

1. Introduction

1.1 Overview

Vista Gold Australia Pty Ltd (Vista Gold) is proposing to develop the Mt Todd Gold Project (the Project) consisting of the re-establishment, operation, closure and rehabilitation of the Mt Todd Gold Mine.

The Mt Todd Gold Mine site is located approximately 55 kilometres (km) northwest of Katherine and 250km south of Darwin in the Northern Territory (Figure 1-1).

This Draft Environmental Impact Statement (EIS) has been prepared to support key Commonwealth and Territory Government approvals under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Northern Territory *Environmental Assessment Act 1982* (EA Act). The Draft EIS has been written to address the following broad criteria:

- ▶ address issues raised by government and community stakeholders;
- ▶ provide decision makers, stakeholders and the public with information on the Project;
- ▶ discuss the need for, and alternatives to, the Project;
- ▶ describe and assesses potential environmental, social and economic impacts of the Project;
- ▶ identify performance criteria, legislation and standards to be met; and
- ▶ provide management, monitoring and control measures to be implemented to mitigate potential adverse impacts of the Project.

The content of the Draft EIS reflects the Guidelines issued in 2011 by the then Department of Natural Resources, Environment, the Arts and Sport (NRETAS). More information about the environmental assessment and approval process is provided in Section 1.6.

1.2 Objectives

The objectives of this Draft EIS are to allow Vista Gold the opportunity to:

- ▶ anticipate the range of environmental and social impacts and issues that may arise in relation to the Project;
- ▶ plan, from the earliest stages of the Project, to incorporate appropriate mechanisms to avoid and minimise adverse impacts and maximise benefits for stakeholders;
- ▶ identify environmental and social issues associated with the Project, and discuss how these will be managed throughout the currently anticipated 19 year project life inclusive of construction, operation and closure;
- ▶ provide adequate information in a transparent and easily understood manner so that the full range of stakeholders have access to the information and can make submissions to decision makers in relation to the Project; and
- ▶ provide adequate information to allow a decision to be made on whether environmental and development approvals should be granted that would allow the Project to proceed.

1.3 The Proponent

The proponent for the Project is Vista Gold Australia Pty Ltd (Vista Gold). Vista Gold is a wholly owned subsidiary of Vista Gold Corporation. Vista Gold has been working with Vista Gold Corporation to determine the feasibility of the Mt Todd Gold Project.

Vista Gold Corporation is an international gold mining company with more than 25 years' experience in gold exploration, project development and operations. In addition to the Mt Todd Gold Project, Vista Gold Corporation has ventures in the United States, Mexico and Indonesia. Vista Gold Australia was established in 2006 to manage Vista Gold's interests in Australia, principally the Mt Todd Gold Project.

The Proponent contact details are:

Vista Gold Australia Pty Ltd
Level 3, Cavenagh House
43 Cavenagh Street, Darwin
GPO Box 3449
Darwin Northern Territory, 0801
Australia
T: +61 8 8941 9105
F: +61 8 8941 9108

Vista Gold purchased the rights to the Mt Todd property on 1 March 2006. Under the terms of an Agreement between Vista Gold and the Northern Territory Government (Agreement D92226), Vista Gold would initiate a comprehensive review of the Project to evaluate current site conditions and develop programs to stabilise the legacy facilities and minimise offsite migration of potential contaminants. Vista Gold was additionally required to examine all technical, economic and environmental issues, estimate the cost to rehabilitate the site, explore and evaluate the potential of the Project, and prepare a technical and economic feasibility study for the potential development and re-starting of operations of the Mt Todd Gold Mine site.

The agreement acknowledges the Northern Territory Government's commitment to rehabilitate the site and the fact that Vista Gold has no obligation for pre-existing conditions until the following is complete:

- ▶ completion of a Feasibility Study that provides sufficient economic returns that a "prudent man" would continue to invest;
- ▶ submission and approval of a Mine Management Plan for resumption of mining operations; and
- ▶ approval from the Vista Gold Board of Directors for commencement of the Project.

1.4 Project Overview

The Mt Todd Gold Mine site is a brownfield / disturbed site that has been previously mined for gold (see Section 1.5 for a history of the site). Mining infrastructure such as tailing dams, waste rock dumps and remains of processing facilities remain on site (Figure 1-2).

Mining will be by conventional open-pit truck and shovel methods, using large haul trucks, hydraulic shovels and front-end loaders to transport material to the crusher, stockpiles, Run of Mine (ROM) pad and waste dump. Approximately 17.8 million tonnes per annum (Mtpa) of ore will be processed in an

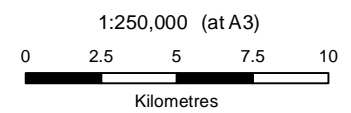
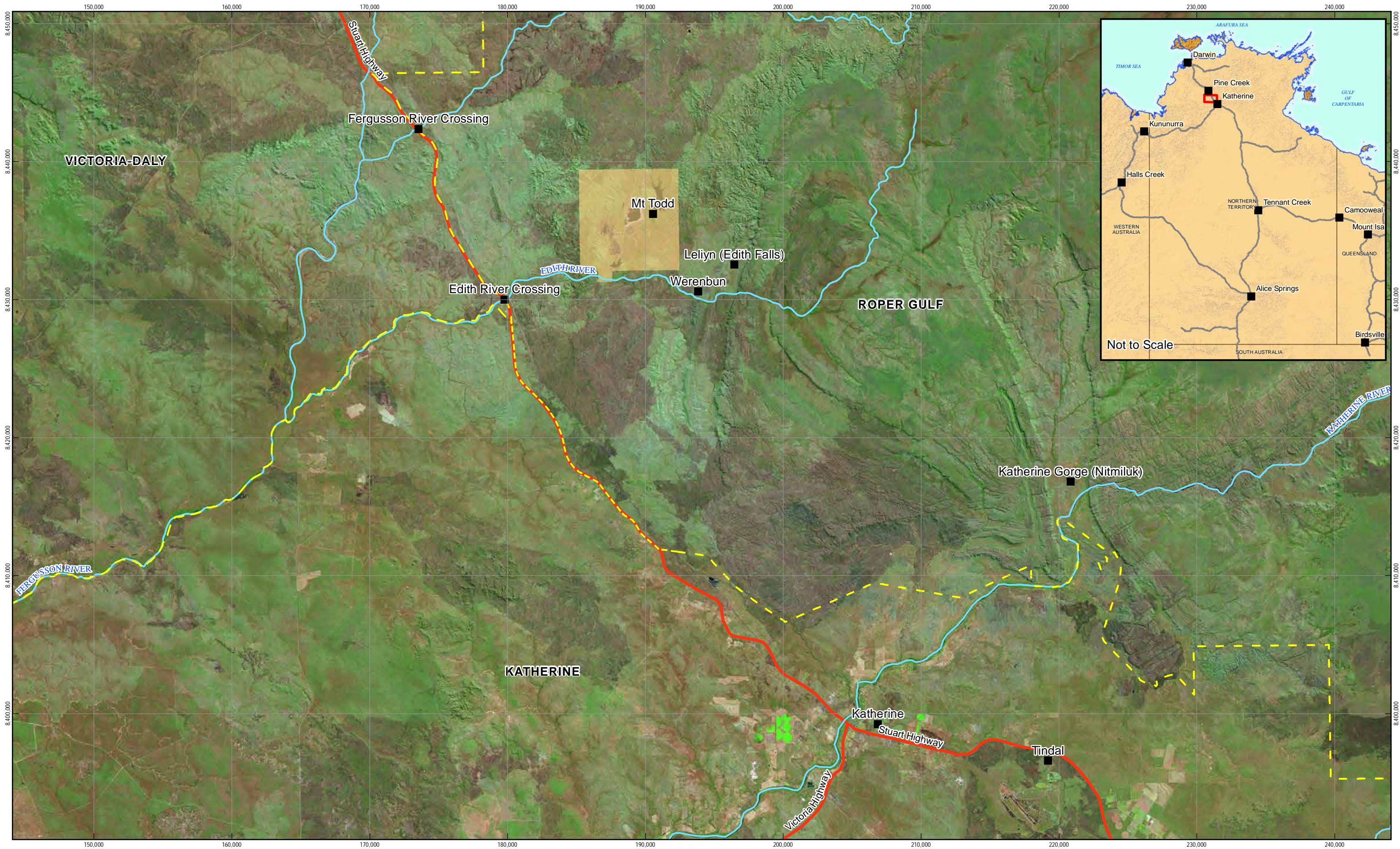
Ore Processing Plant. The tailings will be detoxified and sent to an impoundment from which plant process water will be recycled. Gold dore will be transported for onward secure shipment to a refinery.

Mining and associated operations will occur on Mineral Lease Number (MLN) 1070, MLN 1071 and MLN 1127, covering 5,365 hectares (ha) (Figure 1-3). A small portion of Exploration Lease (EL) 29886 will be inundated due to the raising of the raw water dam.

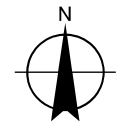
The key elements of the Project include:

- ▶ expansion and deepening of the existing Batman Pit;
- ▶ expansion of the existing waste rock dump (WRD);
- ▶ raising the existing tailings storage facility (TSF1) and construction of a new tailings storage facility (TSF2),
- ▶ reprocessing or rehabilitation of the existing heap leach pad (HLP);
- ▶ processing and / or reclamation of the existing low grade ore stockpile;
- ▶ establishment of clay borrow area(s);
- ▶ establishment of anaerobic treatment wetlands;
- ▶ raising of the existing raw water dam (RWD); and
- ▶ construction of new facilities including:
 - Ore Processing Plant;
 - water treatment plant (WTP);
 - gas fired power station;
 - new fuel infrastructure;
 - explosives and dangerous goods storage; and
 - administration and plant site buildings including workshops, offices, warehouses and support buildings.

The Project, based on current known data, will have a life of around 19 years inclusive of construction, operations and closure. Construction is anticipated to take two years. The mine is scheduled to operate for an additional 13 years, and closure and rehabilitation of the mine is expected to take four years.



Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Grid: Map Grid of Australia 1994, Zone 53



LEGEND	
■	Place Names
—	Major Roads
—	Rivers
- - -	LGA Boundaries
■	Mt Todd Mineral Leases



Vista Gold Australia Pty Ltd
 Mt Todd Gold Project

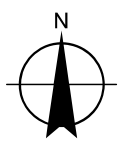
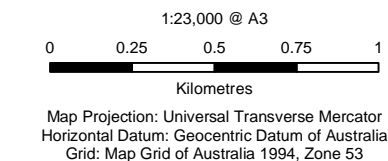
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Revision	1
Date	24 May 2013

Project Location

Figure 1-1



LEGEND
 — Access Roads

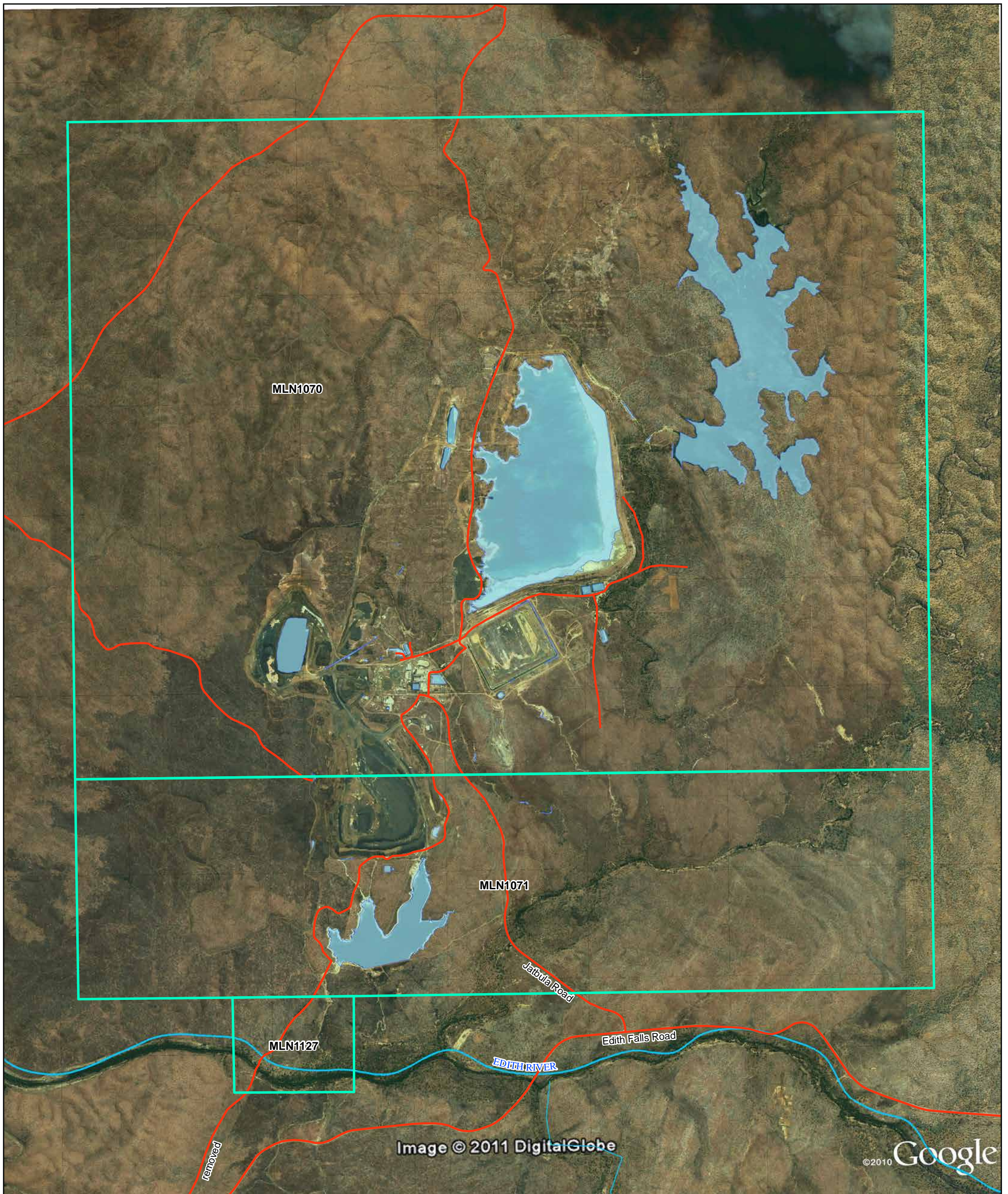


Vista Gold Australia Pty Ltd
 Mt Todd Gold Project




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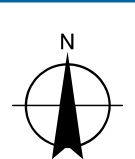
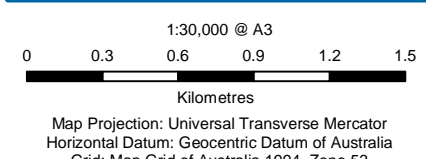
Existing Site Layout

Figure 1-2



LEGEND

 Access Roads	 Water bodies
 Waterways	 Mineral Lease Boundaries



Vista Gold Australia Pty Ltd
Mt Todd Gold Project

Job Number	43-21801
Revision	1
Date	17 Jun 2013

Mt Todd Mineral Leases

Figure 1-3

1.5 History of the Mt Todd Gold Project

1.5.1 Overview

Recent mining for gold at Mt Todd started in 1986, with a number of companies having operated the site since then. During the 1990s, an EIS was commissioned by Zapopan (NSR Environmental Consultants 1992), which resulted in Pegasus Gold Australia Pty Ltd operating the mine from 1993 to 1997. The project closed as a result of technical difficulties and deterioration of the market value for gold. In 1999 a joint venture comprising Multiplex Resources Pty Ltd and General Gold Resources Ltd bought the deeds to the mine and operated the mine until 2000. Mining infrastructure such as the RWD, TSF1, WRD, overhead electric power line, natural gas pipeline, and the remains of processing facilities were abandoned and remain on-site.

A Northern Territory Government managed care and maintenance program was adopted from 2000, and has been employed over the last 10 years. Vista Gold acquired concession rights in 2006. An overview of the site history is provided in Table 1-1.

Table 1-1 Mt Todd Gold Mine Site History

Dates	Details
Pre-1988	<p>Gold and tin were discovered in the Mt Todd area in 1889 and the majority of deposits were worked in the period from 1902 to 1914.</p> <p>Tungsten, molybdenum and bismuth were discovered at the Yinberrie Wolfram field in 1913, 5km west of Mt Todd and mined.</p> <p>Several companies undertook exploration for uranium and gold at and around the Mt Todd area from the 1950s onwards.</p>
1986	Pacific Gold Mines NL discovered Quigleys and Gold Reef and limited test mining was undertaken until 1987.
1988	Shell Company of Australia (Billiton) and Zapopan NL discovered the Mt Todd mineralisation (Batman deposit) and acquired Pacific Gold Mines NL Quigleys and Gold Reef interests.
1992	Zapopan acquired Shell Company of Australia's interest through shares within Pegasus Gold. Pegasus Gold Australia Pty Ltd acquired full ownership of Zapopan in 1995.
1992 – 1997	<p>Feasibility studies for Phase I, a heap leach operation which focused predominately on the oxide portion of the deposit, commenced during 1992. The Phase I project was predicated upon a 4 million tonnes per annum (Mtpa) heap leach pad designed to recover 90,000 ounces of gold per year on an annualised basis over a life of four years. This began in late 1993. The treatment rate was subsequently expanded to 6Mtpa in late 1994.</p> <p>Phase II involved expansion to 8Mtpa and treatment through a flotation and carbon in leach circuit. A June 1995 feasibility study indicated that treatment of transitional and primary ore from the Batman Pit would provide an eight year mine life and recover 2 million ounces of gold. The capital cost for Phase II was estimated at \$207.8 million.</p>

Dates	Details
	<p>The Pegasus board approved the project in August 1995 and commissioning commenced in November 1996. The final capital cost to complete the project was \$232 million.</p> <hr/> <p>Design capacity was never achieved due to inadequacies in the crushing circuit. An annualised throughput rate of just under 7Mtpa was achieved by mid-1997. Problems with the flotation circuit resulted in reduced recoveries and necessitated closure of the circuit. High reagent consumption caused by cyanide soluble copper minerals further hindered efforts to reach design production. Operating costs were above those predicted in the feasibility study.</p> <hr/> <p>The price of gold deteriorated from above \$400 an ounce in 1996 to below \$300 an ounce during 1997. The 1997 Pegasus Gold Annual Report reported that project economics were seriously affected by the slump. Underperformance of the project and higher operating costs led to the mine being closed and placed on care and maintenance in November 1997.</p>
1999 – 2000	<p>In February 1999, General Gold agreed to form a joint venture with Multiplex Resources and Pegasus Gold to own, operate and explore the mine. The venture appointed General Gold as the operator with operations occurring between March 1999 and July 2000.</p>
2000 – 2006	<p>Operations ceased in July 2000, with administrators appointed. Pegasus, through the Deed Administrators, regained possession of various parts of the mine assets in order to recoup the balance of the purchase price owed to it. Most of the equipment was sold in June 2001 and removed from the mine site. The TSF1, HLP and RWD remain.</p> <p>The Deed Administrators, Pegasus Gold, the Northern Territory Government and the Jawoyn Association Aboriginal Corporation (JAAC) held the property between July 2000 and March 2006.</p>
2006 - 2011	<p>Vista Gold purchased the rights to the Mt Todd property on 1 March 2006. The acquisition was completed on 16 June 2006. The agreement with the Northern Territory Government was for an initial five year term with an extension of five years at Vista Gold's option, and three additional years at the option of the Northern Territory Government.</p> <p>Under the terms of the Agreement between Vista Gold and the Northern Territory Government (Agreement D92226), Vista Gold would initiate a comprehensive review of the Project to evaluate current site conditions and develop programs to stabilise the legacy facilities to minimise the offsite migration of potential contaminants. Vista Gold was additionally required to examine all technical, economic and environmental issues, estimate the cost to rehabilitate the site, explore and evaluate the potential of the Project, and prepare a technical and economic feasibility study for the potential development and re-starting of operations of the Mt Todd Gold Mine site. Vista Gold was also to review the site water management plan and provide recommendations for improvement.</p> <hr/> <p>The agreement acknowledges the Northern Territory Government's commitment to rehabilitate the site and that Vista Gold has no obligation for pre-existing conditions until it completes a Feasibility Study that provides sufficient economic returns that a "prudent man" would continue to invest, submits and receives approval of a Mine Management Plan for resumption of mining operations, and receives approval from the Vista Gold Board of Directors for commencement of the Project.</p>

Dates	Details
	<p>Vista Gold undertook the required environmental reviews in 2006. Four reports were issued by MWH in late 2006 or early 2007 covering the topics of Environmental, Water Management, Closure Planning and the TSF.</p>
	<p>Vista Gold completed an initial NI 43-101 Compliant Technical Report on the Mt Todd Gold Mine on 26 June 2006. A Preliminary Economic Assessment report was completed on 29 December 2006.</p>
	<p>An update to the resource report was completed in May 2008 and again in February 2009 based on the results of additional drilling, sampling, assaying and testing during 2007 and 2008. An updated Preliminary Economic Assessment report was released on 11 June 2009.</p>
	<p>Vista Gold provided notice to the Northern Territory Government in June 2010 that it wished to extend the agreement. In November 2010 the Northern Territory Government acknowledged that Vista Gold had fulfilled its obligations for the initial term, and the agreement has been extended for five years until 31 December 2015.</p>
	<p>A Preliminary Feasibility Study (PFS) for the Mt Todd Gold Mine was issued on 1 October 2010. This was updated for a 10.65Mtpa ore mining rate on 28 January 2011.</p>
	<p>During 2011 a Notice of Intent was submitted to the Northern Territory Environment Protection Authority (NT EPA) (formerly NRETAS) and environmental studies commenced to support preparation of a Draft EIS.</p>
<p>2012</p>	<p>An updated PFS for the Mt Todd Gold Project commenced and studies for input to the Draft EIS continued.</p> <p>A new Waste Discharge Licence (WDL) was issued for the site.</p> <p>To remove water from the site to allow mining to commence water treatment options were trialled. In situ water treatment commenced in the second half of 2012.</p>
<p>2013</p>	<p>A revised PFS for the Mt Todd Gold Project was released in June 2013.</p> <p>In situ water treatment continued on site.</p>

1.5.2 Care and Maintenance Activities under Vista Gold since 2006

Vista Gold aims to maintain the Mt Todd site in a condition that is equal to or better than when it was purchased, and to ensure that the site maintenance activities do not result in detriment to the surrounding environment. All care and maintenance activities are detailed in, and performed under, a Department of Mines and Energy (DME) approved Care and Maintenance Mine Management Plan (MMP) for the site.

Current care and maintenance activities undertaken by Vista Gold include site management, infrastructure maintenance and environmental management as summarised in Table 1-2.

Table 1-2 Summary of Current Care and Maintenance Activities at Mt Todd

Management Areas / Activities	Frequency
Maintaining Site Security Ensure assets on-site remain safe and are not affect / interfered with by external parties	Daily
Assets Maintenance Maintain assets so they are fit for purpose	Monthly / as required
Access Management Maintain tracks and roads on-site so other care and maintenance activities can take place	Monthly / as required
Clean up Undertake housekeeping activities to ensure site and work areas are safe and accessible	Daily
Heap Leach Pad De-silting Undertaken de-silting activities to maintain capacity.	As required during Wet Season. Significant works annually
Ponds, Pipe and Valve inspection and or maintenance Ensure all water management assets are fit for purpose and able to cope with the required flows	Monthly
Health and Safety New staff and contractors undertake a site specific health and safety induction. Additional health and safety issues related to the operation under care and maintenance	As required
Soil and Land Management Protect site soils from erosion. Maintain diversion drains and roads. Undertake assessments of erosion and sediment on-site	Monthly inspections. Additional checks after significant rainfall
Water Management Actively monitor and manage the site water inventory to ensure protection of water holding structures and minimise discharge risks to the environment	Daily during the Wet Season. Monthly otherwise
Weed Management Maintain a pest and weed management program to minimise spread and / or reproduction	Monthly
Feral Animal Management Maintain a feral animal management program in union with the Jawoyn Association to manage feral animals across the mineral lease	Quarterly
Waste and Hazardous Substances Management Maintain facilities and actively monitor waste production and disposal. Monitor hazardous substances storage and maintain inventory of hydrocarbon storage.	Monthly and during deliveries

Management Areas / Activities	Frequency
<p>Fire Management</p> <p>Identification of potential fire risks, conducting managed burns across the mineral lease to protect assets.</p>	Weekly during the Dry Season
<p>Cultural Heritage Management</p> <p>Ensure all Aboriginal Areas Protection Authority Certificates are current. Education and marking of known heritage sites to avoid / minimise disturbance. Enforcing compliance of all onsite activities.</p>	As works require

1.5.3 Water Management Activities

Vista Gold has worked with the DME (previously the Department of Primary Industries, Fisheries and Mines and then the Department of Resources) to develop a Site Water Management Plan using the pumping and piping infrastructure that belongs to the Northern Territory Government. Water has been managed on-site in accordance with the approved Care and Maintenance MMP and a WDL.

The site contains several ponds that have acidic water high in dissolved metals. These ponds include the Batman Pit (RP3), the WRD pond (RP1), TSF1 (RP7), HLP and the low grade ore pond (RP2). Significant quantities of acid and metalliferous drainage (AMD) are also generated each year during the Wet Season from precipitation on ponds and exposed sulfidic rock stockpiles.

The challenge has been to minimise the volumes of uncontrolled contaminated water entering the receiving environment using the existing water management infrastructure. Since Vista Gold took over control of the site in 2006, the key component to the water management strategy has been controlled discharge of water from the site and storage of the excess volumes of water. This strategy has successfully minimised uncontrolled discharges, but has resulted in a net accumulation of onsite AMD waters to a level nearing capacity. In order to be able to resume mining activities, and to reduce the environmental risks associated with the increased inventory, Vista Gold has commenced a significant treatment and discharge strategy for onsite AMD waters.

In 2008 Vista Gold purchased and installed a water treatment plant consisting of a lime silo, slaker and mixing tank to treat water pumped from RP1. In 2011 Vista Gold advocated for an in-situ water management plan that would see the water treated directly in Batman Pit. Extensive testing in the first half of 2012 led to Northern Territory Government authorisations (the WDL) and funding commitments from Vista Gold for extensive water treatment in late 2012 and early 2013.

Vista Gold undertakes daily and weekly water pumping and monitoring activities according to detailed water discharge planning in order to control AMD waters onsite. This water management, in addition to the WDL, will improve the quality of diluted waters in the Edith River compared with previous years and still enable Vista Gold to release significant volumes of treated water from RP3 in future Wet Seasons.

1.6 The Environmental Impact Assessment Process

1.6.1 Previous Environmental Assessments

Preliminary Environmental Report 1989

Billiton Australia Gold Pty Ltd and Zapopan NL joint-venture completed a pre-feasibility study and a decision was made in 1988 to proceed with open pit mining of the Batman Deposit with ore treatment by carbon in leach processing. A Preliminary Environmental Report, in accordance with the requirements of both the *Mining Act 1980* and the EA Act, was submitted in 1989. The Preliminary Environmental Report (Kinhill Engineers 1989) discussed:

- ▶ terrestrial fauna;
- ▶ land use;
- ▶ wastes, emissions and rehabilitation; and
- ▶ safety.

Environmental Impact Statement 1992

Zapopan NL completed a feasibility study and a decision was made in 1992 to proceed with open pit mining and processing via heap leach and then a carbon-in-leach circuit.

An environmental assessment was conducted in accordance with the Environmental Assessment Act and the now superseded Commonwealth *Environmental Protection (impact of proposals) Act 1974*. An EIS was submitted in October 1992, and an Environmental Assessment Report and Recommendations were provided in January 1993.

Impacts and recommendations associated with the construction and operation of the Mt Todd mine site (NSR Environmental Consultants 1992) included:

- ▶ survival of the Gouldian finch;
- ▶ waste rock dump and acid mine drainage;
- ▶ tailings disposal and management;
- ▶ heap leach facility water management;
- ▶ rehabilitation and erosion management;
- ▶ mine water management;
- ▶ heritage conservation; and
- ▶ social issues.

1.6.2 The Current Impact Assessment Process

An overview of the Impact Assessment Process is provided in Figure 1-4.

Vista Gold submitted a referral under the EPBC Act to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) on 21 April 2011. The Commonwealth Minister for SEWPaC declared the action (Project) “a controlled action” (Appendix C) due to the potential

for the Project to have a significant impact on listed threatened species and communities (sections 18 and 18A) and listed migratory species (sections 20 and 20A).

The Project was referred by the former Northern Territory Department of Resources (now DME) on 21 April 2011 to NRETAS (now NT EPA) for environmental assessment. On 8 August 2011, the former Northern Territory Minister for Natural Resources, Environment and Heritage determined that the Project required formal assessment under the Environmental Assessment Act at the level of a Draft EIS and that the Project would be assessed under the then bilateral agreement (now accredited process) between the Northern Territory and Commonwealth Governments. On 29 September 2011 NRETAS (now NT EPA) issued Guidelines (NRETAS 2011) for the Project (Appendix B). This Draft EIS has been prepared in accordance with the Guidelines.

Once submitted to the NT EPA, the Draft EIS will be advertised for public comment and circulated to relevant government advisory bodies for review for a minimum of 28 days. Submitted comments will be forwarded by NT EPA to the proponent. The proponent will be required to prepare a Supplement to the Draft EIS addressing these comments. The Supplement will be submitted to the NT EPA and then circulated to government advisory bodies for review and comment within 14 days. During the first 21 days from the receipt of the Supplement, the NT EPA may call for further information from the proponent.

Assuming no further information is requested, an Assessment Report based on the Draft EIS and the Supplement is prepared by NT EPA for the Minister for Lands, Planning and Environment (the Minister) within 35 days of receiving the Supplement. The Minister provides an assessment report to the responsible Minister (in this case, the Minister for Mines and Energy), the proponent.

SEWPaC advised Vista Gold on 11 April 2013 that the bilateral process between the Commonwealth and Northern Territory Governments has been suspended. Instead of the Project being assessed under a bilateral approach, an accredited process will be applied under the EPBC Act. In effect, this is the same process as under a bilateral process. Following completion of the Northern Territory assessment process the Assessment Report is provided to the Commonwealth Minister for SEWPaC for determination under the EPBC Act.

Once SEWPaC have received the assessment report, the Commonwealth Minister for SEWPaC has 30 business days in which to make a decision on Matters of National Environmental Significance (MNES) pertaining to the Project (Chapter 22).

Once the Minister for Mines and Energy has notified DME of the determination, DME proceeds with the approval process under the Northern Territory *Mining Management Act 2001*.

This Draft EIS addresses the EIS guidelines and forms part of the application for environmental approval for the Project.

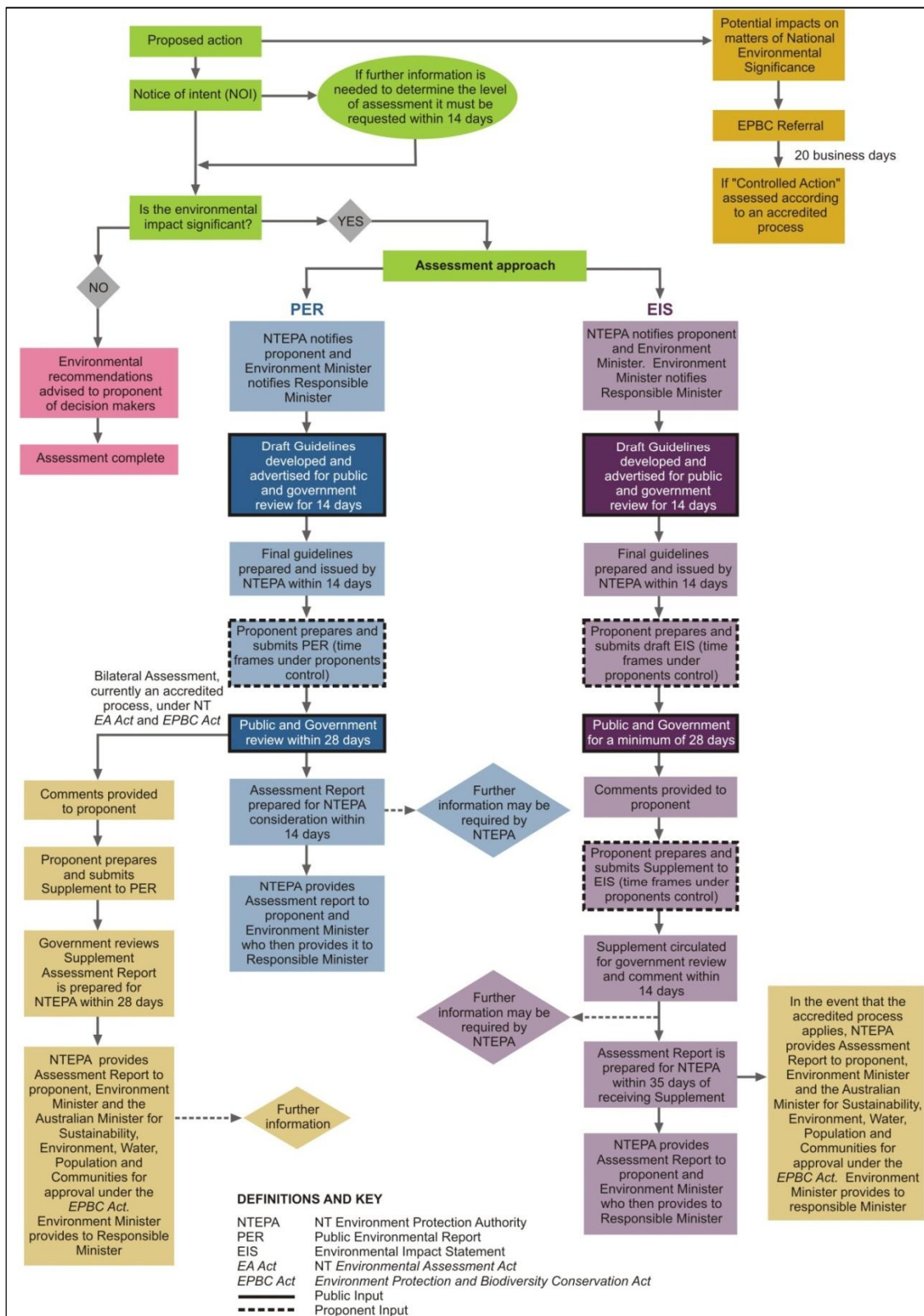


Figure 1-4 Impact Assessment Process (NT EPA 2013)

1.6.3 Key Issues

Key issues of concern raised by the NT EPA (formerly NRETAS) in determining that the Project should be assessed via a Draft EIS were:

- ▶ acid and metalliferous drainage (AMD) seepage and runoff from the waste rock dump, ore stockpiles and tailings storage facilities potentially contaminating surface and ground waters continuing long after the mine has ceased operation;
- ▶ potential contamination of surface water from AMD causing adverse impacts on downstream water quality, aquatic environment and downstream users;
- ▶ potential contamination of groundwater from AMD causing groundwater quality impacts outside of the Mineral Lease or release of contaminated groundwater expressing to surface water;
- ▶ potential groundwater drawdown impacts to groundwater flows in the Edith River and the potential to impact production bores in the region;
- ▶ management and treatment of a large quantity of acidic and metal laden water currently existing on the site;
- ▶ the proposed WRD covers an approximate area of 217ha with an estimated height of 350m. Final design of the WRD must ensure the structure is safe, stable, not prone to significant erosion, minimises AMD seepage and runoff and meets stakeholder expectations as a final land use structure;
- ▶ biodiversity impacts, including matters of environmental significance, associated with disturbance footprint of mining activities and infrastructure requirements;
- ▶ the challenges of successful mine closure and rehabilitation; and
- ▶ potential social, economic, transport and heritage impacts.

Appendix D provides a cross reference to where the issues raised in the Draft EIS Guidelines are addressed in the Draft EIS.