	5,000	3,700	3,100
Sodium - Dissolved	0.1	mg/L	3,600	5,400	4,500	3,300	3,100
Manganese - Total	0.01	mg/L	0.03	0.01	0.04	0.11	0.10
Manganese - Dissolved	0.01	mg/L	0.02	<0.01	0.03	0.09	0.09
Molybdenum - Total	0.01	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Antimony - Total	0.001	mg/L	<0.001	<0.001	<0.001	0.001	0.002
Selenium - Total	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Tin - Total	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium - Total	0.01	mg/L	8.1	8.5	8.0	2.7	2.7
Uranium - Total	0.001	mg/L	0.22	0.18	0.19	0.084	0.074
Tungsten - Total	0.001	mg/L	0.001	0.001	<0.001	<0.001	<0.001

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Analytical Reference Laboratory

LABORATORY REPORT

MWH Australia Pty Ltd

ARL Job No: 14-6411 *Revision: 01* *Date:* 8 October 2014

Metals in Water Sample No: Sample Description:	**LOR**	**UNITS**	**14-6411-6 RO Water**	**14-6411-7 Roadrunner Bore**
Arsenic - Total	0.001	mg/L	0.006	0.007
Cadmium - Total	0.002	mg/L	<0.002	<0.002
Chromium - Total	0.01	mg/L	<0.01	<0.01
Copper - Total	0.01	mg/L	<0.01	<0.01
Mercury - Total	0.0002	mg/L	<0.0002	<0.0002
Nickel - Total	0.01	mg/L	<0.01	<0.01
Lead - Total	0.01	mg/L	<0.01	<0.01
Zinc - Total	0.01	mg/L	0.10	<0.01
Boron - Total	0.01	mg/L	0.47	0.53
Barium - Total	0.01	mg/L	<0.01	0.10
Beryllium - Total	0.01	mg/L	<0.01	<0.01
Bismuth - Total	0.001	mg/L	<0.001	<0.001
Calcium - Total	0.1	mg/L	8.4	330
Iron - Total	0.01	mg/L	<0.01	3.8
Potassium - Total	0.1	mg/L	6.4	110
Magnesium - Total	0.1	mg/L	6.0	310
Sodium - Total	0.1	mg/L	55	1,300
Manganese - Total	0.01	mg/L	<0.01	0.24
Molybdenum - Total	0.01	mg/L	<0.01	<0.01
Antimony - Total	0.001	mg/L	<0.001	<0.001
Selenium - Total	0.001	mg/L	<0.001	<0.001
Tin - Total	0.01	mg/L	<0.01	<0.01
Strontium - Total	0.01	mg/L	0.02	3.7
Uranium - Total	0.001	mg/L	0.001	0.002
Tungsten - Total	0.001	mg/L	<0.001	<0.001

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LABORATORY REPORT

MWH Australia Pty Ltd

ARL Job No: 14-6411 *Revision: 01* *Date:* 8 October 2014

Analytical Reference Laboratory

Total Phosphorus in Water Sample No: Sample Description:	LOR	UNITS	14-6411-1 CYTSF01	14-6411-2 CYTSF02	14-6411-3 CYTSF05	14-6411-4 Raw Water Dam	14-6411-5 Underground Discharge
Total Phosphorus	0.01	mg/L	0.35	0.23	0.36	0.57	0.65

Total Phosphorus in Water Sample No: Sample Description:	LOR	UNITS	14-6411-6 RO Water	14-6411-7 Roadrunner Bore
Total Phosphorus	0.01	mg/L	0.01	0.68

Ions by Discrete Analyser Sample No: Sample Description:	LOR	UNITS	14-6411-1 CYTSF01	14-6411-2 CYTSF02	14-6411-3 CYTSF05	14-6411-4 Raw Water Dam	14-6411-5 Underground Discharge
Chloride	5	mg/L	6,700	7,500	6,800	4,500	4,000
Fluoride	0.2	mg/L	3.8	3.6	4.1	2.8	2.6
Sulphate	3	mg/L	4,300	4,600	3,800	3,100	2,700
Reactive Silica	0.1	mg/L	30	32	25	19	16
Nitrate-N	0.01	mg/L	1.1	0.92	1.8	2.6	4.1
Nitrite-N	0.01	mg/L	<0.01	<0.01	<0.01	0.09	<0.01

Ions by Discrete Analyser Sample No: Sample Description:	LOR	UNITS	14-6411-6 RO Water	14-6411-7 Roadrunner Bore
Chloride	5	mg/L	76	3,000
Fluoride	0.2	mg/L	<0.2	1.1
Sulphate	3	mg/L	15	1,400
Reactive Silica	0.1	mg/L	0.7	44
Nitrate-N	0.01	mg/L	0.19	<0.01
Nitrite-N	0.01	mg/L	<0.01	<0.01

Physical Parameters Sample No: Sample Description:	LOR	UNITS	14-6411-1 CYTSF01	14-6411-2 CYTSF02	14-6411-3 CYTSF05	14-6411-4 Raw Water Dam	14-6411-5 Underground Discharge
Alkalinity	5	mgCaCO3/L	660	530	900	460	440
Bicarbonate (HCO_3^-)	5	mgCaCO3/L	660	530	900	460	440
Carbonate (CO_3^{2-})	5	mgCaCO3/L	<5	<5	<5	<5	<5
Hydroxide (OH^-)	5	mgCaCO3/L	<5	<5	<5	<5	<5
Total Dissolved Solids	5	mg/L	16,000	17,000	15,000	11,000	9,500

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LABORATORY REPORT

MWH Australia Pty Ltd

ARL Job No: 14-6411 _Revision: 01_ _Date:_ 8 October 2014

Analytical Reference Laboratory

Physical Parameters Sample No: Sample Description:	LOR	UNITS	14-6411-6 RO Water	14-6411-7 Roadrunner Bore
Alkalinity	5	$mgCaCO_3/L$	20	180
Bicarbonate (HCO_3^-)	5	$mgCaCO_3/L$	20	180
Carbonate (CO_3^{2-})	5	$mgCaCO_3/L$	<5	<5
Hydroxide (OH^-)	5	mgCaCO3/L	<5	<5
Total Dissolved Solids	5	mg/L	140	6,300

Misc. Inorganics in Water Sample No: Sample Description:	LOR	UNITS	14-6411-1 CYTSF01	14-6411-2 CYTSF02	14-6411-3 CYTSF05	14-6411-4 Raw Water Dam	14-6411-5 Underground Discharge
Cyanide - Total	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
WAD Cyanide	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01

Misc. Inorganics in Water Sample No: Sample Description:	LOR	UNITS	14-6411-6 RO Water	14-6411-7 Roadrunner Bore
Cyanide - Total	0.01	mg/L	<0.01	<0.01
WAD Cyanide	0.01	mg/L	<0.01	<0.01

Result Definitions

LOR Limit of Reporting
[NT] Not Tested
[ND] Not Detected at indicated Limit of Reporting
[NR] Analysis Not Requested
(SS) Surrogate Standard Compound - Used for QC purposes. Acceptance Criteria is 60-120%.

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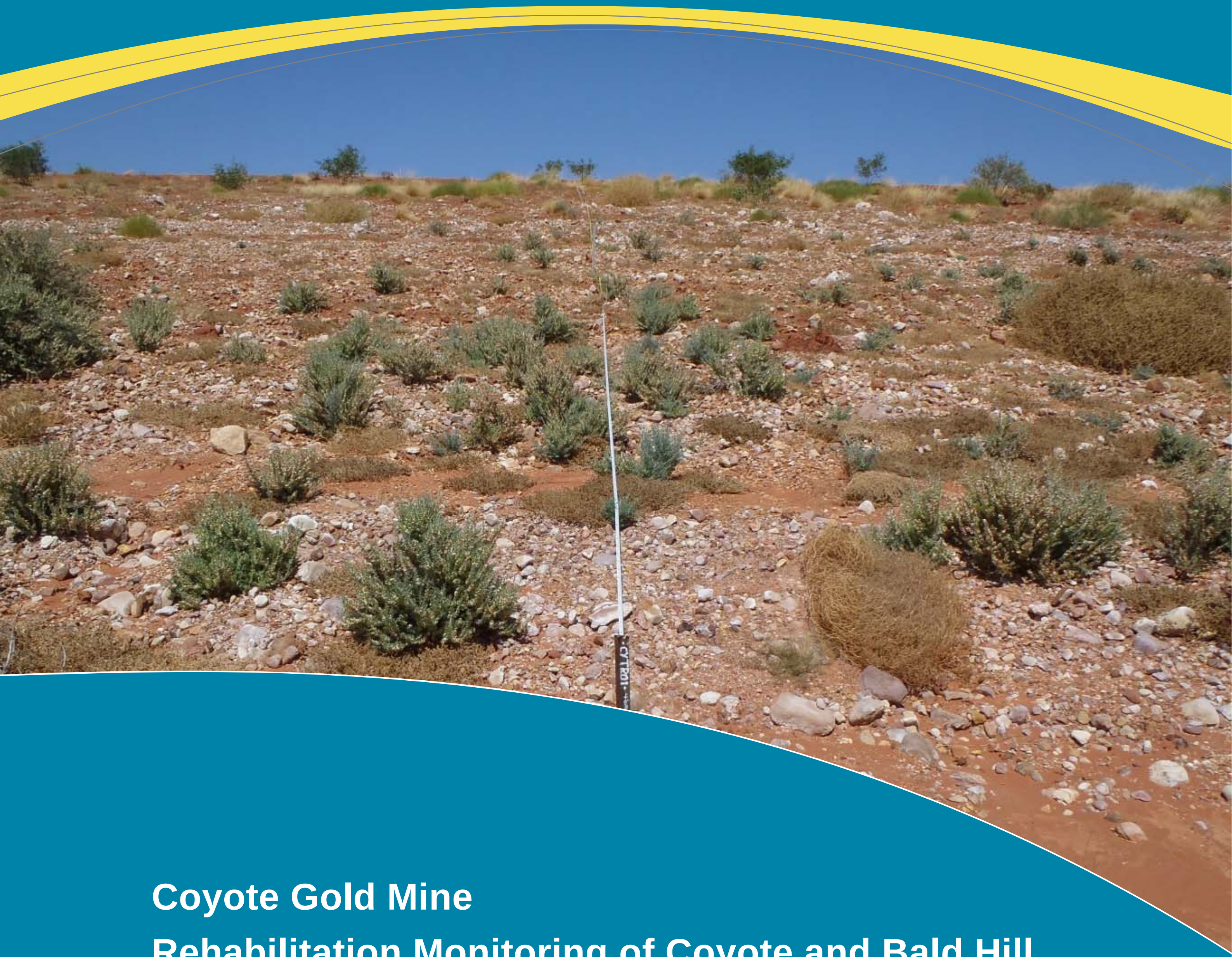
Appendix D Rehabilitation Monitoring of Coyote and Bald Hill Waste Rock Landforms Report, 2014

MWH

BUILDING A BETTER WORLD



Coyote Gold Mine

Rehabilitation Monitoring of Coyote and Bald Hill Waste Rock Landforms, 2014

Draft Report

Prepared for Tanami Gold ltd

December 2014

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This disclaimer shall apply notwithstanding that the report may be made available to Tanami Gold ltd and other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Steph Birch	David Jasper

PREPARED BY		
Haydn Davies	……………………………………...........	17/11/14
CHECKED BY		
Stephanie Birch	……………………………………...........	25/11/14
REVIEWED BY		
Paul Bolton	……………………………………...........	28/11/14
APPROVED FOR ISSUE BY		
Trinity File	……………………………………...........	2/12/14

PERTH
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TEL +61 (08) 9388 8799, FAX : +61 (08) 9388 8633

REVISION SCHEDULE

Rev No	Date	Description	Signature or Typed Name (documentation on file).			
			Prepared by	Checked by	Reviewed by	Approved by
1-0	2/12/14	Draft Report	HD	SB	PB	TF

Executive Summary

MWH Australia was commissioned by Tanami Gold Limited (Tanami Gold) to undertake rehabilitation monitoring at the Coyote and Bald Hill projects in September 2014. The monitoring included the assessment of four rehabilitation transects on the Coyote Waste Rock Landform (WRL) and six transects on the Bald Hill WRL. Five analogue transects were installed between the two projects, to represent desirable attributes for the final rehabilitation. Additionally, 10 existing photo monitoring sites were assessed.

Ecosystem Function Analysis (EFA) was conducted on all previously-established monitoring sites at Coyote and Bald Hill mine sites. Ecosystem Function Analysis provides data relating to landscape functioning, vegetation establishment and habitat development. The data has been compared to local analogue sites, which were installed to reflect local natural condition and climatic fluctuations. In successful rehabilitation, steady improvements should be expected, in soil structure and soil protection, vegetative cover and development, and stability of erosion features over time. Therefore, EFA data should gradually trend upward and plateau as the ecosystem becomes stable and self-sustaining. Results over time will indicate if the ecosystems have achieved these self-sustaining levels and can withstand climatic fluctuations.

Key observations made during the rehabilitation assessment included:

- the rehabilitation transects on both the Coyote WRL and the Bald Hill WRL had landscape function indices which were lower than the analogue transects, particularly the stability index;
- shrubs dominated the sloping rehabilitation sites, whereas *Triodia* spp. dominated the sloping analogue transects;
- the vegetation composition of the flat rehabilitation transects had a vegetation composition that was more representative of the flat analogue transects, being dominated by perennial grasses and acacias.
- in general, the rehabilitation on the Coyote WRL had similar vegetation cover to the corresponding analogues, whereas the rehabilitation on the Bald Hill WRL had cover well below the corresponding analogues;
- the sloping rehabilitation on both WRLs had a high proportion of erosion features and the Bald Hill WRL had a greater number of features, rills and gullies, per transect compared to the Coyote WRL; and
- native fauna tracks and scats were observed on both WRL's, with the Coyote WRL having the greater habitat complexity than the Bald Hill WRL.

Ten of 11 photo monitoring sites established in 2012 were re-assessed in 2014. These sites were located on undisturbed areas of the Coyote and Bald Hill WRLs. The purpose of the photo monitoring is

to document any changes over time, which may occur as a result of mining activities. While no mining related disturbances were observed, a few of the photo monitoring sites had been burnt in 2011 or 2013. These sites were recovering well post fire, and little change was observed at the remaining sites.

Recommendations

- The upper surface flat of Bald Hill has poor vegetation establishment and the bank and trough system, established by ripping, has been degraded. Re-ripping and seeding on the cells prior to the wet season may help to encourage vegetation establishment. Other considerations may also need to be taken into account, such as soil properties, if remedial work is conducted;
- If remedial works are conducted on the surface of the Bald Hill WRL an additional transect could be established to help better represent the rehabilitation area. Additionally a second transect on the Coyote surface flat could be considered; and
- As three years of monitoring is generally required to establish a baseline for rehabilitation, a further two years of assessment is recommended for the ten rehabilitation transects installed on the Coyote and Bald Hill WRLs.

Tanami Gold ltd

Coyote Gold Mine

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APPENDICES

1 Introduction

The Coyote gold project and Bald Hill gold project are located in the Tanami desert, approximately 20 kilometres (km) west of the Western Australian and Northern Territory border. The operation is located 280km south east of Halls Creek (MWH Global 2014). The Balgo Hills community is the nearest settlement located 80 km to the west of the site on the Tanami Track. Mining commenced at Coyote in February 2006 and at Bald Hill in March 2008, and both sites have been in care and maintenance since late 2012. MWH Global was engaged by Tanami Gold Limited (Tanami Gold) to complete rehabilitation monitoring of the Coyote and Bald Hill Waste Rock Landforms (WRLs) in September 2014.

Rehabilitation of the Coyote WRL was completed in 2008 with a small section on the north eastern aspect left as a paddock dump to allow for rock fill to be taken where needed. The Bald Hill WRL was rehabilitated in 2012 with the two lifts of the southern aspect battered down and topsoil applied to the batters prior to the area being contour ripped. The surface flat was divided into cells using bunding and topsoil applied, however, there is no evidence that the topsoil was ripped and mixed in with the surface waste rock.

Rehabilitation monitoring was conducted for the first time in September 2014 on both the Coyote WRL and Bald Hill WRL. Monitoring of rehabilitated landforms allows ecosystem development to be quantified, and the information can be used to further improve future rehabilitation strategies. Ecosystem Function Analysis (EFA) is a monitoring system that provides time series data from assessments of landscape functioning, vegetative growth and habitat development. Ecosystem Function Analysis data may be used to predict achievable and acceptable completion criteria for rehabilitation on waste landforms. Therefore, EFA is a valuable tool for demonstrating progressive improvements in rehabilitation performance.
The objective of this report is to:

- describe the current status of rehabilitation for all areas assessed, both in relation to expected performance at that site, and to analogue sites in the region;
- identify areas of rehabilitation where on-site investigations of constraints to performance may be required; and
- recommend future monitoring strategies, based on the outcomes of this assessment.

2 Materials and Methods

2.1 Climate

Coyote is located within the Tanami Desert region, which extends from Halls Creek to Lake Dennis on the Western Australia and Northern Territory border. The climate at the Coyote mine site is Arid Tropical. The closest weather station is located a Balgo Hills which is located 80km to the west of the Coyote mine site, with an average annual rainfall of 352 mm, and mean temperatures ranging between 38°C in summer (November to January) and 11 °C in (June) winter (BOM 2014). In the year preceding monitoring a total of 413 mm of rain was received which was 60 mm above the average annual rainfall (BOM 2014). January 2014 received rainfall which was well over double the long term average (**Figure 2-1**).

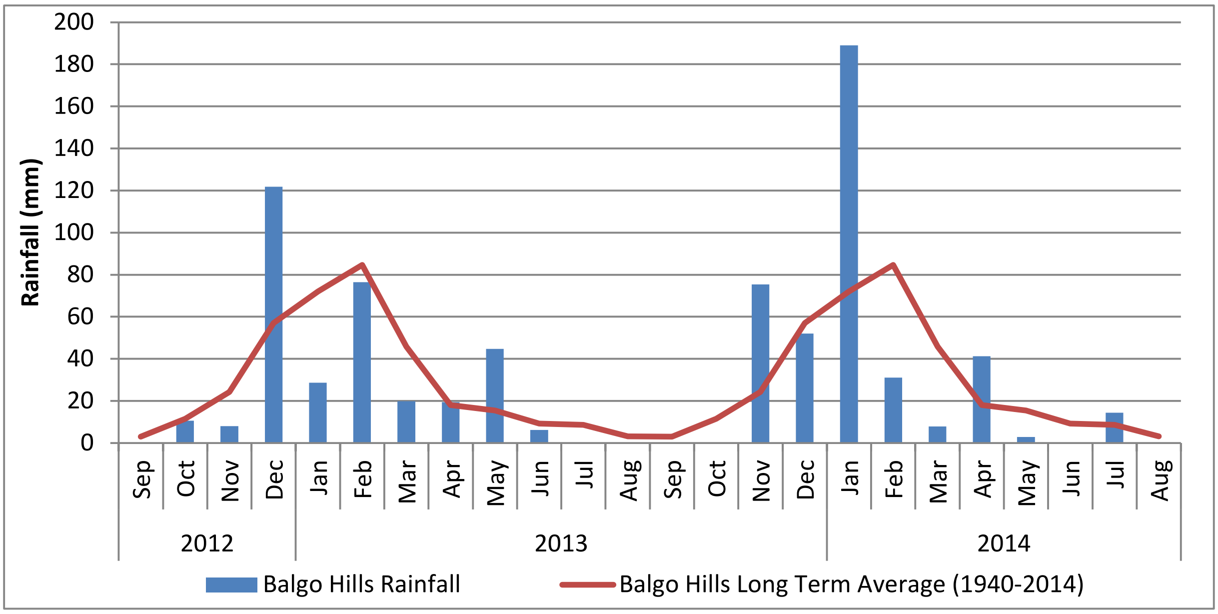


Figure 2-1: Rainfall recorded at the Balgo Hills weather station (Station no. 013007) from September 2012 to August 2014, compared to the long term average (1940 – 2014)

2.2 Monitoring Methods

The approach for assessing landscape functioning, vegetative growth and habitat development using EFA is described by Tongway et al (1997) and summarized in **Appendix A**. Using this approach, field data (soil condition, vegetation data, habitat complexity and erosion) was collected to provide information on key ecosystem processes, thereby reflecting the functionality of the ecosystem overall.

Additionally photographic monitoring was conducted at both Coyote and Bald Hill as part of the 2014 assessment. The photographic monitoring followed the 'Coyote Tanami, Vegetation Monitoring SOP July 2012' (**Appendix D**). This procedure used two different monitoring methods, one each for Coyote and Bald Hill.

2.3 Transect List and Areas Monitored

Ecosystem Function Analysis monitoring was conducted on two areas of rehabilitation, consisting of 10 transects, and five analogue sites at the Coyote and Bald Hill operations in September 2014 (**Table 2-1**)(**Figure 2-2 & Figure 2-3**). This was the first year of assessment by MWH Australia for both rehabilitation areas and the analogue transects.

The sloping rehabilitation transects on both the Coyote WRL and the Bald Hill WRL were both previously installed by site environmental personal, prior to 2014. The surface flat transect on the Bald Hill WRL was re-installed to improve representation of the area and a new transect was installed on the surface flat of the Coyote WRL, as one was not previously installed, 2014. The five analogue transects, two located at Bald Hill and three at Coyote, were installed in 2014 by MWH Australia personnel.

Analogue sites provide representative values that are typical of the landscape surrounding the mine. Analogues are selected with attributes such as slope angle, topsoil cover and vegetation communities most similar to anticipated final attributes of the rehabilitation areas being assessed.

Table 2-1: Transects within each analogue or rehabilitation area monitored in 2014

Site Information						Location	
Landform	Transect #	Length of Transect	Topography	Year of Rehabilitation	Transect Established	Start GDA94	End GDA94
Coyote - Rehabilitation	CYTR01	45 m	Slope	2008	Sep-14	52 K 481766 7800419	52 K 481788 7800457
Coyote - Rehabilitation	CYTR02	50 m	Slope	2008	Sep-14	52 K 481938 7800177	52 K 481907 7800134
Coyote - Rehabilitation	CYTR03	42 m	Slope	2008	Sep-14	52 K 482398 7800057	52 K 482404 7800017
Coyote - Rehabilitation	CYTR04	50 m	Flat	2008	Sep-14	52 K 481840 7800317	52 K 481800 7800345
Coyote - Analogue	CYA01	50 m	Flat	-	Sep-14	52 K 482778 7800828	52 K 482724 7800828
Coyote - Analogue	CYA02	43 m	Slope	-	Sep-14	52 K 480357 7794630	52 K 480314 7794632
Coyote - Analogue	CYA03	50 m	Flat	-	Sep-14	52 K 480262 7794550	52 K 480256 7794604
Bald Hill - Rehabilitation	BHRM01	50 m	Slope	2012	Sep-14	52 K 486234 7833542	52 K 486238 7833493
Bald Hill - Rehabilitation	BHRM02	37 m	Slope	2012	Sep-14	52 K 486335 7833684	52 K 486368 7833671
Bald Hill - Rehabilitation	BHRM04	43 m	Slope	2012	Sep-14	52 K 485981 7833645	52 K 485974 7833603
Bald Hill - Rehabilitation	BHRM05	33 m	Slope	2012	Sep-14	52 K 486138 7833625	52 K 486116 7833600
Bald Hill - Rehabilitation	BHRM06	50 m	Slope	2012	Sep-14	52 K 486407 7833835	52 K 486455 7833839
Bald Hill - Rehabilitation	BHRM07	33 m	Flat	2012	Sep-14	52 K 486331 7833756	52 K 486298 7833760
Bald Hill - Analogue	BHA01	47 m	Slope	-	Sep-14	52 K 485851 7835397	52 K 485889 7835369
Bald Hill - Analogue	BHA02	42 m	Slope	-	Sep-14	52 K 485947 7834923	52 K 485969 7834886

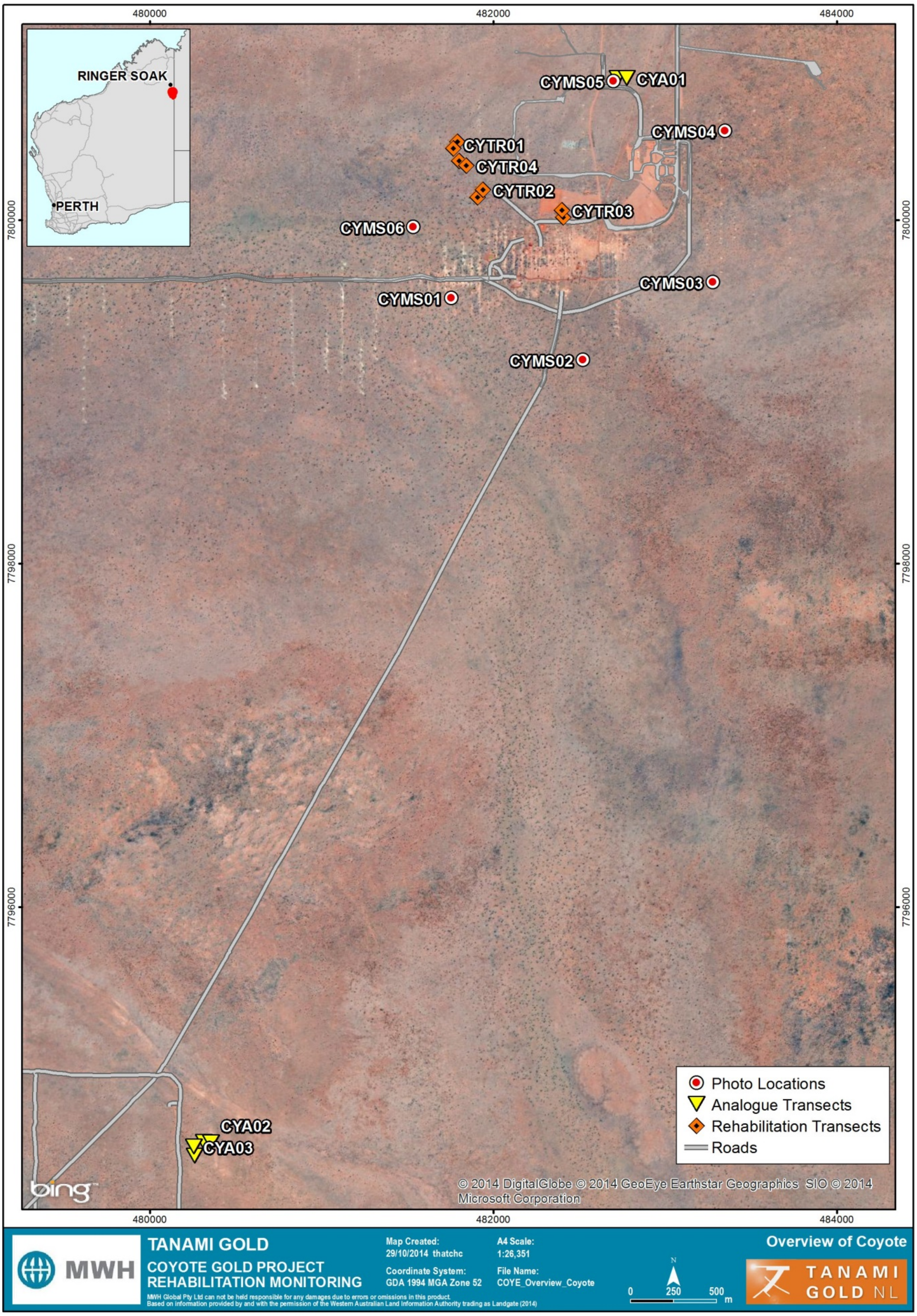


Figure 2-2 : Transect and photo point locations of sites monitored in 2014 at the Coyote mine site

Figure 2-3 : Transect and photo point locations of sites monitored in 2014 at the Bald Hill mine site

3 Results and Discussion

3.1 Analogue Transects

Three analogue transects were located at Coyote, two flat CYA01 (Plate 1), CYA03 (Plate 3) and one sloping CYA02 (Plate 2). Two analogue transects were installed at Bald Hill both of which were sloping; BHA01 (Plate 4), BHA02 (Plate 5). The analogue transects were slightly shorter than is preferable, which was due to the length of the available slopes located close to both mine sites. Possible locations also had been disturbed by historic exploration activities making it difficult located a true natural site.

The Coyote analogues were spread around the Coyote site with CYA01 located on a flat area to the north of the Tailings Storage Facility (TSF), close to a photo monitoring site. Analogue CYA02 was located on the western aspect of a small hill located to the south of the site, on the Road Runner bore access road. The flat CYA03 was located at the base of the hill on which CYA02 is located.

The Bald Hill Analogues are located on Bald Hill, which is to the north of the Bald Hill mine site. This area has been heavily impacted by exploration with the analogues located between drill lines.

There were very limited areas available to install sloping analogues at either site, with a drive of over 100km required to reach some of the closest ranges. A further flat analogue could be installed next to the Bald Hill access road as part of future assessments.

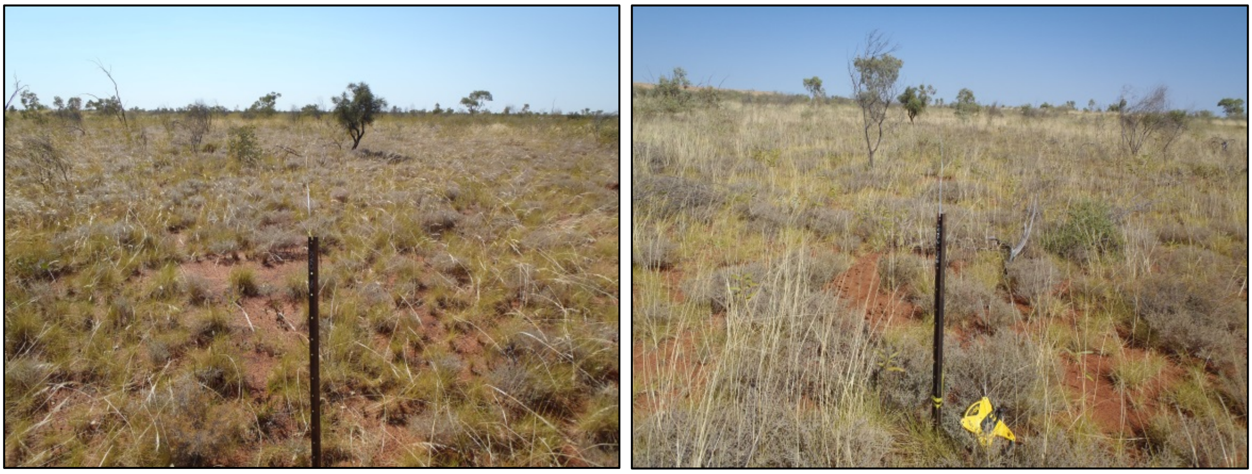


Plate 1: Coyote analogue CYA01 flat from 0m (left) and 50m (right), located to the north of the Coyote TSF

Plate 2: Coyote analogue CYA02 slope from 0m (left) and 43m (right), located on a hill close to the road out to the Road Runner bore

Plate 3: Coyote analogue CYA03 flat from 0m (left) and 50m (right), located on a plain next to the Road Runner bore access road

Plate 4: Bald Hill analogue BHA01 sloping from 0m (left) and 47m (right), located on Bald Hill

Plate 5: Bald Hill analogue BHA02 sloping 0m (left) and 42m (right), located on Bald Hill

Landscape Function

The three sloping analogue transects all had similar landscape function indices which were higher than the flat analogues (**Figure 3-1**). The high stability index was attributed the rocky nature of the hill slopes within the region. The two flat analogue transects had lower stability indices as soil surface of the flats comprised of sedimentary sands rather than the rocky material. Flat analogue CYA01 had greater infiltration and nutrient cycling indices than the other analogues, flat or sloping, which was due to the greater proportion of organic patches (**Figure 3-2**). Sloping analogue BHA01 had a high proportion of organic patches, however these were attributed to litter cover rather than perennial vegetation which contribute less to the infiltration and nutrient cycling indices.

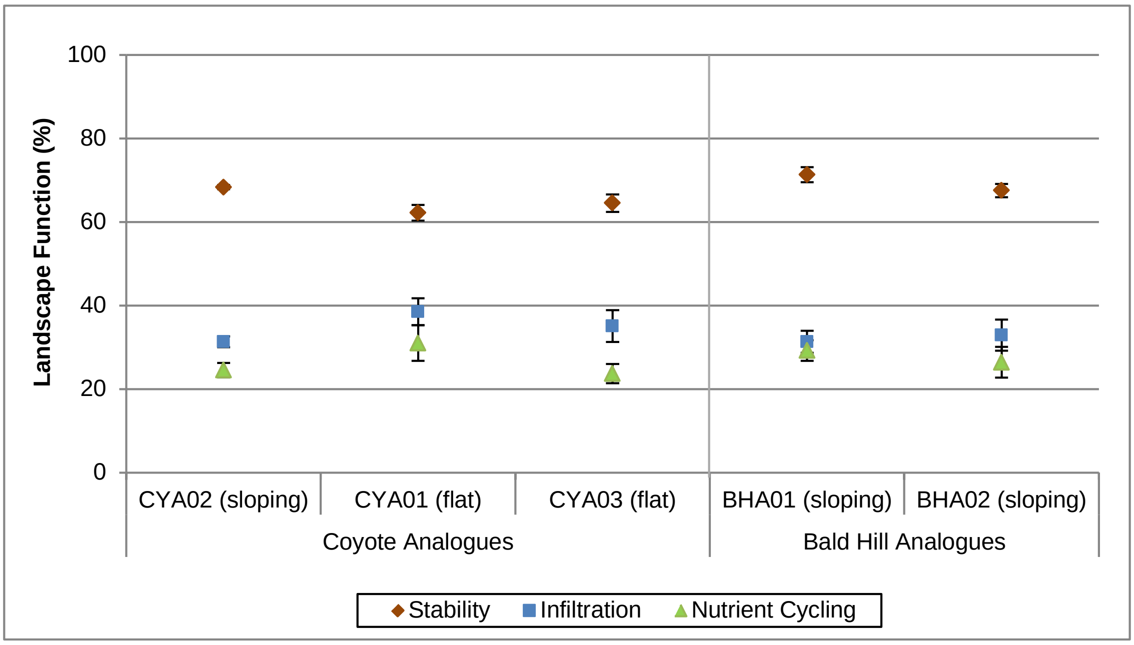


Figure 3-1: Landscape function indices of the Coyote and Bald Hill analogue transects

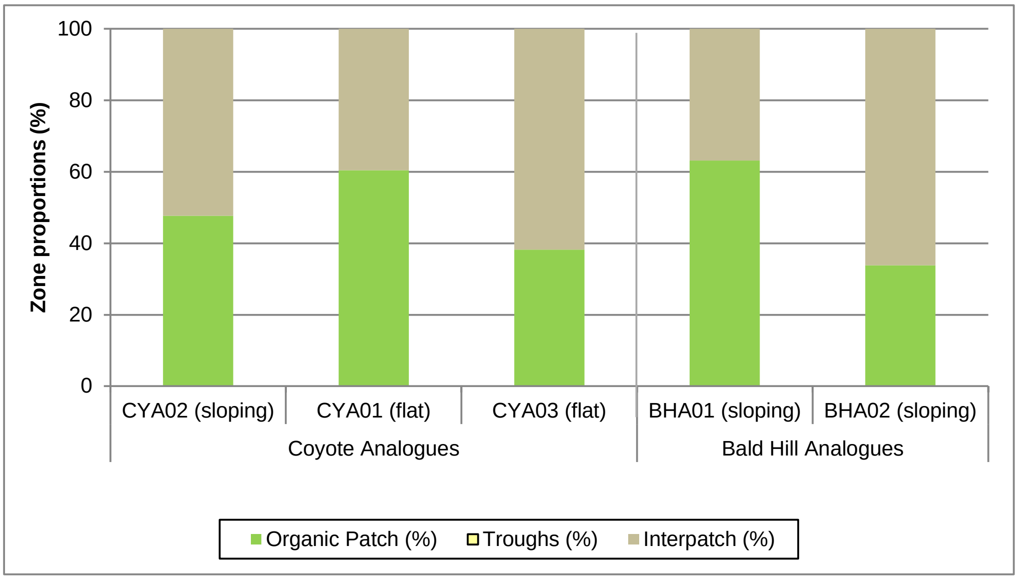


Figure 3-2: Patch proportions of the Coyote and Bald Hill analogue transects

Vegetation

Of the sloping analogues, transect CYA02 had the greatest overall vegetation cover (17%), while flat analogue CYA01 had the greatest cover of all the analogue sites (33%).(**Figure 3-3**). The sloping analogue transects all had similar densities of lower and upper storey species with CYA02 having the greatest density of lower storey plants (60,833 plants/ha) and BHA02 having the greatest density of upper storey plants (10 plants/ha). The flat analogue CYA01 had the greatest overall density of lower storey species with 111,500 plants/ha and flat CYA03 had the greatest density of upper storey species (70 plants/ha). The three Coyote analogue sites were predominantly covered by shrub species while the Bald Hill analogues where covered by spinifex (*Triodia intermedia*). Analogue CYA01 had 2% cover of shrubs over 2m, and CYA03 had almost 1% grass cover.

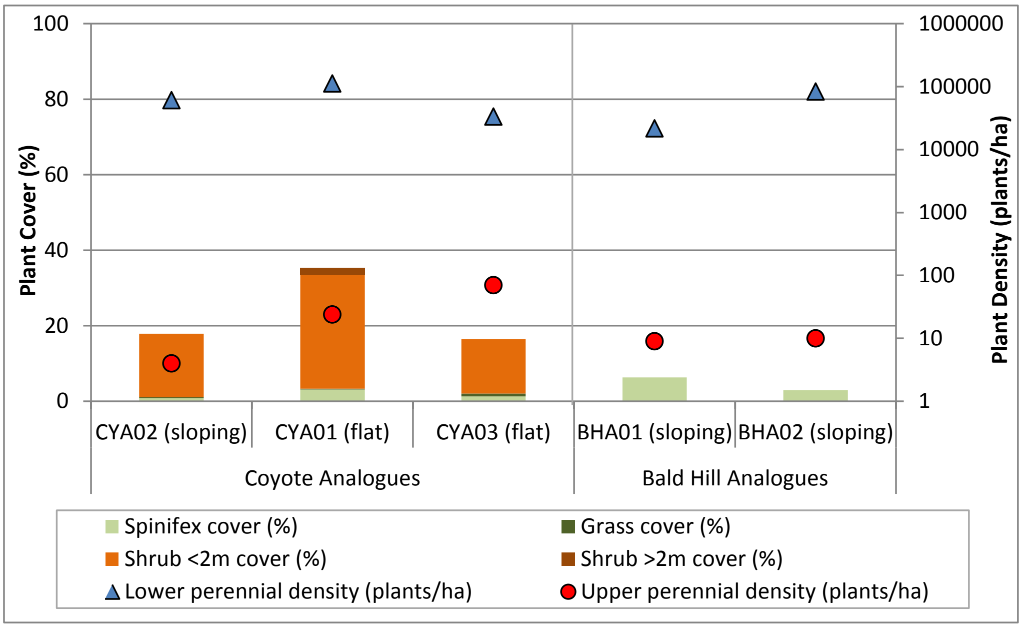


Figure 3-3: Plant cover and density of the Coyote and Bald Hill analogue transects

Species Richness

Flat analogue CYA01 had the greatest species richness of 11, while analogue BHA02 had the lowest species richness of two (**Appendix B**). *Triodia* was the most dominant ground cover across the analogue transects: *Triodia ?pungens* was the dominant species at CYA02 and CYA03, *Triodia schinzii* was the most common species on analogue CYA01 and *Triodia intermedia* was the most common species on BHA01 and BHA02. *Grevillea wickhamii* and *Eucalyptus brevifolia* were present as upper storey at the Bald Hill Analogue sites.

Habitat Complexity

Habitat complexity for the analogue transects comprised of lower ground cover with a sparse upper storey (**Appendix B**). There were some hollows in the trees present near the Bald Hill analogue sites, and lots of ants and kangaroo scats were present on all the analogue transects.

3.2 Coyote Rehabilitation

The Coyote Waste Rock Landform (WRL) is located in the centre of the Coyote site between the TSF and the open cut pit. Three quarters of the WRL have been rehabilitated; the eastern side has remained as a paddock dump and needs to be battered down and topsoiled (**Figure 3-4**). The remaining batters and surface flat were topsoiled and ripped in 2008 (Tanami Gold 2012). Three sloping rehabilitation transects; CYTR01, CYTR02, and CYTR03, were previously installed on the sloping batters of the Coyote WRL. The 2014 assessment included the installation of a flat transect CYTR04 within one of the cells of the surface flat.

3.2.1 Coyote WRL (sloping), 2008 Rehabilitation

The sloping batters of the Coyote WRL were represented by three transects. Transect CYTR01 (**Plate 6**) was located on the western end of the northern facing batter opposite the evaporation pond. Transect CYTR02 (**Plate 7**) was located on the eastern end of the southern facing batter opposite the old camp road. Transect CYTR03 (**Plate 8**) was located on the bottom lift of the western end of the southern facing batter, opposite the pit. These transects had been previously installed by site personal in September 2014.

Figure 3-4: Locations of rehabilitation transects on the Coyote WRL

Plate 6: Transect CYTR01 in 2014, from 0m (left) and 45m (right)

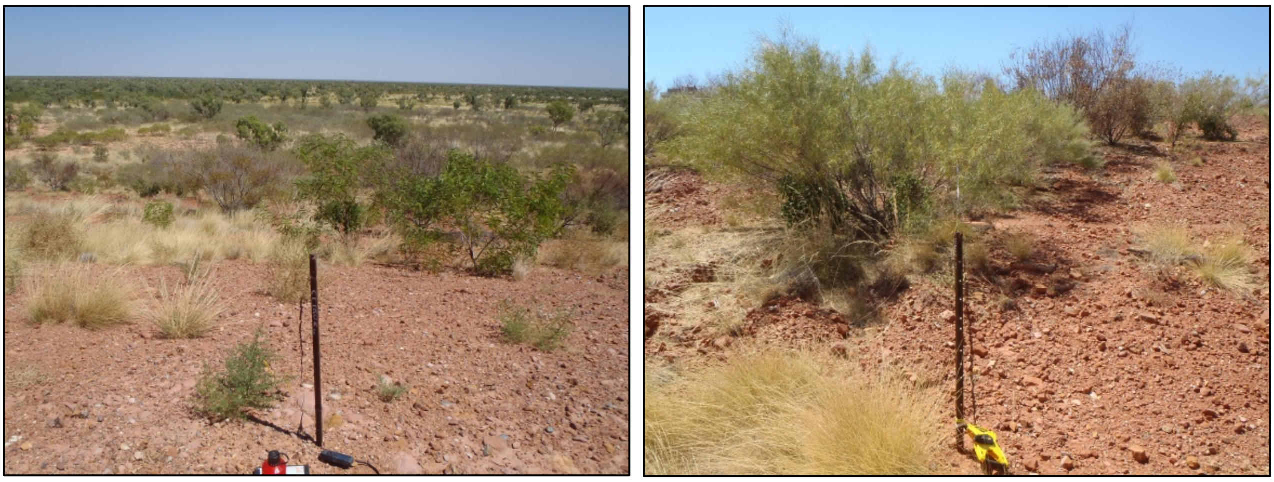


Plate 7: Transect CYTR02 in 2014, from 0m (left) and 50m (right)

Plate 8: Transect CYTR03 in 2014, from 0m (left) and 42m (right)

Landscape Function

The stability index for the three sloping transects was less than the stability index of the three sloping analogue transects (**Figure 3-5**). The infiltration and nutrient cycling indices were similar to the analogue values. The lower stability values were due to the less developed soil surface crust which was more dispersive than the analogues, as well as a lower contribution of cryptogams. The rehabilitation had a similar proportion of organic patch zones to the analogue transects attributing to the similar infiltration and nutrient cycling indices (**Figure 3-6**).

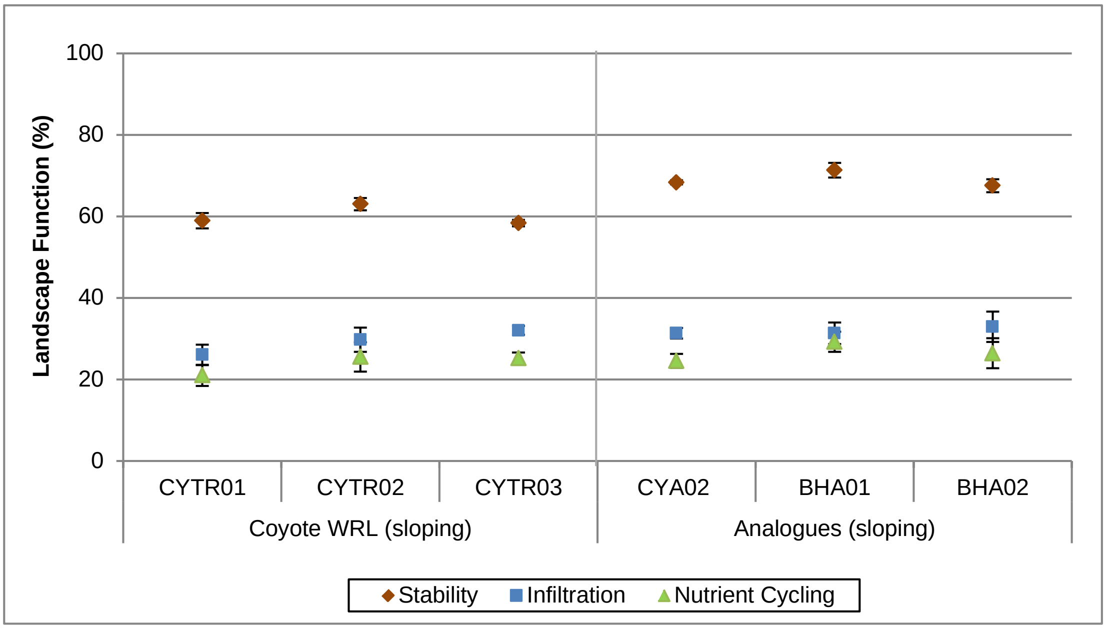


Figure 3-5: Landscape function of the 2008 rehabilitation on the Coyote WRL, in comparison with the sloping analogue sites

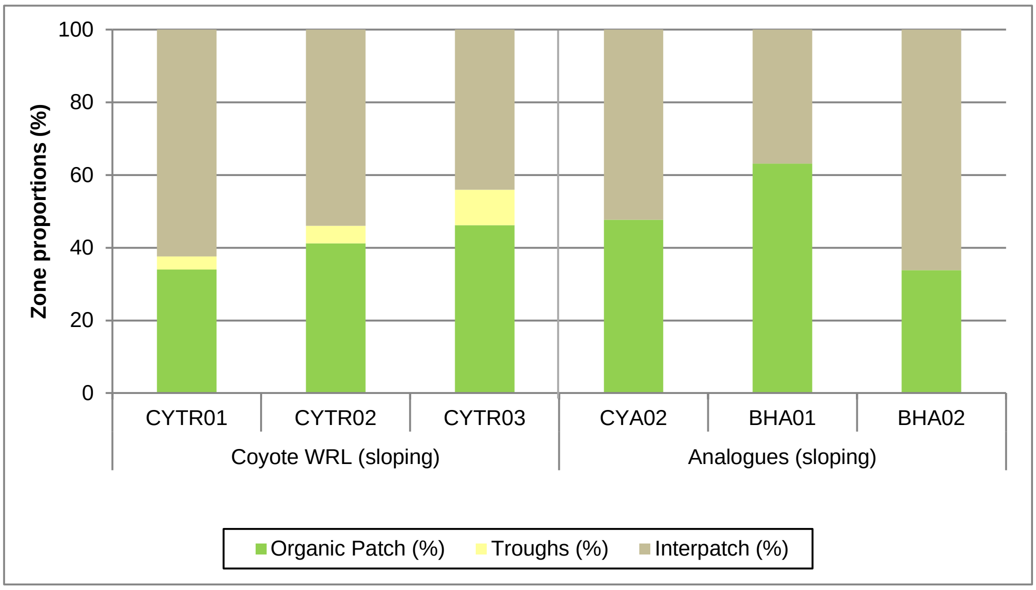


Figure 3-6: Patch proportions of the 2008 rehabilitation on the Coyote WRL, in comparison with the sloping analogue sites

Vegetation

The three rehabilitation transects had varied lower storey vegetation cover, with CYTR02 having the greatest cover (42%), which was above the three sloping analogues, and CYTR01 having the least (**Figure 3-7**). Shrub cover less than 2m was the most dominant vegetation type comprising of mostly *Acacia hilliana* and *Acacia holathera* var. *holathera;* the larger crown size of these species led to greater percentage cover than the *Triodia pungens* which was also present on the rehabilitation. The rehabilitation transects had a lower density of lower storey species than the analogues. Transects CYTR01 and CYTR02 both had potential upper storey species present (<3m height) at 32 and 84 plants/ha, respectively.

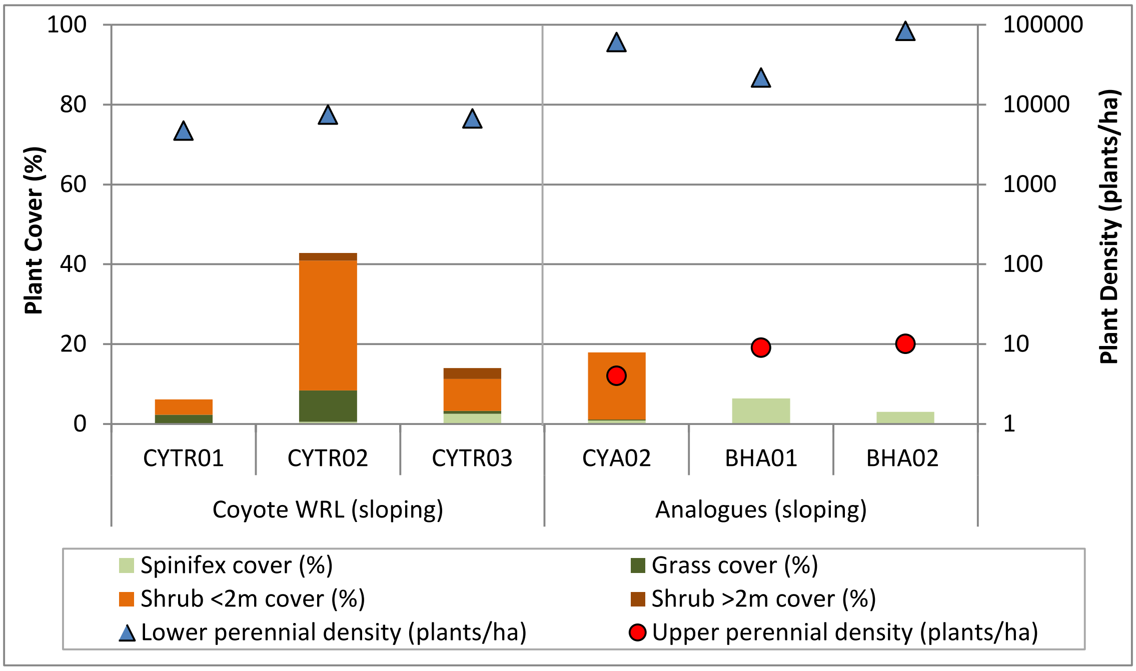


Figure 3-7: Plant cover and density of the 2008 rehabilitation on the Coyote WRL, in comparison with the sloping analogue sites

Species Richness

The species richness for the three Coyote WRL rehabilitation transects ranged from nine on transect CYTR02 to five on transects CYTR01 and CYTR03 (**Appendix B**). *Maireana georgei* was the most common species on transect CYTR01, *Acacia adsurgens* was the most common species on transect CYTR02 and *Triodia pungens* was the most common species on transect CYTR03. The introduced and often invasive species *Cenchrus ciliaris* (Buffel grass) was present on transect CYTR02 but was not found anywhere else on the site.

Erosion

The Coyote WRL transect (CYTR02) had the greatest proportion of slope erosion (20%), both transects CYTR01 and CYTR03 had less than 10% erosion (**Figure 3-8**). Transect CYTR02 had the greatest number of rills identified (17), and each of the sloping rehabilitation transects had two gullies (>30cm deep). There was a large gully located 100m to the west of transect CYTR03 which had been caused by water under-cutting a engineered drain, leaving sediment along the drain and at the base of the landform.

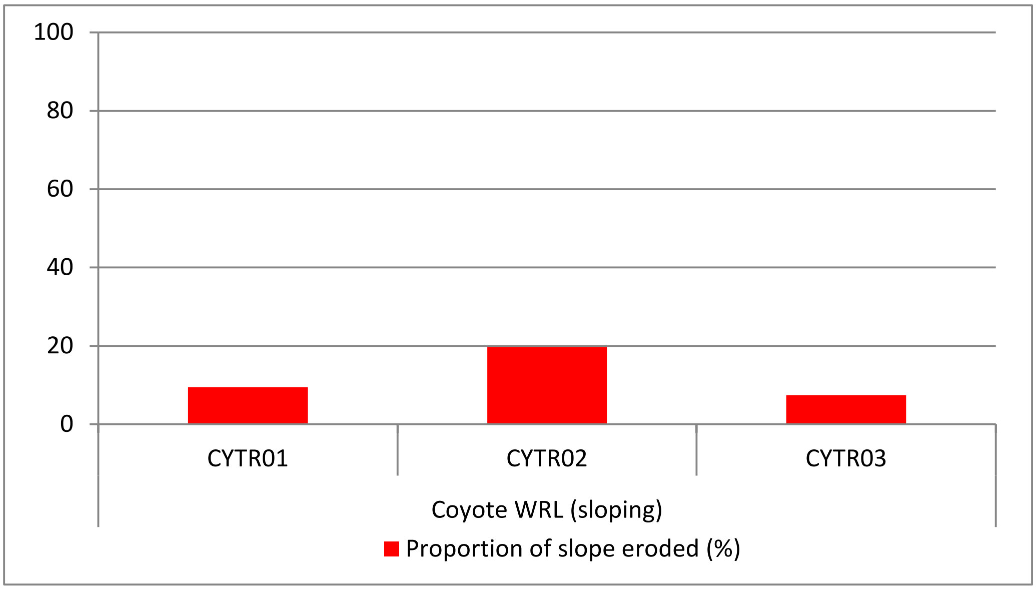


Figure 3-8: Proportion of slope eroded for the 2008 rehabilitation on the Coyote WRL

Habitat Complexity

Habitat complexity on the Coyote WRL batters consisted of good lower storey vegetation cover with some returned rocks to provide habitat (**Appendix B**). Ants were present on the soil surface and some scats and tracks from kangaroos were also present at CYTR01 and CYTR03. The close proximity of this rehabilitation to the evaporation pond may draw more wildlife in to the area, despite this water being highly saline.

3.2.2 Coyote WRL (flat), 2008 Rehabilitation

As part of the 2014 rehabilitation assessment on the Coyote WRL a new transect CYTR04 (**Plate 9**Error! Reference source not found.) was installed on the surface flat of the western portion of the landform, within one of the cells demarcated by bunding. Transect CYTR04 was installed within a cell that had good vegetation cover for both lower and upper vegetation stories. Future assessments could include the addition of a flat transect on the eastern portion of the surface flat.

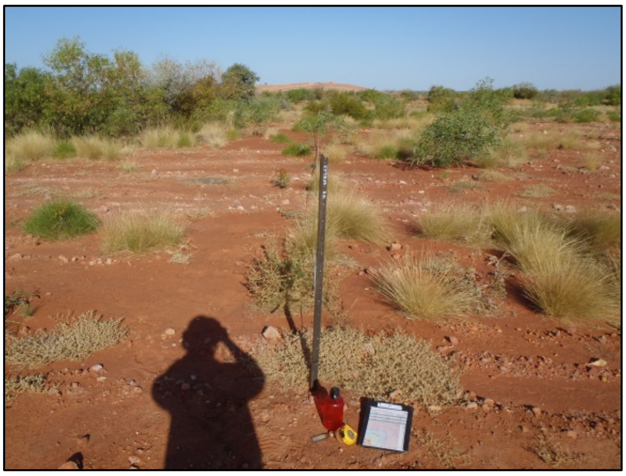


Plate 9: Transect CYTR04 in 2014, from 0m (left) and 50m (right)

Landscape Function

The landscape function indices for the surface flat transect on the Coyote WRL were all below the indices of the two flat analogue transects (**Figure 3-9**). The lower stability index was attributed to the lack of waste rock integration within the soil surface which typically aids soil surface stability. As a result, the bank and trough system created by the ripping of the rehabilitation area was degraded, leaving only a small proportion of troughs for resource accumulation. The infiltration and nutrient cycling indices were close to the indices analogue CYA03, likely a result of the similar proportion of organic patch zones between the two transects (**Figure 3-10**).

Vegetation

Similar to the landscape function results, the total lower storey vegetation cover and density for the Coyote surface flat was less than the total cover of the flat analogue sites (**Figure 3-11**). The vegetation composition was similar to the flat analogues with shrubs making up a greater proportion of the cover than grasses or *Triodia*. The flat rehabilitation had a greater cover of annual grasses (*Aristida holathera* var. *holathera*) than *Triodia*. The density of upper storey species was representative of analogue CYA03. It is unknown whether the upper storey will continue to develop further as some individuals appeared to be in poor health and there were a number of dead upper storey trees within the surrounding rehabilitation.

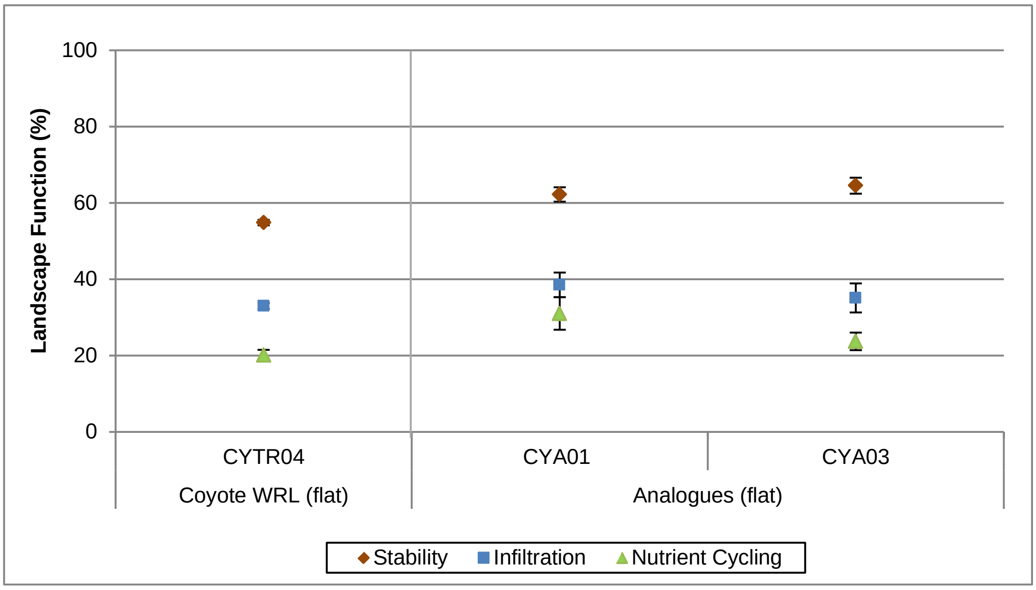


Figure 3-9: Landscape function of the 2008 rehabilitation on the Coyote WRL, in comparison with the flat analogue sites

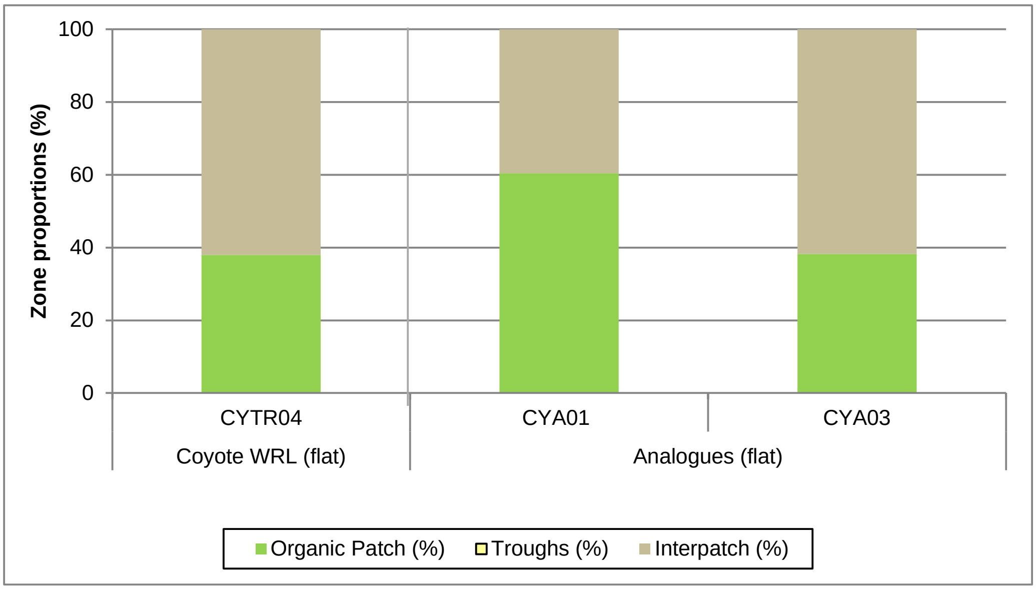


Figure 3-10: Patch proportions of the 2008 rehabilitation on the Coyote WRL, in comparison with the flat analogue sites

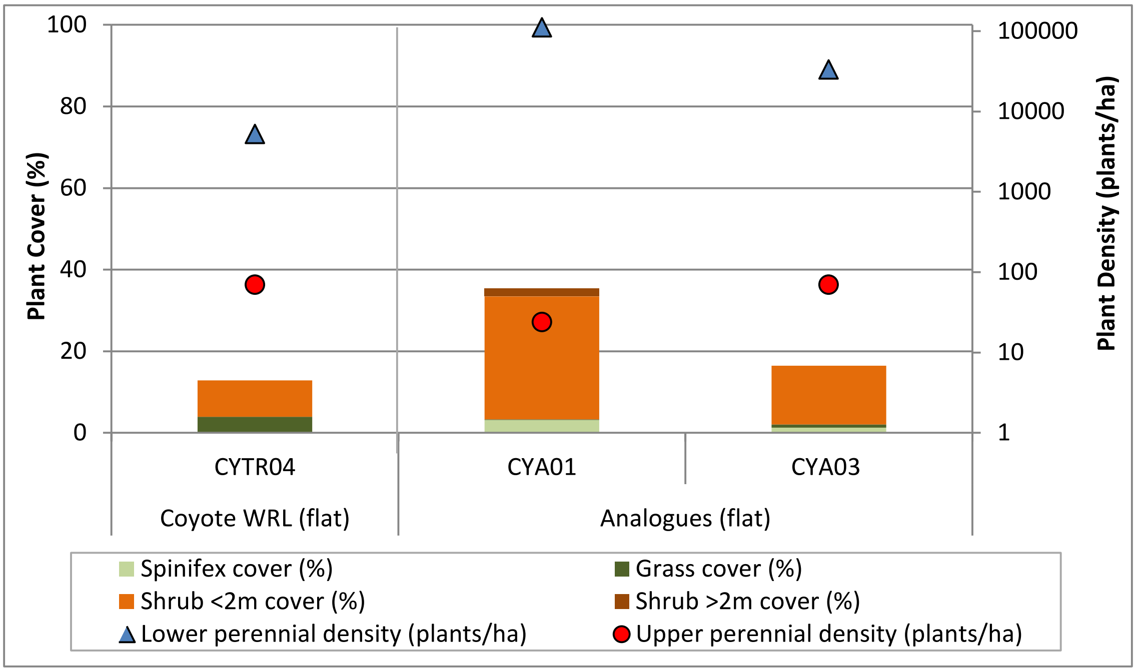


Figure 3-11: Plant cover and density of the 2008 rehabilitation on the Coyote WRL, in comparison with the flat analogue sites

Species Richness

The flat rehabilitation on the Coyote WRL had a species richness of eight, less than the two flat analogues (**Appendix B**). The most common species on the flat rehabilitation was *Aristida holathera* var. *holathera,* which was present on all of the rehabilitation transects on the Coyote WRL along with *Triodia pungens.* The upper storey (over 2m in height) comprised of *Corymbia aspera* and *Grevillea wickhamii*. There were no introduced species found on the flat rehabilitation area.

Habitat Complexity

The surface flat rehabilitation provided good cover from both the lower and upper vegetation stories (**Appendix B**). Ant mounds were observed in the open areas, there was evidence, scats or tracks, that the area had been utilised by fauna in the area.

3.2.3 Recommendations

As the 2014 monitoring was the first complete rehabilitation assessment carried out on the batters and surface flat of the Coyote WRL, it is recommended that a further two years of monitoring are carried out to ascertain a set of baseline data. Future monitoring could include the addition of a second surface flat transect. Given the development of the vegetation on the batters, remediating erosion features should only be considered if erosion continues to increase in the future.

3.3 Bald Hill

Bald hill is a small open cut pit located 50km to the north of Coyote. While most of the infrastructure for the mine has since been removed a few buildings and the magazine still remain. The Bald Hill WRL has two lifts and the southern batters and the surface flat were rehabilitated in 2012 (Tanami Gold 2012) (**Figure 3-12**). The northern side of the landform still needs to be shaped and topsoiled. Previously seven transects have been installed on the WRL, six on the slopes and one on the surface flat. The 2014 monitoring included six of the seven rehabilitation transects.

3.3.1 Bald Hill (sloping), 2012 Rehabilitation

The five of the six previously installed sloping transects monitored on the Bald Hill WRL included: BHRM02 (**Plate 10**Error! Reference source not found.) and BHRM05 (**Plate 11**) located on the second lift, BHRM01 (**Plate 12**) and BHRM06 (**Plate 13**) located on the first lift and BHRM04 (**Plate 14**Error! Reference source not found.) located on the side of the access ramp. Transect BHRM03 was unable to be located in 2014.

Figure 3-12: Rehabilitation transect locations on the Bald Hill WRL

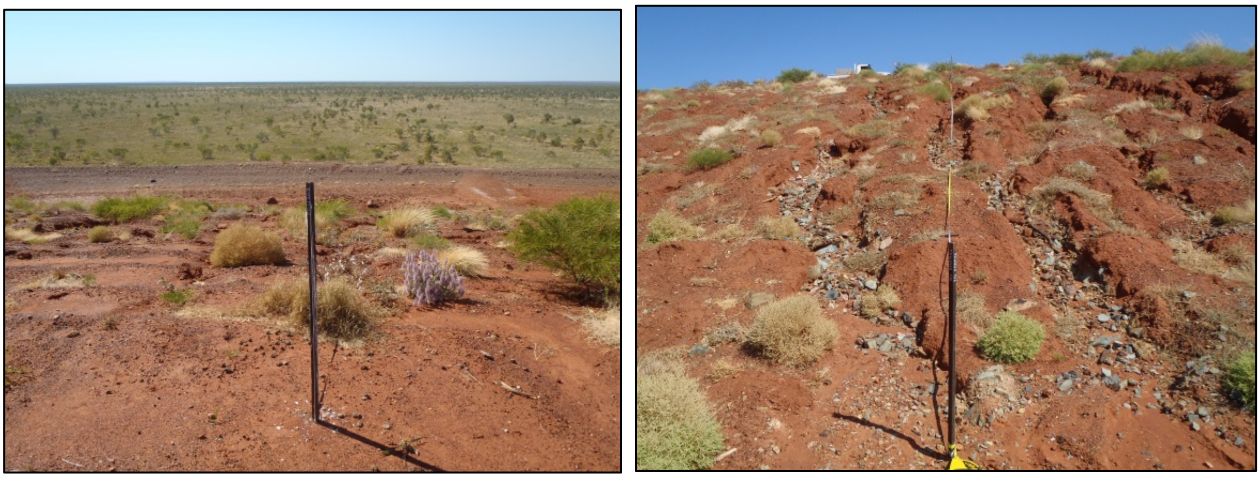


Plate 10: Transect BHRM02 in 2014, from 0m (left) and 36m (right)

Plate 11: Transect BHRM05 in 2014, from 0m (left) and 33m (right)

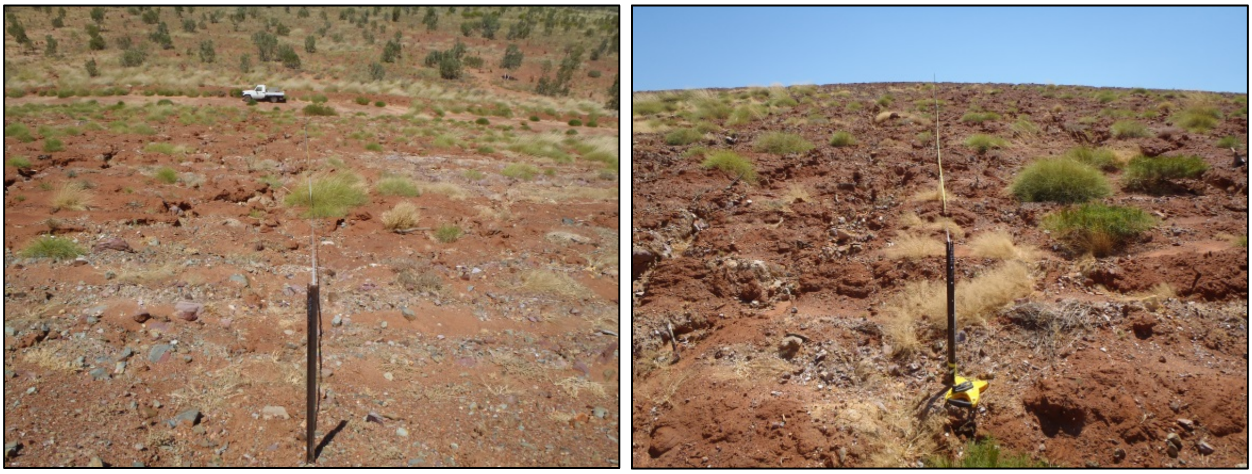
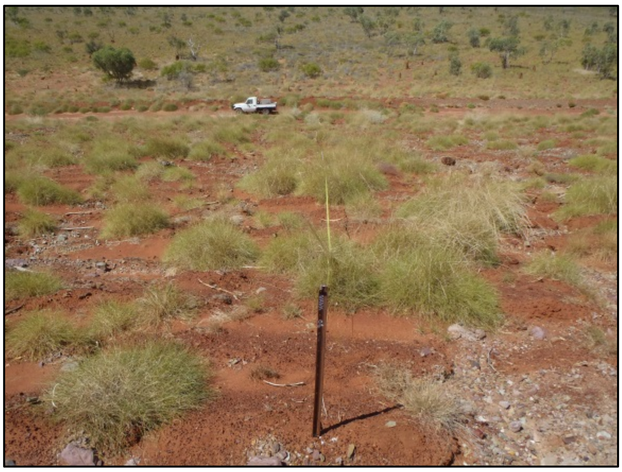


Plate 12: Transect BHRM01 in 2014, from 0m (left) and 50m (right)



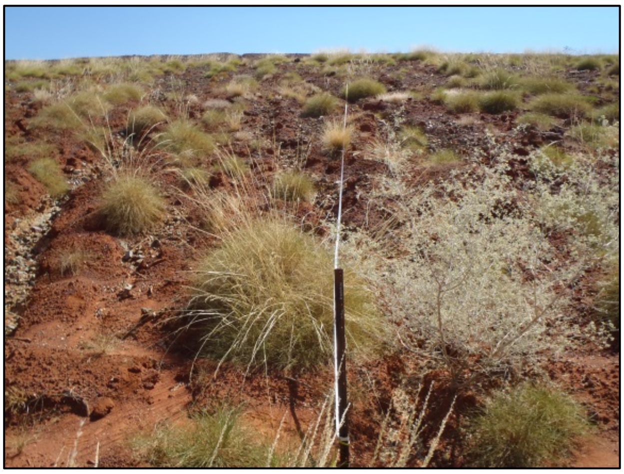
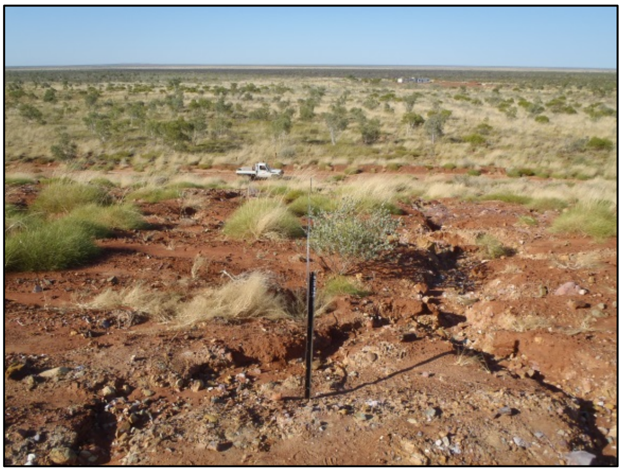


Plate 13: Transect BHRM06 in 2014, from 0m (left) and 50m (right)



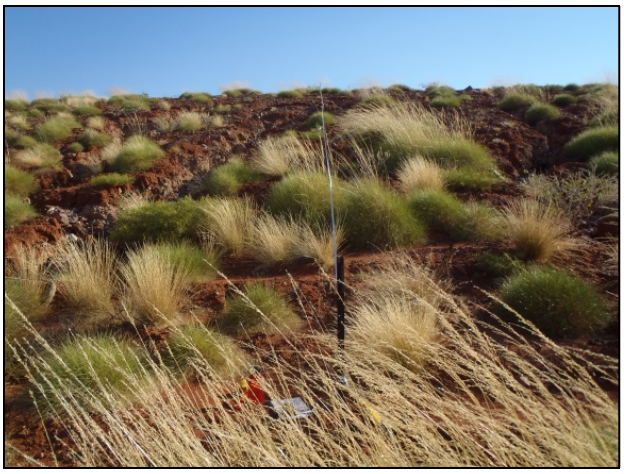


Plate 14: Transect BHRM04 in 2014, from 0m (left) and 43m (right)

Landscape Function

The landscape function indices for the sloping rehabilitation transects on the Bald Hill WRL all had landscape function indices below those of the sloping analogue transects (**Figure 3-13**). This was generally attributed to the high proportion of erosion present across the sloping rehabilitation along with the patchy vegetation cover. The two transects with the highest landscape function indices were BHRM04 and BHRM06, both of which had good cover perennial vegetation present and some of the bank and trough features had remained intact. Rehabilitation transects BHRM02, BHRM05 and BHMR06 all had proportions of organic patches that were similar or exceeded the analogue values (**Figure 3-14**). These were comprised of litter and annual ground cover that had accumulated in the remaining trough features and erosion gullies.

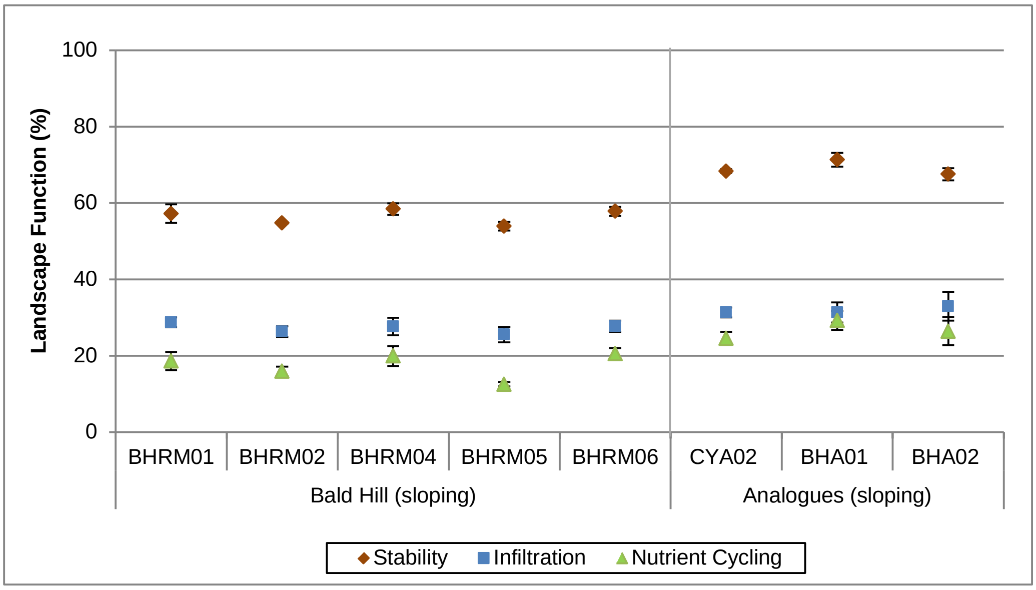


Figure 3-13: Landscape function of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the sloping analogue sites

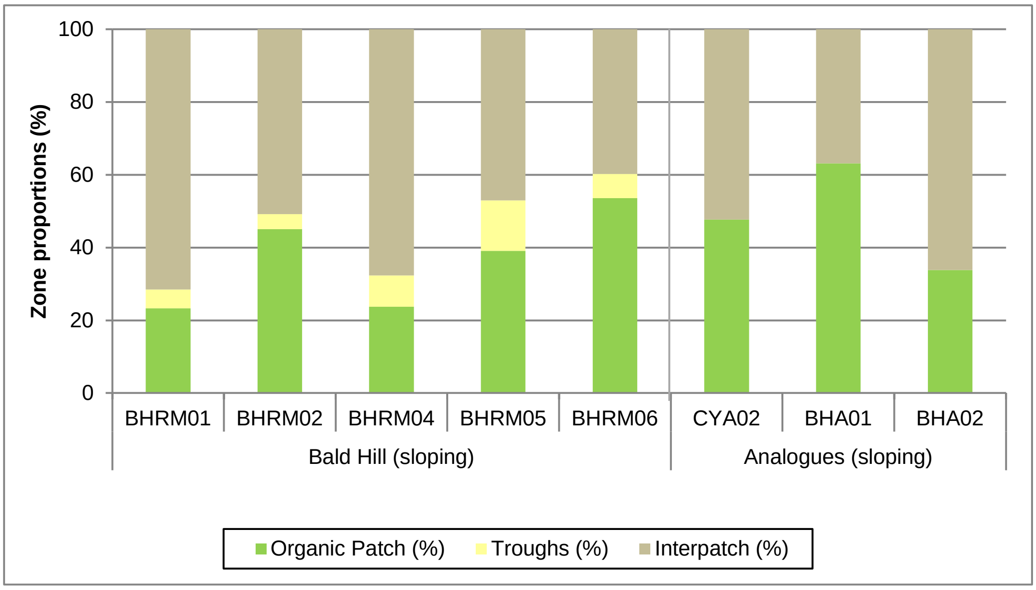


Figure 3-14: Patch proportions of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the sloping analogue sites

Vegetation

Transect BHRM02 had the greatest lower storey vegetation cover of the five sloping rehabilitation transects on the Bald Hill WRL, greater cover than sloping analogues BHA01 and BHA02 (**Figure 3-15**). The Bald Hill rehabilitation mostly comprises of small shrubs and native grasses, rather than the *Triodia* dominated Bald Hill analogue transects. The density of lower storey species was similar between the rehabilitation transects, ranging from 2,857 plants/ha (BHRM05) to 6,500 plants/ha (BHRM06), however these were well below the densities of the analogue transects. There was no potential upper storey species identified on any of the sloping rehabilitation transects.

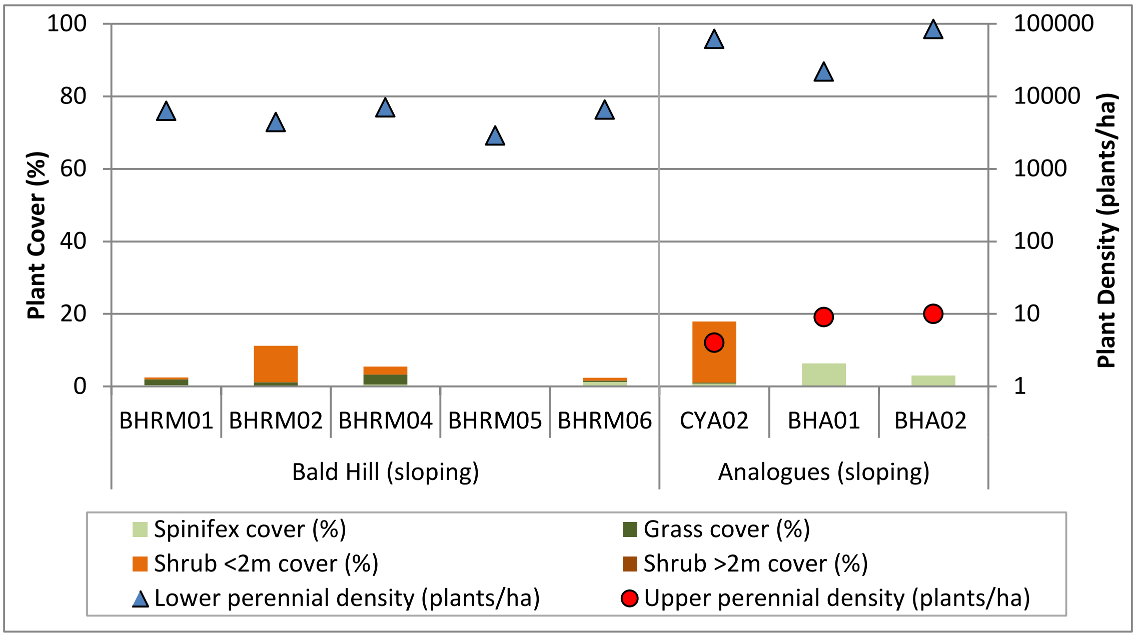


Figure 3-15: Plant cover and density of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the sloping analogue sites

Species Richness

The species richness varied across the rehabilitation transects from seven on BHRM06 to three on BHRM05 (**Appendix B**). This was greater than the species richness of the Bald Hill analogues but less than the Coyote sloping analogue. The most common species across the rehabilitation included: *Acacia ancistrocarpa* and *A. hilliana* which were present on four of the five sloping rehabilitation transects each. The most dominant species per transect included:

- *Acacia lysiphloia* on BHRM02;
- *Poaceae* sp. on BHRM05;
- *Sporobolus australasicus* on BHRM04; and
- *Triodia pungens* on BHRM01 and BHRM06.

Erosion

The proportion of slope erosion was high across the five sloping rehabilitation transects (**Figure 3-16**). Transect BHRM01 had the greatest proportion of slope erosion (24%), comprising of 15 rills (less than 30cm deep) and seven gullies (over 30cm in depth). Transect BHRM05 had the highest number of rills (21) and BHRM06 had the least (11) gullies. Given the age of the rehabilitation it is likely that the proportion of slope erosion will increase, if this occurs remediation work may be required.

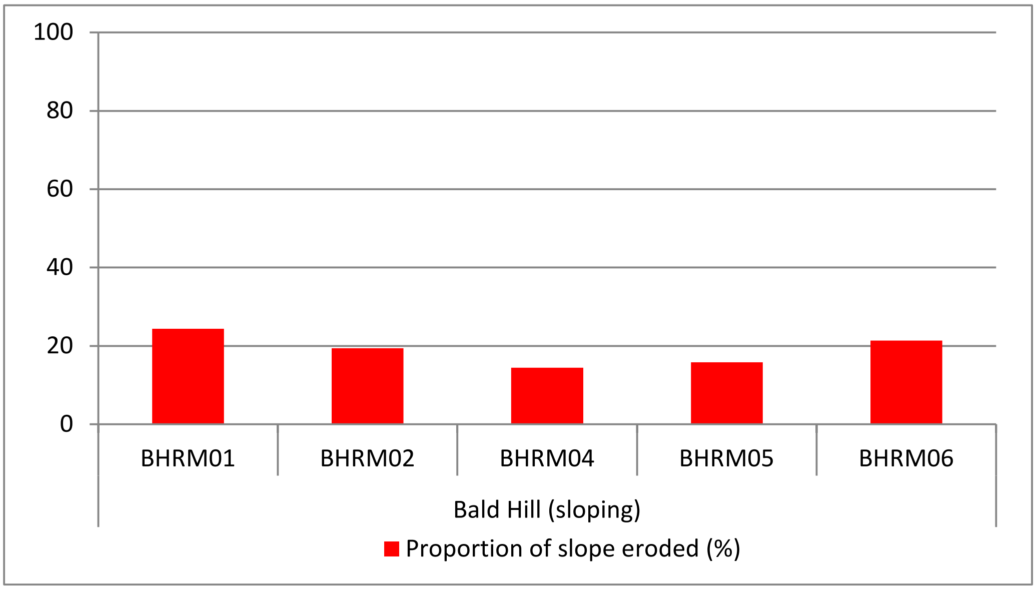


Figure 3-16: Proportion of slope eroded for the 2012 rehabilitation on the Coyote WRL

Habitat Complexity

Habitat complexity on the sloping rehabilitation was poor due to the low cover of perennial vegetation, with ground cover only provided by *Triodia* hummocks (**Appendix B**). Returned rock piles were present on the benches between lifts to provide some habitat. There was some evidence of grazing observed across the rehabilitation batters, likely from kangaroos.

3.3.2 Bald Hill (flat), 2012 Rehabilitation

The surface flat of the Bald Hill WRL was divided into cells to aid water management. Previously, transect BHRM07 had been divided up into four sub-transects to better represent the surface of the WRL. The 2014 assessment re-installed a single transect in the only cell that had vegetation present (**Plate 15**).

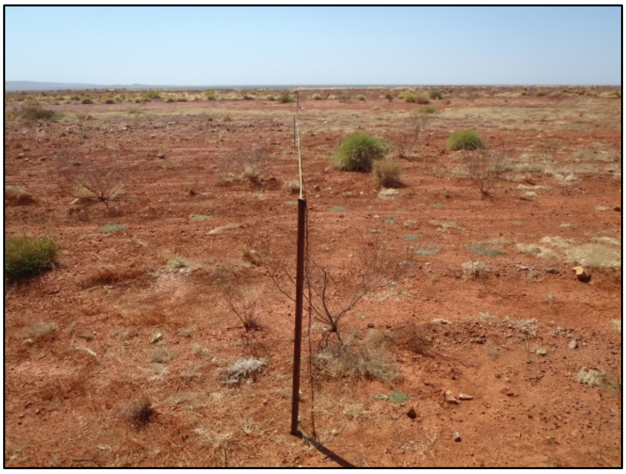


Plate 15: Transect BHRM07 in 2014, from 0m (left) and 33m (right)

Landscape Function

The surface flat rehabilitation on the Bald Hill WRL had landscape function indices that performed well below the indices of the flat analogue transects (**Figure 3-17**). This was attributed to the flat surface nature of the landform which had no integration of waste rock within the topsoil and the absence of ripping reduce the amount of resource capture zones. The lack of soil surface cover in particular had resulted in a low stability index. Additionally there was very little perennial vegetation development on the surface flat resulting in low infiltration and nutrient cycling indices. The proportion of organic patch zones was less than half the proportion of zones on the flat analogue transects (**Figure 3-18**).

Vegetation

The lower storey vegetation cover and density was well below the cover and density of the flat analogues sites (**Figure 3-19**). The total lower storey cover was less than 2% with a density of 6,428 plants/ha. No potential upper storey species were identified as part of the rehabilitation assessment.

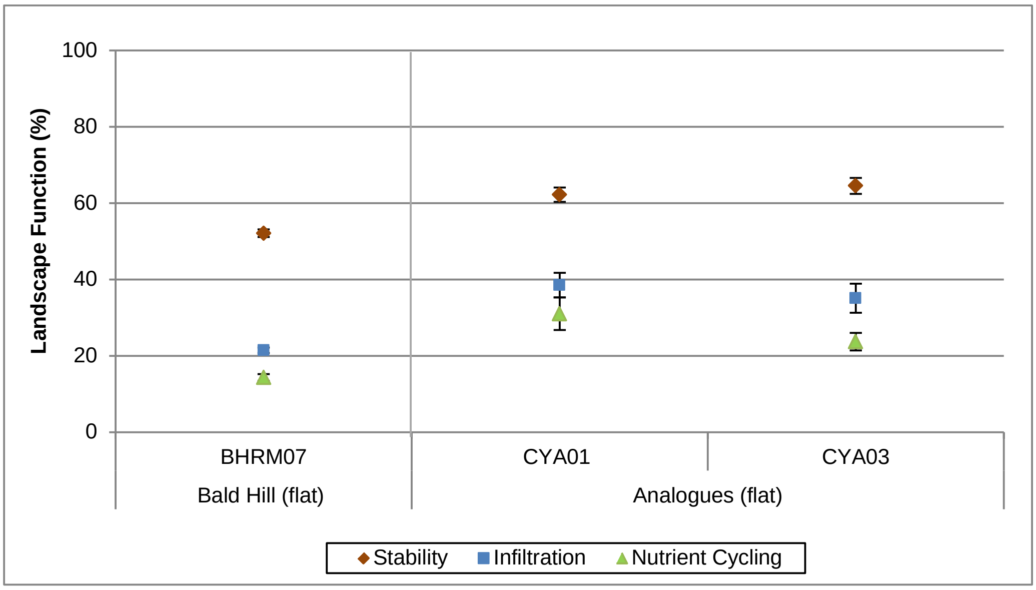


Figure 3-17: Landscape function of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the flat analogue sites

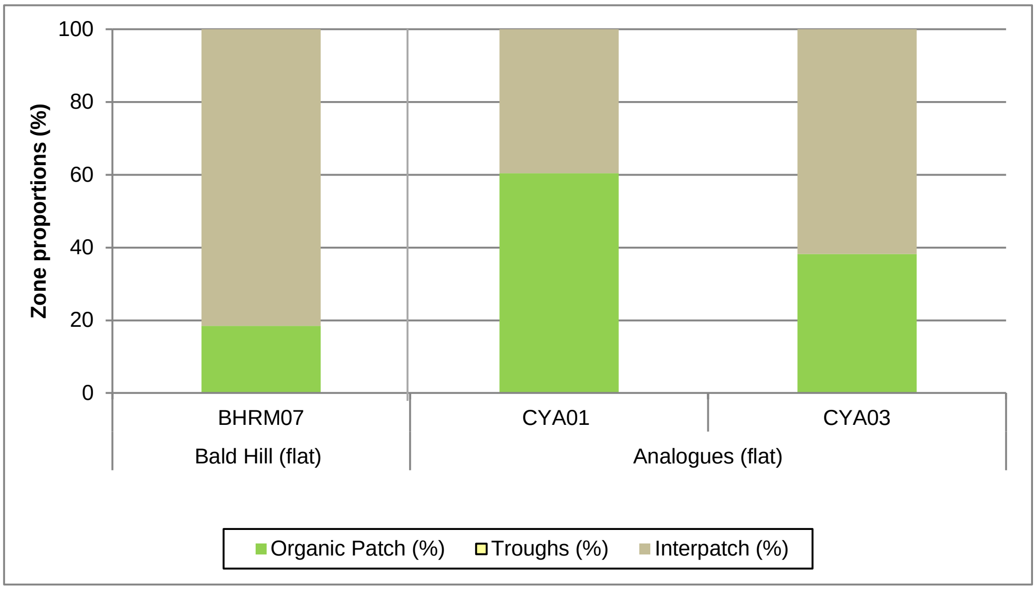


Figure 3-18: Patch proportions of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the flat analogue sites

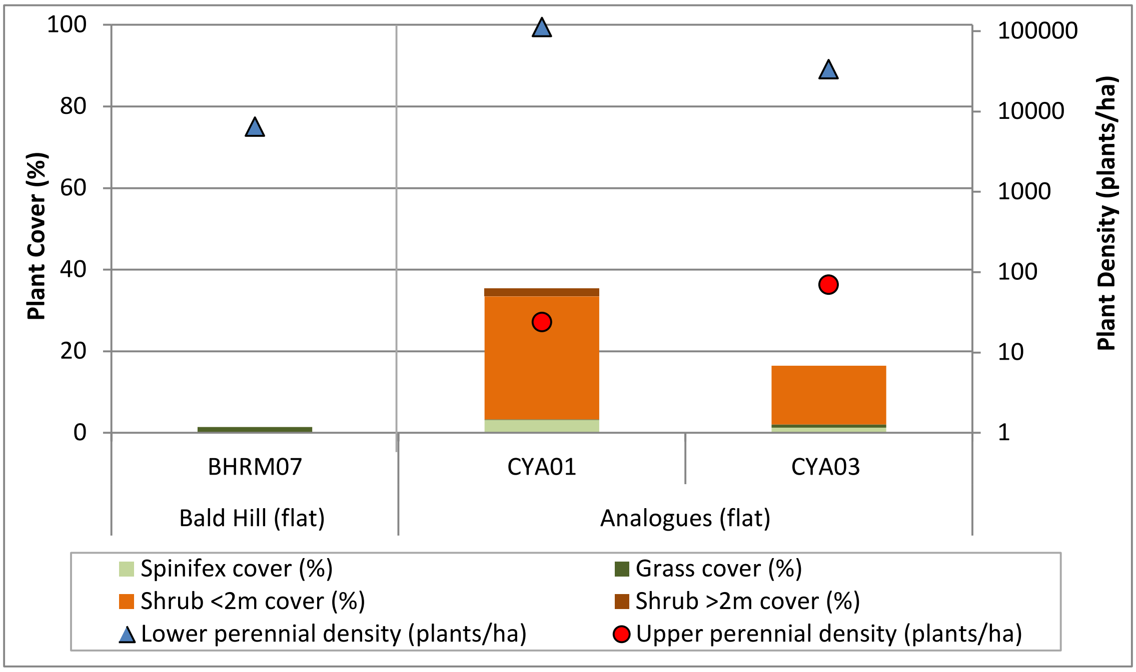


Figure 3-19: Plant cover and density of the 2012 rehabilitation on the Bald Hill WRL, in comparison with the flat analogue sites

Species Richness

The surface flat rehabilitation had a species richness of three, less than half of the species richness of the two flat analogue sites (**Appendix B**). *Sporobolus australasicus* was the most common of the three species identified on the rehabilitation. No introduced species were identified as part of the rehabilitation assessment.

Habitat Complexity

There were no notable habitat features available on the surface flat of the Bald Hill WRL. There was no evidence that fauna had unitised the area.

3.3.3 Recommendations

Given that this was the first complete assessment of the Bald Hill rehabilitation it is recommended that a further two years of monitoring are conducted to complete a set of baseline data for the rehabilitation area. The surface flat of the Bald Hill WRL should to be ripped and have some seed applied prior to the following wet season, November to February. Following this, a second transect could be installed on the surface flat. The remediation of erosion features on the batters could be considered in a selected approach that would not greatly affect the current vegetation cover.

3.4 Photo Monitoring

Ten of 11 photographic monitoring sites were re-assessed during the 2014 rehabilitation monitoring program (Table 3-1). Five photo monitoring sites were located at Coyote and five at Bald Hill. One site at Coyote (CYMS06) could not be located in 2014. Methods used for the photo monitoring aligned with those detailed in the Coyote Photo Monitoring Procedure (**Appendix D**).

Table 3-1: Photo monitoring site locations for the Coyote and Bald Hill mine sites

Site	Photo Point	Location
Coyote	CYMS01	52 K 481754 7799547
Coyote	CYMS02	52 K 482521 7799187
Coyote	CYMS03	52 K 483278 7799640
Coyote	CYMS04	52 K 483348 7800520
Coyote	CYMS05	52 K 482699 7800811
Bald Hill	KSMS01	52 K 486016 7834074
Bald Hill	KSMS02	52 K 486507 7833913
Bald Hill	KSMS03	52 K 485787 7833411
Bald Hill	KSMS04	52 K 484912 7834181
Bald Hill	KSMS05	52 K 485103 7833773

The variations in vegetation health and cover at both Coyote and Bald Hill were related to post fire recovery at these sites, rather than influences related to the mining operations. Three of the Coyote photo monitoring sites, CYMS02, CYMS03 and CYMS05, were burnt in September 2011. As a result there was a high density of *Triodia schinzii* and *Triodia pungens* as well and *Acacia stipuligera,* as these species are known to be stimulated by fire events. Photo point KSMS05 at Bold Hill was burnt in August 2013 (**Plate 16**). This site had previously been dominated by *Acacia hilliana* and *Triodia pungens* and the juveniles of these species were present in 2014. The remaining photo points had shown little change over the previous three years of assessment.

Plate 16: Photo point KSMS05-Q1 pre and post the August 2013 fire, left (2012), middle (2013) and right (2014)

4 Conclusions and recommendations

The 2008 rehabilitation on the Coyote WRL had similar landscape function results for the sloping and flat rehabilitation. The stability index was well below the analogue values while the infiltration and nutrient cycling index were closer to the analogue indices. The patch proportions were similar to the corresponding analogues. The lower storey cover of the sloping and flat rehabilitation transects was approaching the analogue lower storey cover. The flat rehabilitation had some upper storey establishment, the sloping rehabilitation had some potential upper storey species identified. The three sloping rehabilitation transects had erosion present, transect CYTR02 had the greatest proportion of slope erosion. Fauna utilisation included the presence of ants and kangaroos scats.

The 2012 rehabilitation on the Bald Hill WRL had landscape function indices for the sloping and flat rehabilitation that performed below the corresponding analogue values. This was attributed to the high proportion of erosion on the sloping transects along with the sparse lower storey vegetation cover. Of the five sloping rehabilitation transects only one transect had lower storey vegetation cover that was approaching the lower storey cover of the analogue sites. The five sloping rehabilitation sites had high (over 10%) proportions of slope erosion with the greatest being on transect BHRM01. There was little evidence of fauna utilisation of the Bald Hill WRL.

For the 10 photo monitoring sites, there were no observable changes in 2014 related to mining activities. Sites that had been impacted by fires in 2011 and 2013 were showing good signs of recovery towards a pre-fire ecosystem.

4.1 Recommendations

The surface flat of the Bald Hill WRL requires re-ripping and re-seeding to encourage the development of perennial vegetation. Following the re-working of the surface flat the establishment of a second flat rehabilitation transect would be beneficial, to increase the size of the monitoring data set.

Three years of monitoring is generally required to establish a baseline data set for rehabilitation monitoring, and to determine trends in data. A further two years of assessment is recommended for the ten rehabilitation transects installed on the Coyote and Bald Hill Waste Rock Landforms.

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Appendix A EFA Methods

A.1 Ecosystem Function Analysis

A.1.1 Background

Landscape Function Analysis (LFA) was developed by CSIRO and provides a field monitoring method that has been successfully adapted from rangeland ecosystems to suit mine site rehabilitation. The method employs indicators that assess and determine the functional status of the main landscape and ecosystem components at a rehabilitated site. The data can be used to determine whether the ecosystem on the waste landform is evolving appropriately. Poor performances may also be highlighted, and subsequent recommendations for remediation may be made.

The concept of Ecosystem Function Analysis (EFA) is based on a framework for ecosystem function that focuses on the critical processes within an ecosystem. These processes relate to the movement of vital ecosystem resources (water, nutrients, topsoil and organic matter) (Tongway et al. 1997). EFA consists of landscape function analysis (LFA), together with measures of vegetation and habitat complexity. Field data (soil condition, vegetation data, habitat complexity and erosion) is collected to provide information on these processes, thereby reflecting the functionality of the ecosystem overall. Field data from the rehabilitated landforms can be compared with data from suitable analogue sites.

Analogue sites provide representative values that are typical of the landscape surrounding the mine. However, the EFA values obtained for analogue sites do not necessarily exactly reflect the capabilities of rehabilitated landforms. A rehabilitated ecosystem may be considered functional when values for landscape parameters have increased over a reasonable period of time in conjunction with other ecosystem parameters, and then reached a plateau which is in the broad range of local analogue sites. According to Tongway and Hindley (1995), plateauing of the LFA data curve at an early stage, or at low values compared to the analogue, is a warning of limited ecosystem development in rehabilitation. Such incidents cannot be determined in early monitoring, but the values attained may give some indication of future trends. Variations in vegetation data may occur from year to year, typically due to seedling recruitment, plant development, succession, grazing or climatic fluctuations. Analysis of analogue vegetation data provides an indication of these natural environmental fluctuations.

An EFA assessment is generally conducted on a transect running down a slope (i.e. waste landform batter, TSF batter, rangeland hill slopes), following the line of resource flow (Sarre 1998). It is vital to consider resource regulation at a monitoring site, as the loss or retention of resources dictates the functioning of the landscape. Loss and retention of resources down the slope may be affected by:

- the presence or absence of obstructions (including plants);
- the nature of the soil (erodible or rocky); and
- the topography of the slope (smooth or undulating).

Resource regulation may be assessed using LFA, vegetation analysis and habitat complexity measurements.

A.1.2 Landscape Function Analysis (LFA)

LFA assessment is conducted along a permanent transect (up to 50 m) defined by a measuring tape. All transects are essentially linear, and detailed soil assessment is conducted in sub-sections of the transect that are up to 1 m long. The landscape zones on rehabilitated areas, defined as ‘banks’, ‘troughs’, and ‘flats’, were recorded along the transect. Variations of these landscape zones may also be recorded, such as ‘plant banks’, ‘plant troughs’ and ‘plant flats’. The analogue sites close to the mine provided data for general comparison with rehabilitation data. Major landscape zones present on the analogue slopes are typically ‘rocky slopes’ and ‘rocky flats’.

Each landscape zone has different soil surface characteristics depending on whether it collects or sheds resources (Table A1). A value of 1 indicates the poorest condition for each indicator assessed. Randomly-located soil surface condition assessments are conducted for all landscape zones along the transects. Soil surface condition is assessed on at least three replicates for each landscape zone.

Table A-1: Indicators of soil surface condition for the landscape assessment (Tongway and Hindley 1995)

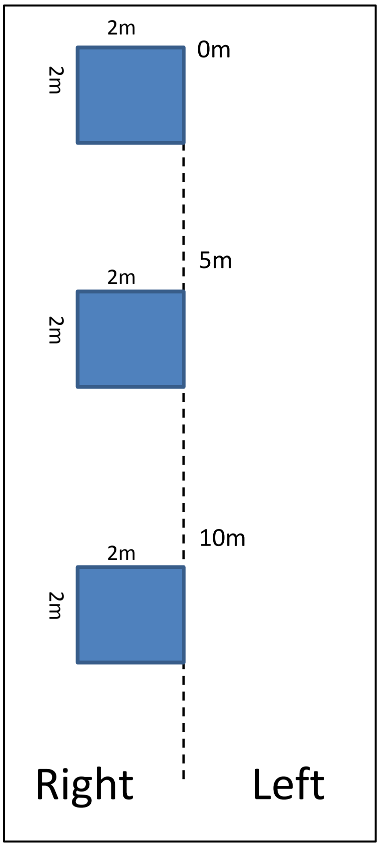
Indicator	Purpose of Measurement	Score
Soil cover	Assess susceptibility to erosion	1 - 5
Perennial basal cover	Assess the potential biomass for nutrient cycling	1 - 4
Litter cover (simple)	Assess the soil organic matter content	1 - 10
Litter cover (complex)	Assess the degree of incorporation (nutrient benefit) in soil	1 -30
Crust condition	Assess the crust stability and susceptibility to erosion	1 - 4
Erosion features	Evaluates the presence of erosion features	1 - 4
Deposited materials	The amount of deposited materials that can be remobilised	1 - 4
Cryptogam Cover	Cryptogams are a positive indicator of surface stability	1 - 4
Micro-topography	Assess the surface roughness for water and seed storage	1 - 5
Surface nature	Assess the impact that stress will have on the surface	1 - 5
Slake test	Assess the coherence of the soil when it is wet	1 - 4
Texture	Assess the proportions of different sized particles in the soil	1 - 4

A.1.3 Vegetation Dynamics

Key vegetation indicators were measured using 2m x 2m quadrats, arranged along a transect, and an area method for upper storey vegetation. Any plant species that could not be identified in the field were bought back and identified by a botanist in the MWH Herbarium.

Quadrat Method

The lower storey vegetation was assessed using 2m x 2m quadrats, arranged down the length of the LFA transect. Quadrats were placed at 5m intervals (0m, 5m, 10m.. etc) down the right hand side of the transect. All perennial species within the quadrat were counted and estimates of canopy cover made. Plants over hanging into the quadrat (with base of plant anchored outside the quadrat) were given a cover value but a density of zero. A list of annual species and any other interesting features was also recorded.



Area Method

This method is used to ascertain cover and density values of upper storey or potential upper storey species. All plants are counted and measured within a defined quadrat, typically 25m either side of the transect to determine values for cover and density.

A.1.4 Habitat Complexity

The method for assessing habitat complexity has been adapted from Newsome and Catling (1979). These methods were reviewed and updated in 2003 (**Table A2**). This improvement was in response to a greater understanding of the processes of faunal colonisation in rehabilitated areas, and of key indicators of enhancements in vertebrate faunal habitat.

Table A-2: Indicators of Habitat Complexity

Component	Habitat Complexity Indicators				
Vegetative Storeys	Groundcover vines, creepers, cryptograms	Under-storey grasses, herbs, 0.0 - 0.1 m	Mid-storey small shrubs, 0.5 - 1.5m	Upper-storey tall shrubs, 1.5 - 3.0 m	Overstorey > 3.0 m
Available Faunal Niches	Leaf litter or perennial grasses or sticks < 5 cm, or rocky scree > 2 cm and < 15 cm diameter	Logs or rocks >25 cm diameter	Immature trees or shrubs	Mature trees or shrubs	
Ants	1 species sparse	1 species abundant	2 species sparse	2 or more species abundant	
Scats (native only)	1species sparse	1 species abundant	2 species sparse	2 or more species abundant	*Sources identified if possible*
Water Availability	Water body < 1 m diam. Present or evidence	Water body > 1 m diam. Present or evidence	*Water to be within an area 25 m either side of the transect and within 10 m top and bottom of markers*		

A.1.5 Erosion Assessment

Annual monitoring of fixed-position, erosion transects as a component of the EFA data collection process will show whether erosion on the slopes has stabilised or remains active. Erosion assessments are conducted on the upper and lower sections of the rehabilitation slopes on the waste landforms. Erosion transects are established at right angles to the main transect. The total length of the erosion transect is 50 m (25 m either side of the main transect). The erosion transect for the upper slope is located at 10m on the main transect and the lower slope is usually assessed at 25 or 30 m, depending on the total length of the slope.

The crest of the bank immediately above the fixed positions for the upper and lower slopes is assessed. The number of rills (0.3 m deep) and gullies (greater than 0.3 m deep) are counted and their width and depth are measured (McDonald et al. 1998).

A.1.6 Data Analysis

Landscape data is entered into an Excel workbook developed by CSIRO which calculates the proportion of the slope covered by various landscape zones. Stability, infiltration and nutrient cycling indices for each landscape zone are calculated from the scores allocated during the soil surface condition assessment (Table A1). The overall stability, infiltration and nutrient cycling indices for the landscape are calculated for each landscape zone, and then converted to a proportion of the slope. Average stability, infiltration and nutrient cycling scores are calculated for both rehabilitation and analogue transects.

Appendix B Raw LFA Data

Table B-1: Raw LFA data for the transects assessed at the Coyote and Bald Hill mine sites in 2014

Site/Waste Landform	Year of Rehabilitation	Transect No.	Stability	Std error	Infiltration	Std error	Nutrients	Std error
Coyote Rehabilitation	2008	CYTR01	58.9	1.9	26	2.5	21	2.6
Coyote Rehabilitation	2008	CYTR02	63	1.5	29.7	3	25.5	3.6
Coyote Rehabilitation	2008	CYTR03	58.3	0.8	32	1.1	25.2	1.4
Coyote Rehabilitation	2008	CYTR04	54.8	0.7	33	0.8	20.1	1.4
Coyote Analogue	-	CYA01	62.2	1.9	38.5	3.2	31	4.3
Coyote Analogue	-	CYA02	68.3	0.5	31.3	1.3	24.5	1.7
Coyote Analogue	-	CYA03	64.5	2.1	35.1	3.8	23.7	2.3
Bald Hill Rehabilitation	2012	BHRM01	57.2	2.4	28.7	1.3	18.6	2.4
Bald Hill Rehabilitation	2012	BHRM02	54.7	0.1	26.3	1.4	15.9	1.2
Bald Hill Rehabilitation	2012	BHRM04	58.4	1.5	27.6	2.3	19.9	2.6
Bald Hill Rehabilitation	2012	BHRM05	53.9	1.1	25.5	2	12.5	0.6
Bald Hill Rehabilitation	2012	BHRM06	57.8	1.2	27.7	1.5	20.5	1.5
Bald Hill Rehabilitation	2012	BHRM07	52.1	1	21.4	0.7	14.3	0.9
Bald Hill Analogue	-	BHA01	71.3	1.8	31.3	2.6	29.2	2.5
Bald Hill Analogue	-	BHA02	67.5	1.6	32.9	3.7	26.4	3.7

Table B-2: Raw patch proportion data for the transects assessed at the Coyote and Bald Hill mine sites in 2014

Site/Waste Landform	Year of Rehabilitation	Transect No.	Spinifex Cover (%)	Grass Cover (%)	Shrub <2m cover (%)	Shrub >2m cover (%)	Lower Perennial Density (plants/ha)	Upper Perennial Density (plants/ha)	Species Richness
Coyote Rehabilitation	2008	CYTR01	0.11	2.22	3.78	0.00	4722	0	5
Coyote Rehabilitation	2008	CYTR02	0.56	7.80	32.5	2.00	7500	0	9
Coyote Rehabilitation	2008	CYTR03	2.57	0.67	8.00	2.78	6667	0	5
Coyote Rehabilitation	2008	CYTR04	0.15	3.80	8.90	0.00	5250	70	8
Coyote Analogue	-	CYA01	3.12	0.20	30.10	2.00	111500	24	11
Coyote Analogue	-	CYA02	0.84	0.24	16.80	0.00	60833	4	8
Coyote Analogue	-	CYA03	1.26	0.80	14.40	0.00	33250	70	9
Bald Hill Rehabilitation	2012	BHRM01	0.37	1.60	0.50	0.00	6250	0	5
Bald Hill Rehabilitation	2012	BHRM02	0.16	1.00	10.06	0.00	4375	0	6
Bald Hill Rehabilitation	2012	BHRM04	0.53	2.78	2.16	0.00	6944	0	5
Bald Hill Rehabilitation	2012	BHRM05	0.00	0.07	0.08	0.00	2857	0	3
Bald Hill Rehabilitation	2012	BHRM06	1.23	0.40	0.80	0.00	6500	0	7
Bald Hill Rehabilitation	2012	BHRM07	0.02	1.42	0.00	0.00	6429	0	3
Bald Hill Analogue	-	BHA01	6.35	0.00	0.00	0.00	21750	9	3
Bald Hill Analogue	-	BHA02	3.00	0.00	0.00	0.00	83611	10	1

Table B-3: Raw vegetation data for the transects assessed at the Coyote and Bald Hill mine sites in 2014

Site/Waste Landform	Year of Rehabilitation	Transect No.	Organic Patch (%)	Troughs (%)	Interpatch (%)
Coyote Rehabilitation	2008	CYTR01	34.0	3.6	62.4
Coyote Rehabilitation	2008	CYTR02	41.2	4.8	54.0
Coyote Rehabilitation	2008	CYTR03	46.2	9.8	44.0
Coyote Rehabilitation	2008	CYTR04	38.0	0.0	62.0
Coyote Analogue	-	CYA01	60.4	0.0	39.6
Coyote Analogue	-	CYA02	47.7	0.0	52.3
Coyote Analogue	-	CYA03	38.2	0.0	61.8
Bald Hill Rehabilitation	2012	BHRM01	23.3	5.2	71.5
Bald Hill Rehabilitation	2012	BHRM02	45.1	4.1	50.8
Bald Hill Rehabilitation	2012	BHRM04	23.7	8.6	67.7
Bald Hill Rehabilitation	2012	BHRM05	39.1	13.9	47.0
Bald Hill Rehabilitation	2012	BHRM06	53.6	6.7	39.7
Bald Hill Rehabilitation	2012	BHRM07	18.5	0.0	81.5
Bald Hill Analogue	-	BHA01	63.2	0.0	36.8
Bald Hill Analogue	-	BHA02	33.8	0.0	66.2

Table B-4: Raw erosion data for the transects assessed at the Coyote and Bald Hill mine sites in 2014

Site/Waste Landform	Year of Rehabilitation	Transect No.	No. of rills/50m	No. of gullies/ 50m	Average Width (m)	Average Depth (m)	Av. Cross Sectional Area (m2)	Proportion of Bank Eroded (%)
Coyote Rehabilitation	2008	CYTR01	16.50	1.50	0.26	0.10	0.01	9.51
Coyote Rehabilitation	2008	CYTR02	10.00	2.00	0.83	0.20	0.08	19.75
Coyote Rehabilitation	2008	CYTR03	2.00	1.50	1.00	0.19	0.10	7.43
Bald Hill Rehabilitation	2012	BHRM01	17.00	2.50	0.37	0.14	0.03	14.49
Bald Hill Rehabilitation	2012	BHRM02	14.50	7.00	0.57	0.21	0.07	24.39
Bald Hill Rehabilitation	2012	BHRM04	10.50	5.50	0.67	0.25	0.09	21.35
Bald Hill Rehabilitation	2012	BHRM05	21.00	2.50	0.34	0.14	0.02	15.87
Bald Hill Rehabilitation	2012	BHRM06	17.50	1.50	0.51	0.13	0.03	19.40

Table B-5: Habitat complexity for the transects assessed at the Coyote and Bald Hill mine sites in 2014

Plot		CYTR01	CYTR02	CYTR03	CYTR04	CYA01	CYA02	CYA03	BHRM01
Vegetative Storeys	**Groundcover-**vines, creepers, cryptogams								
	Under-storey-grasses, herbs, 0-0.1m								
	Mid-storey-small shrubs, 0.5-1.5m								
	Upper-storey-tall shrubs, 1.5-3.0m								
	Over-storey- >3.0m								
Available Faunal Niches	Leaf litter, or perennial grasses, or sticks <5cm, or rocky scree>2cm-<15cm diam.								
	Logs, or rocks>25cm diam.								
	Immature trees, or shrubs.								
	Mature trees, or mature shrubs.								
Ants	1 species, sparse								
	1 species, abundant								
	2 or more species, sparse								
	2 or more species, abundant								
Scats	1 species, sparse								
	1 species, abundant								
	2 or more species, sparse								
	2 or more species, abundant								
Water Availability	Water body <1m diam. Present or evidence								
	Water body >1m diam. Present or evidence								

Plot		BHRM02	BHRM04	BHRM05	BHRM06	BHRM07	BHA01	BHA02
Vegetative Storeys	**Groundcover-**vines, creepers, cryptogams							
	Under-storey-grasses, herbs, 0-0.1m							
	Mid-storey-small shrubs, 0.5-1.5m							
	Upper-storey-tall shrubs, 1.5-3.0m							
	Over-storey- >3.0m							
Available Faunal Niches	Leaf litter, or perennial grasses, or sticks <5cm, or rocky scree>2cm-<15cm diam.							
	Logs, or rocks>25cm diam.							
	Immature trees, or shrubs.							
	Mature trees, or mature shrubs.							
Ants	1 species, sparse							
	1 species, abundant							
	2 or more species, sparse							
	2 or more species, abundant							
Scats	1 species, sparse							
	1 species, abundant							
	2 or more species, sparse							
	2 or more species, abundant							
Water Availability	Water body <1m diam. Present or evidence							
	Water body >1m diam. Present or evidence							

Appendix C Perennial Species List

Transect Number	CYTR01	CYTR02	CYTR03	CYTR04	CYA01	CYA02	CYA03	BHRM01	BHRM02	BHRM04	BHRM05	BHRM06	BHRM07	BHA01	BHA02
Species/Year of Rehabilitation	2008	2008	2008	2008	-	-	-	2012	2012	2012	2012	2012	2012	-	-
^Cenchrus ciliaris		*													
Acacia sp.		*													
*Acacia adoxa var. adoxa					*			*	*			*			
*Acacia adsurgens		*													
*Acacia ancistrocarpa			*	*				*	*		*	*	*		
*Acacia elachantha					*										
*Acacia elachantha (Glabrous Variant)				*											
*Acacia hilliana		*	*			*	*	*	*	*		*			
Acacia ?holosericea	*	*													
*Acacia lysiphloia									*						
Acacia sp. (juvenile)							*				*				
*Acacia stipuligera			*		*										
Acacia tumida				*											
*Aristida holathera var. holathera	*	*	*	*						*					
*Aristida inaequiglumis	*	*										*			
Corchorus sp.					*	*	*								
Corymbia ?aspera				*											
Eragrostis ?eriopoda					*		*					*			
Eragrostis sp.				*		*									
Eucalyptus brevifolia					*	*	*								
Eucalyptus sp. (juvenile)										*					
Grevillea wickhamii				*	*									*	
Hakea sp.					*										
*Halgania solanacea						*	*								
*Hybanthus aurantiacus							*								
*Jacksonia aculeata					*										
Maireana georgei	*														

Transect Number	CYTR01	CYTR02	CYTR03	CYTR04	CYA01	CYA02	CYA03	BHRM01	BHRM02	BHRM04	BHRM05	BHRM06	BHRM07	BHA01	BHA02
Species/Year of Rehabilitation	2008	2008	2008	2008	-	-	-	2012	2012	2012	2012	2012	2012	-	-
Melaleuca sp.														*	
**Paraneurachne muelleri*						*			*						
**Pluchea tetranthera*								*							
Poaceae sp. (sterile)											*				
Ptilotus calostachyus					*										
Senna ?artemisioides												*			
**Heliotropium ? haesum*						*									
Sida sp.							*								
**Sporobolus australasicus*										*			*		
**Triodia ?pungens*		*	*			*	*		*	*		*			
**Triodia intermedia*														*	*
**Triodia pungens*	*			*				*					*		
**Triodia schinzii*					*										
**Triodia* sp.		*													

*	Denotes species that were recorded along the vegetation transect
*	Dominant species on the waste landform

(* Botanist ID, ^ Introduced species)

Appendix D Photo Monitoring Methods

Vegetation Monitoring SOP

Coyote Tanami

July 2012

DOCUMENT VERSION CONTROL AND QUALITY ASSURANCE

DETAILS OF REVISION CHANGES

Old Section Ref.	New Section Ref.	Description

CONTENTS

1 INTENT

To provide instructions on setting up vegetation monitoring sites, their locations and when they are required to be monitored. It will discuss the monitoring methods and instructions for reporting and where information necessary to identify plants is located. This Standard Operating Procedure (SOP) will ensure that a consistent monitoring and reporting of vegetation is achieved at Tanami Gold sites.

2 APPLICATION

Vegetation monitoring will be conducted biannually Coyote (Stage 1) and Bald Hill (Stage 2) operations, once at the end of the wet and once at the end of the dry season. It will allow regular monitoring of the vegetation regrowth and any affects mining has on the surrounding environment. It will occur in February and September.

3 EQUIPMENT

Camera

Laminated vegetation monitoring signs

Plant Identikit/ reference material

White board marker

GPS with vegetation monitoring points

Flagging tape

Notebook/spare paper

Pen/ pencil

Previous vegetation monitoring sheets

Green canvas carry bag

Rags

Spare batteries for GPS

50m Tape measure

For setting up sites and fixing sites you will need;

Wooden pegs

Metal star pickets

Hammer/Star Picket Driver

50m Tape measure

4 PPE

Water

Sun protection

Safety glasses

Hardhat

Gloves

5 HAZARDS ASSOCIATED WITH TASKS

Snakes	Be aware snakes can be out in the bush with you if in area do not corner or threaten them
Heat	Try to work in the cooler parts of the day, have breaks seek shade if there is any present.
Dehydration	Ensure you have plenty of water with you. Drink Aqualyte solution as well.
Splinters	Wear gloves if handling pegs
Tripping	Be aware of trip hazards on the ground
Working by self in isolated area	Write self up on location board or inform direct supervisor of location.
Wet weather- access to sites	Drive to conditions Walk inland to vegetation sites.

6 PROCEDURE

6.1 Setting up monitoring sites

Two different layouts have been used at a) Coyote and b) Bald Hill. Coyote's monitoring sites are the initial sites that were set up and consist of only one trapeze shaped area to calculate plant growth and photograph. Bald Hill monitoring sites consist of a 50m transect with three 10 x 10m quadrats.

6.1.1 Coyote

Coyote monitoring sites require 2 star pickets and 5 survey pegs to be placed in the ground to form the shape of a trapezoid this will form the area that will be used to collect our data during our monitoring. This shape will allow the front and back of the photo to fit into the photo when you stand out the front to take the photo. See *Figure 6.1.1.a.i Measurements for Vegetation Monitoring Sites- Coyote* and *Figure 6.1.1.a.ii Photo of Vegetation monitoring site- Coyote*.

6.1.1.a Peg placement

Where possible face the monitoring sites North - South so you can take a photo any time of the day without the sun affecting the photo.

1. For the front place one steel picket into the ground.
2. Facing the direction you want the monitoring site to be situated run a tape out 12.5m place in a second steel picket.
3. Off of the first steel picket turn 90^o from the line created with the second steel picket and measure 3.6m. Place a wooden peg into the ground.
4. From the first steel picket face 90^o in the opposite direction and measure 3.6m and place a second wooden peg into the ground.
5. Going to the second steel picket turn 90^o from the line created with the first steel picket and measure7.6m and place your 3rd wooden peg into the ground.
6. From the second steel picket face 90^o in the opposite direction and measure 7.6m and place the fourth wooden peg into the ground.
7. The peg you will line up your photo with is placed 4.4m in front of the first steel picket that went in the ground. (Opposite direction to the second steel picket you put in the ground.)

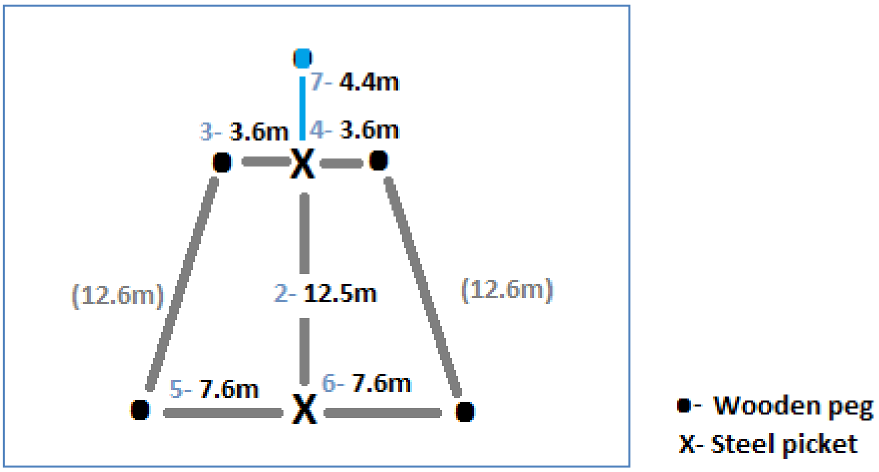


Figure 6.1.1.a.i Measurements for Vegetation Monitoring Sites-Coyote

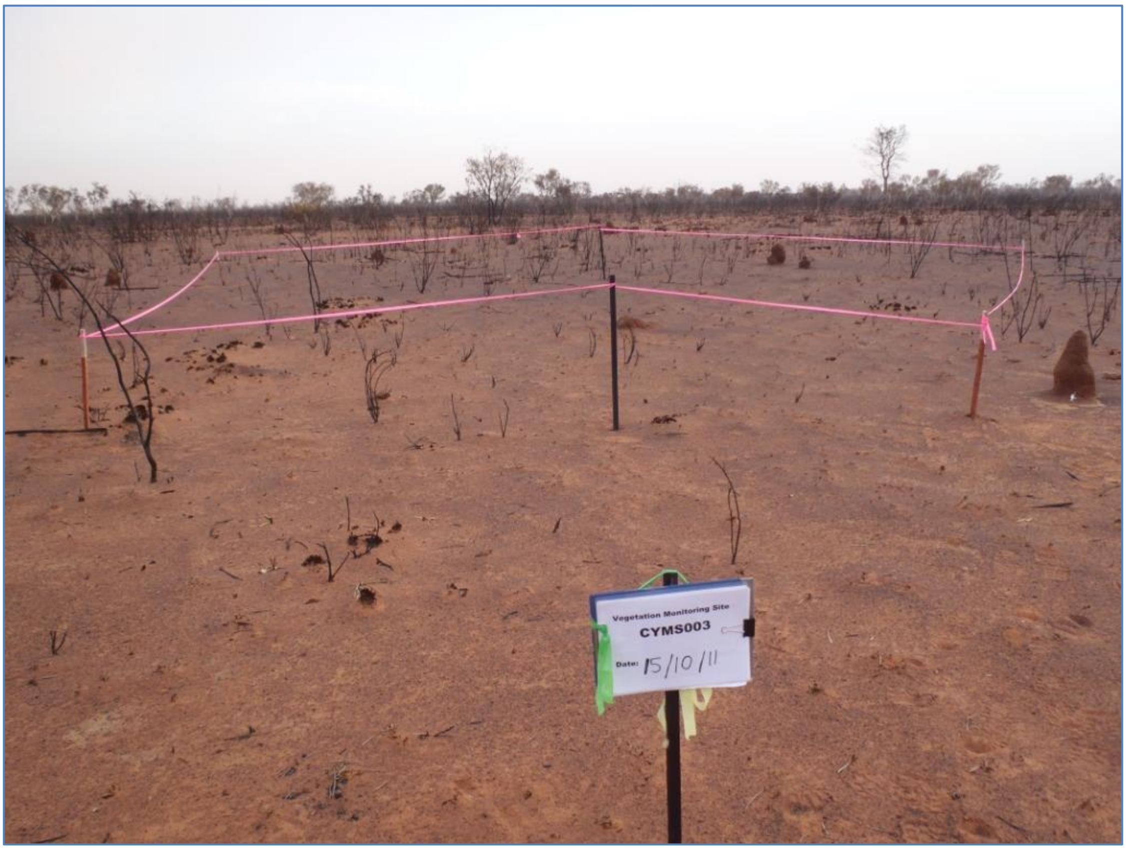


Figure 6.1.1.a.ii Vegetation Monitoring Site Photo- Coyote

6.1.1.b Site locations

Coordinates (GDA94)			
	mE	mN	Type
CYMS001	481754	7799542	Coyote Vegetation Monitoring Site
CYMS002	482507	7799192	Coyote Vegetation Monitoring Site
CYMS003	483279	7799635	Coyote Vegetation Monitoring Site
CYMS004	483352	7800520	Coyote Vegetation Monitoring Site
CYMS005	482697	7800810	Coyote Vegetation Monitoring Site
CYMS006	481535	7799961	Coyote Vegetation Monitoring Site
CYMS007	475888	7801743	Coyote Vegetation Monitoring Site Fire regeneration site
Photot point: west - east airstrip gravel pit			

Site locations are stored on the computer in; W:\Environmental\07 Flora\7.1 Vegetation Monitoring Sites\Garmin GPS maps.

6.1.1.c Data collection

Previous data sheets can be found on the computer in W:\Environmental\07 Flora\7.1 Vegetation Monitoring Sites. The sheets will look like the below and will require the new information to be inserted to the sheet.

Data that changes is;

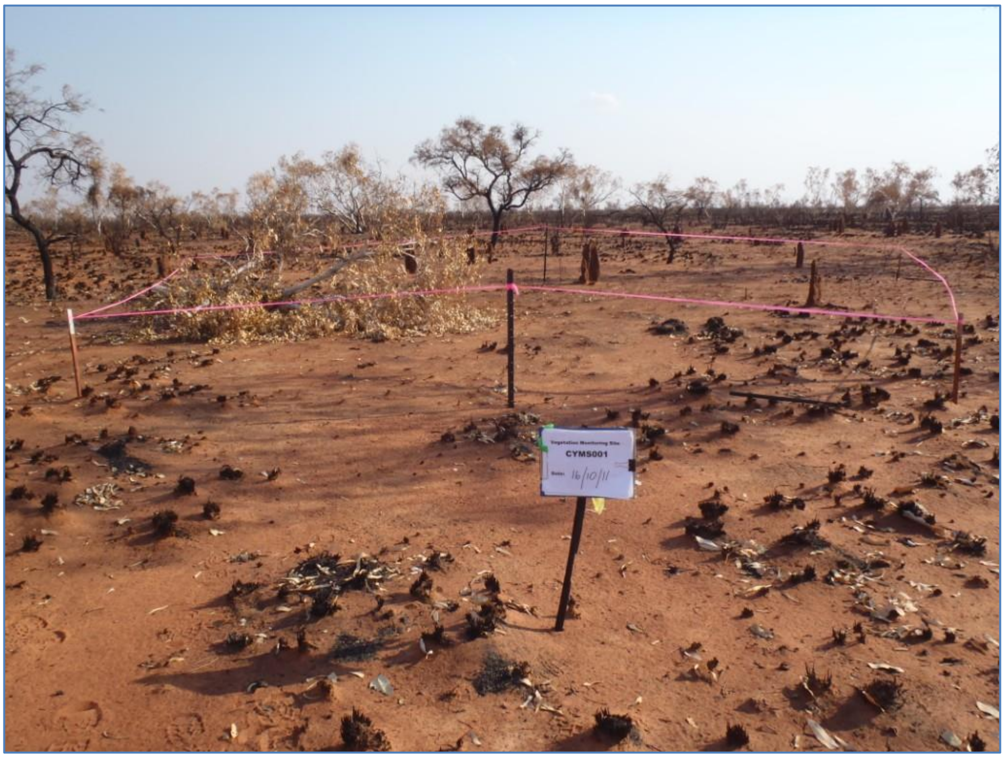
- The date
- The photo
- The photo date
- Any new plants in the species list
- The new number of plants identified for each species.
- Update the plant assessment fields to reflect what you are seeing.

Photographic Monitoring Site Data Sheet

Company: Tanami Gold Project: Coyote Date: 16/10/11
Site ID: CYMS 001 Location: 481754mE 7799542mN (GDA)

Site Description: Located south of the evaporation ponds. Undisturbed vegetation. Photographed looking South. The photograph taken on the 6/2/11 was taken from the same location, just on a slightly different angle, hence the trees on the right where not captured.

Vegetation Type: Spinifex grassland with scattered eucalypt, Grevillea and Acacia Species growing on sandy soil.



Date Of photograph: 16/10/11

Species present: (identified using plant identikit) cover 2%	
Triodia Pungens	50 burnt hummock

Plant Health Assessment: Due to recent fire on 28th of September 2011 vegetation growth is non-existent.	
Trees:	All burnt out
Shrubs:	All burnt out
Grasses:	All burnt out

Incidentals- none present

A GPS maybe required in initially identifying the site locations, this is due to using wooden pickets and possible bushfires. When at the site run the flagging tape around the monitoring site pegs to identify your work area. Place the correct monitoring sign (dated in white board marker) so it can be seen. Step back till you can see all pegs in the frame of the camera.

Start collecting your data inside your work area; make as many notes as you want in relation to plant growth health and any signs of plant stress. If you are unable to identify a plant using your reference material then take a sample to see if you can cross reference it back at the office.

6.1.2 Baldhill

The installation of Bald Hill monitoring sites require 2 star pickets and 11 survey pegs to be placed in the ground to form a 50m line with 3 squares placed along it- one at either end and one in the middle. This will form the area that will be used to collect our data during our monitoring. See *Figure 6.1.2.a.i Measurements for Vegetation Monitoring Sites-Baldhill* and *Figure 6.1.2.a.ii Vegetation Monitoring Site Photo- Baldhill.*

6.1.2.a Peg placement

Where possible face the monitoring sites North - South so you can take a photo any time of the day without the sun affecting the photo.

1. Select the area you want to monitor and place a Steel picket in at the start of the area.
2. Run the tap out to 50m and place the second steel picket in the ground.
3. Walk back down the line place a wooden peg at meter 45m.
4. Place second peg at meter 25m.
5. Place third wooden peg at meter 20m.
6. Place fourth wooden peg at meter 5m.
7. Pick which side you will want the squares to be situated.
8. At 90^{o} place a wooden peg 5m away from the steel picket
9. Place last peg for the square in line with both wooden pegs in Quadrant 1.
10. Repeat step 8 and 9 for Quadrant 2 and 3. (The diagonals will measure 7.1m if square).

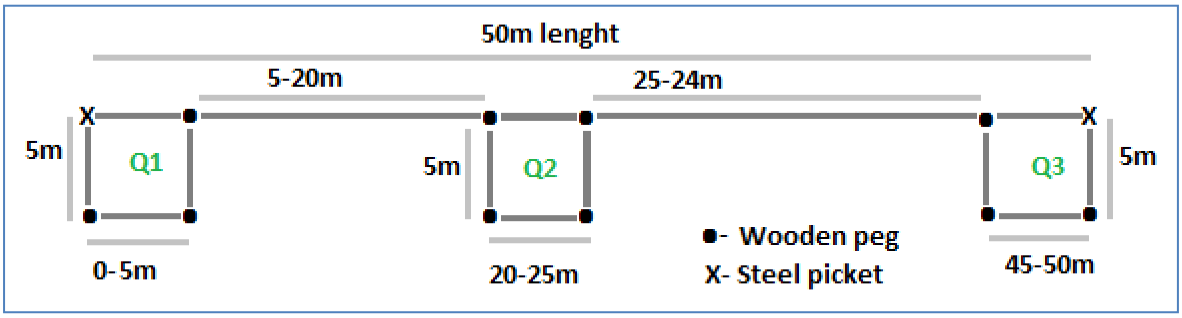


Figure 6.1.2.a.i Measurements for Vegetation Monitoring Sites-Baldhill

Figure 6.1.2.a.ii Vegetation Monitoring Site Photo- Baldhill

6.1.2.b Site locations

Coordinates (GDA94)	mE	mN	Type
KSMS01	486010	7834071	Vegetation monitoring site -Waste dump
KSMS02	486507	7833921	Vegetation monitoring site -Waste dump
KSMS03	485785	7833411	Vegetation monitoring site -Waste dump
KSMS04	484913	7834178	Vegetation monitoring site -WEP
KSMS05	485101	7833766	Vegetation monitoring site -WEP

Site locations are stored on the computer in; W:\Environmental\07 Flora\7.1 Vegetation Monitoring Sites\Garmin GPS maps.

6.1.2.c Data collection

Previous data sheets can be found on the computer in W:\Environmental\07 Flora\7.1 Vegetation Monitoring Sites. An example of the sheets is provided below and will require the new information to be inserted to the sheet.

Data that changes is;

- The date
- The photo
- The photo date
- Any new plants in the species list
- The new number of plants identified for each species.
- Update the plant assessment fields to reflect what you are seeing.

Photographic Monitoring Site Data Sheet

Company: Tanami Gold	Project: Coyote Date: 14/11/10
Site ID: KSMS 001	Location: 486010mE 7834071mN (GDA)
Site Description:	Western side of waste dump. Vegetation growth is on red sand plain with laterite content. Becomes a flood plane in the wet season
Vegetation Type:	Open Eucalyptus and Acacia woodland over mature Triodia grassland

Date Of photograph: 15/10/11

Species present: (identified using plant identikit)	
Quadrant 1 (furthest from waste dump) Cover 60%	
Acacia hilliana	(2 dead)
Eucalyptus brevifolia	2 (1 dead)
Triodia pungens	11 hummocks
Quadrant 2 Cover: 40%	
Acacia adoxa	(3 dead)
Acacia hilliana	(2 dead)
Triodia pungens	11 hummocks
Quadrant 3 Cover: 30%	
Acacia adoxa	(1 dead)

Acacia lysiphloia	(3 dead)
Triodia pungens	(1 dead)

Plant Health Assessment:	
Trees:	*Eucalyptus* health, other trees are showing signs of stress or are dead.
Shrubs:	All dead, vegetation has died due to excess flooding during the wet.
Grasses:	Toward the waste dump vegetation has died due to excess flooding during the wet.

Incidentals- *Eucalyptus brevifolia, Acacia adsurgens, Triodia pungens.*

When you arrive to a vegetation monitoring site at Baldhill you will need to;

- Run out the 50m measuring tape along the length of the transect.
- Write the date on the laminated site ID card, place so it will be seen in the photo.
- To show the general health of the local vegetation stand back and take the photo, Photos are taken facing the waste dump and facing away from the WEP.
- To indicate species diversity record the species within 2m- (1m either side) of the transect length, include any overhanging plants. Also record the measurement they were found along the transect.
- To indicate species abundance you will need to count and list the number of species in each quadrant.

7 WEBSITE REFERANCE SITES

- http://anpsa.org.au/index.html
- http://keys.trin.org.au:8080/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/index.html
- http://florabase.dec.wa.gov.au/

- http://www.weeds.org.au/

Appendix E Photo Monitoring Points

Site:	CYMS01	Location:	52 K 481754 7799547	Date:	9/09/2014

Site Description:	Located south of the evaporation ponds. Undisturbed vegetation, photographs taken looking south. Two termite mounds are present within the quadrat.
Vegetation Type:	Spinifex grassland with scattered, *Eucalyptus, Grevillea* and *Acacia* species growing on sandy soil. Some cryptogam development.
Plant Health:	All trees and shrubs appeared healthy, increased *Triodia* biomass.

Species: (* Botanist ID)	**Density (plants/quadrat)**	
	2013	**2014**
**Acacia ancistrocarpa*	13	9
**Acacia elachantha* (Glabrous Variant)	0	1
Corchorus sidoides	40	26
Eragrostis ?eriopoda	50	21
Eucalyptus brevifolia	1	1
**Triodia pungens*	60	82
**Triodia schinzii*	250	300

November 2013

September 2014

September 2014

Site:	CYMS02	**Location:**	52 K 482521 7799187	**Date:**	09/09/2014

Site Description:	Located south of the pits. Undisturbed Vegetation, photographed looking soulh. Sandy sedimentary soil. Burnt 28/09/2011. Ten termite mounds present.
Vegetation Type:	Spinifex grassland with scattered *Eucalypts Grevillia's* and *Acacias.*
Plant Health:	60% *Triodia*/Grass cover and 10% perennial woody species.

Species: (* Botanist ID)	**Density (plants/quadrat)**	
	2013	**2014**
**Acacia elachantha* (Glabrous Variant)	0	3
Corchorus sidoides	13	10
Eragrostis ?eriopoda	50	26
Grevillea wickhamii	1	1
Rhynchosia minima	3	3
Scaevola ?laciniata	13	12
**Triodia basedowii*	350	350~
**Triodia pungens*	55	78

November 2013

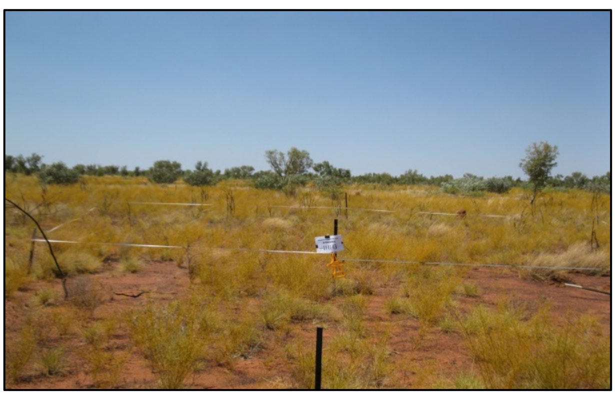
September 2014

September 2012

Site:	CYMS03	Location:	52 K 483278 7799640	Date:	12/09/2014

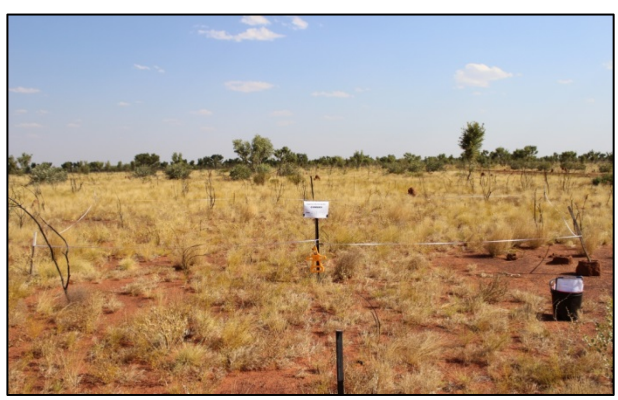
Site Description:	Located east of the mine site. Undisturbed vegetation. Photographed looking south. Sandy sedimentary soil, two termite mounds present, burnt 28/10/2011.
Vegetation Type:	Spinifex grassland with scattered *Eucalypts* and *Acacia's*
Plant Health:	Perennial plant cover 40%, most species in good health some of the grasses drying out. *Triodia schinzii* very green and sticky

Species: (* Botanist ID)	**Density (plants/quadrat)**	
	2013	**2014**
**Acacia stipuligera*	5	4
Mirbelia ?viminalis	150	100~
Mollugo ?molluginea	10	10
**Paraneurachne muelleri*	0	18
**Triodia basedowii*	6	10
**Triodia schinzii*	50	100~
Thyridolepis ?mitchelliana	41	8



November 2013

September 2014



September 2012

Site:	CYMS04	**Location:**	52 K 483348 7800520	**Date:**	10/09/2014

Site Description:	Located east of the processing plant. Undisturbed vegetation, Photographed looking south, Lateritic soil.
Vegetation Type:	Spinifex grassland with scattered *Eucalypt, Grevillea* and *Acacia* species.
Plant Health:	70% vegetation cover.

Species: (* Botanist ID)	**Density (plants/quadrat)**	
	2013	**2014**
**Acacia elachantha* (Glabrous Variant)	0	12
Eragrostis ?eriopoda	50	45
Grevillea wickhamii	1	1
**Triodia pungens*	10	53

November 2013

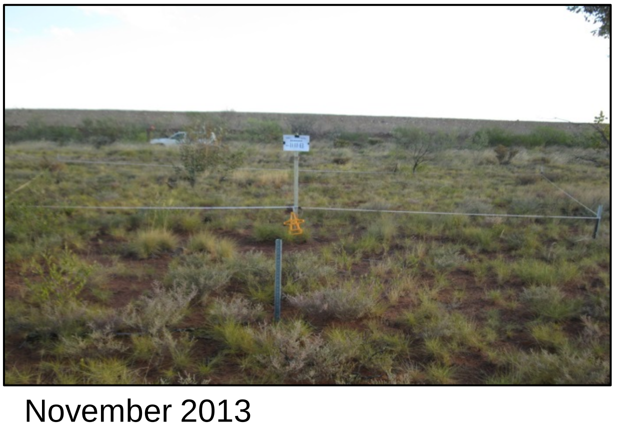
September 2014

September 2012

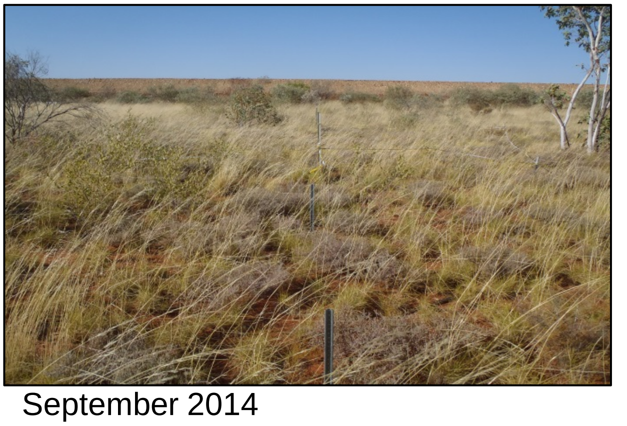
Site:	CYMS05	Location:	52 K 482699 7800811	Date:	12/09/2014

Site Description:	Located north of the Coyote mine site administration buildings. Undisturbed vegetation. Photographed looking south, sandy soil. Burnt 28/09/2011.
Vegetation Type:	Spinifex grassland with scattered *Eucalypt* and *Grevillea* species
Plant Health:	Spinifex and woody shrubs look healthy. The short lived perennial grasses are dying off post fire.

Species: (* Botanist ID)	**Density (plants/quadrat)**	
	2013	**2014**
**Acacia adoxa* var. *adoxa*	16	8
**Acacia stipuligera*	200~	142
Acacia ?tenuissima	2	3
Dampiera ?candicans	20	7
Hakea lorea	0	1
Halgania ?solanacea	25	20
Ptilotus calostachyus	3	4
**Triodia pungens*	11	50
**Triodia schinzii*	200~	350~



November 2013



September 2014

September 2012

Site:	KSMS01-Q1	Location:	52 K 486016 7834074	Date: 11/09/2014
Site:	KSMS01-Q2	Location:	52 K 486038 7834059	
Site:	KSMS01-Q3	Location:	52 K 486056 7834049	

Site Description:	Western Side of the WRL, vegetation growth is on red sand plain with laterite content. Becomes a drainage area in the wet. Three quadrats spread out over a 50m transect
Vegetation Type:	Open *Eucalyptus* and *Acacia* woodland over mature *Triodia* grassland.
Plant Health:	Vegetation all in good health, some historic woody plant deaths but nothing recent. *Triodia pungens* flowering.

Species: (* Botanist ID)	**Density (plants/quadrat)**		
	Quadrat 1	**Quadrat 2**	**Quadrat 3**
Acacia ?tenuissima	2		
**Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)*		1	
**Triodia pungens*	15	23	16

KSMS01-Q1

November 2013

September 2014

September 2012

KSMS01-Q2

September 2014

KSMS01-Q3

September 2014

Site:	KSMS02-Q1	Location:	52 K 486507 7833913	Date: 11/09/2014
Site:	KSMS02-Q2	Location:	Unable to locate	
Site:	KSMS02-Q3	Location:	52 K 486480 7833914	

Site Description:	East of waste dump, sand plain with high lateritic content. Forming a flood plain in the wet season. Eight termite mounds in Q1 and five in Q3.
Vegetation Type:	Triodia hummock grassland with scattered *Eucalypt* and *Acacia* species.
Plant Health:	*Triodia pungens* in good health and flowering, some historic dead woody shrubs.

Species: (* Botanist ID)	**Density (plants/quadrat)**		
	Quadrat 1	**Quadrat 2**	**Quadrat 3**
**Acacia adoxa* var. *adoxa*	3	[redacted]	0
Grevillia wickhamii	1	[redacted]	2
Corchorus ?sidoides	3	[redacted]	1
**Triodia pungens*	33	[redacted]	50

KSMS02-Q1

November 2013

September 2014

September 2012

KSMS02-Q3

September 2014

Site:	KSMS03-Q1	Location:	52 K 485787 7833411	Date: 11/09/2014
Site:	KSMS03-Q2	Location:	52 K 485794 7833436	
Site:	KSMS03-Q3	Location:	52 K 485802 7833452	

Site Description:	South of WRL, red sand plain with high laterite content.
Vegetation Type:	Open *Eucalyptus* woodland over *Triodia* hummock grassland.
Plant Health:	Healthy flowering *Triodia*, some dead woody plant material accumulation.

Species: (* Botanist ID)	**Density (plants/quadrat)**		
	Quadrat 1	**Quadrat 2**	**Quadrat 3**
**Acacia hilliana*	13	15	3
Dampiera ?candicans		1	
Eragrostis eriopoda	6	2	
Grevillea wickhamii		1	
Ptilotus calostachyus			2
Tephrosia ?uniovulata	2		1
**Tephrosia lasiochlaena*	2		
Triodia pungens	29	11	26

KSMS03-Q1

November 2013

September 2014

September 2012

KSMS03-Q2

September 2014

KSMS03-Q3

September 2014

Site:	KSMS04-Q1	Location:	52 K 484912 7834181	Date: 11/09/2014
Site:	KSMS04-Q2	Location:	52 K 484915 7834153	
Site:	KSMS04-Q3	Location:	52 K 484920 7834134	

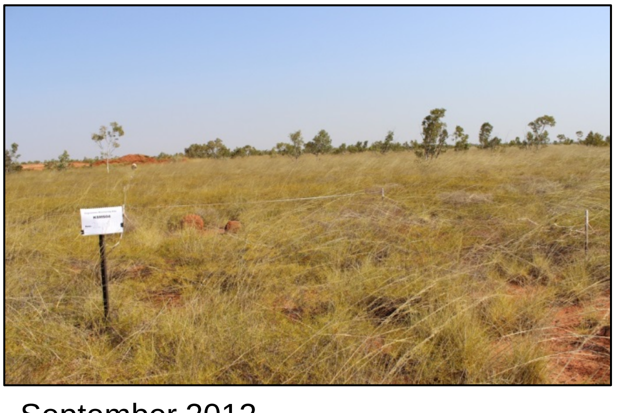
Site Description:	West side of WRL, red sand plain with laterite content and clay content over some small gravels.
Vegetation Type:	*Triodia* hummocks grassland with scattered *Eucalypt* and *Acacia* species.
Plant Health:	Most of the lower storey woody species were dead, some juveniles recovering. *Triodia pungens* only had small hummocks

Species: (* Botanist ID)	**Density (plants/quadrat)**		
	Quadrat 1	**Quadrat 2**	**Quadrat 3**
Acacia hilliana	15	3	3
Acacia adoxa var. adoxa		1	11
Dampiera ?candicans	1		4
Halgania solanacea			3
Triodia pungens	150~	15	20

KSMS04-Q1

November 2013

September 2014



September 2012

KSMS04-Q2

September 2014

KSMS04-Q3

September 2014

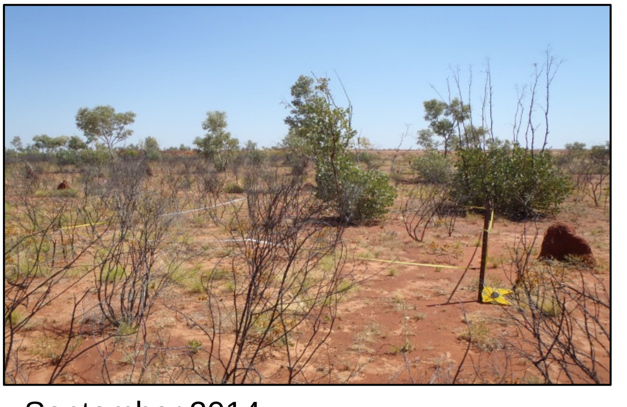
Site:	KSMS05-Q1	Location:	52 K 485103 7833773	Date: 11/09/2014
Site:	KSMS05-Q2	Location:	52 K 485096 7833793	
Site:	KSMS05-Q3	Location:	52 K 485090 7833811	

Site Description:	South of WRL, red sand plain with laterite and clay soils. Area likely to be a water catchment post wet season. Area burnt August 2013
Vegetation Type:	*Triodia* hummock grassland with scattered *Eucalypt* and *Acacia* species
Plant Health:	Recovering well post fire, lots of juvenile *Triodia ?pungens* and *Acacia hilliana*

Species: (* Botanist ID)	**Density (plants/quadrat)**		
	Quadrat 1	**Quadrat 2**	**Quadrat 3**
Acacia ?adsurgens		1	
**Acacia hilliana*	1	1	4
Eucalyptus brevifolia	1		
Grevillia wickhamii	2		
**Triodia pungens*	8	100~	33

KSMS05-Q1

November 2013



September 2014

September 2012

KSMS05-Q2

September 2014

KSMS05-Q3

September 2014